

G60/114

**MONASH UNIVERSITY**  
THESIS ACCEPTED IN SATISFACTION OF THE  
REQUIREMENTS FOR THE DEGREE OF  
DOCTOR OF PHILOSOPHY

ON..... 19 December 2001 .....

.....  
By Sec. Research Graduate School Committee

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## ERRATA

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p 2 para 3, line 2: "intensify" for "intensifies"

p 21 para 1, line 2: "CAEs" for "CAE's"

p 22 para 3, line 1: "1980s" for "1980's"

p 62 para 1, line 8: delete "by"

p 65 para 1, line 13: "buyers" for "buyer"

p 66 para 2, line 2: "have" for "has"

p 131 para 4, line 1: "The largest group of respondents (31 per cent)..." for "Most respondents (31 per cent)..."

p 131 para 4, line 2: "Respondents were also distributed across science (21 per cent), health sciences (21 per cent), business (16 per cent) and engineering/architecture (10 per cent) discipline areas" for "Science (including mathematics, computing) and health science disciplines were evenly represented across the sample (21 per cent respectively). Business and engineering/architecture disciplines attracted fewer numbers (16 and 10 per cent respectively)"

p 134 para 2, line 1: "The largest group of respondents (31 per cent)..." for "Most respondents (31 per cent)..."

p 145 para 4, line 3: delete "intervals"

p 159 para 5, line 2: "to lead from" for "to lend from"

p 193 para 1, line 1: "51 per cent" for "36 per cent"

p 193 para 2, line 4: "are measured" for "is measured"

p 193 para 2, last sentence: "46.3 per cent" for "27.4 per cent"

p 193 para 3, last sentence: "34.1 per cent" for "16 per cent"

p 197 para 3, last sentence: "56.1 per cent" for "50.1 per cent"

p 197 para 4, last sentence: "38.9 per cent" for "30.7 per cent"

p 198 para 1, last sentence: "37.3 per cent" for "23.5 per cent"

p 198 para 2, last sentence: "44.6 per cent" for "22.7 per cent"

p 201 para 2, last sentence: "59.2 per cent" for "42.5 per cent"

p 201 para 3, last sentence: "47 per cent" for "25.2 per cent"

p 202 para 1, last sentence: "45.8 per cent" for "24.5 per cent"

p 205 para 2, last sentence: "43.9 per cent" for "28.7 per cent"

p 205 para 3, last sentence: "52.2 per cent" for "27.6 per cent"

## ERRATA (continued)

- p 206 para 1, last sentence: "40 per cent" for "20.1 per cent"
- p 208 para 1, last sentence: "40.4 per cent" for "20 per cent"
- p 208 para 2, last sentence: "28.5 per cent" for "10 per cent"
- p 210 last sentence: "53.3 per cent" for "32.1 per cent"
- p 211 para 1, last sentence: "36.8 per cent" for "19.3 per cent"
- p 212 Table 7.7, Eigenvalues: "3.20 and 1.57" for "3.68 and 1.09"
- p 212 Table 7.7, Variance: "45.7 and 22.4" for "52.6 and 15.6"
- p 212 Table 7.7, Cumulative Variance: "45.7 and 68.1" for "52.6 and 68.2"
- p 214 para 2, last sentence: "56.5 per cent" for "39.5 per cent"
- p 214 last sentence: "53.1 per cent" for "42.9 per cent"
- p 281 para 3, line 2: "18 per cent" for "21 per cent"
- p 281 para 3, line 4: "39 per cent" for "48 per cent"
- p 281 para 4, line 2: "40 per cent" for "50 per cent"
- p 281 para 4, line 5: "35 per cent" for "38 per cent"
- p 285 Table 10.1, H7a: "no support" for "limited support"
- p 290 Hypothesis 7a: "no support" for "limited support"
- p 290 para 2, line 4: "no support" for "limited support"
- p 357 sub-title: "Reliabilities" for "Reliabilites"

## ADDENDUM

p 20 para 1, last sentence: delete "433,357 (94 per cent) students in higher education institutions were enrolled on a HECS liability basis and 25,647 (6 per cent) students were fee-paying (DETYA, 1999b:97)" and read "approximately 433,357 (94 per cent) of full-time equivalent students were enrolled on a HECS liability basis and 25,647 (6 per cent) of full-time students were fee-paying (DETYA, 1999b:96)"

p 78 Table 3.2, Renewable Resources: Comment: Category includes Agriculture, Forestry, and Veterinary Science.

p 168 para 2, first sentence: Comment: Although academics aged 60 or more years reported lower levels of role overload compared to all other age groups they did not report *significantly* lower levels of overload compared to academics less than 30 years of age (as indicated by Scheffé's post-hoc S test).

p 189 para 1: Comment: The purpose of the confirmatory factor analysis (CFA) was to assess the reliability and validity of survey measures. To assess how well observed variables (e.g. RA1, RA2 etc.) measure a latent variable (e.g. role ambiguity), factor loadings and squared multiple correlations are presented for each observed variable. In addition, the total percentage of latent variable variance explained by observed variables is reported. This method of presentation was chosen to provide an assessment of the fit of observed variables to the latent variables (i.e. measurement model, Ch 7) independently of assessing the fit among latent variables (i.e. structural model, Ch 9). It represents a two-step approach to structural equation modeling (see Anderson & Gerbing, 1988) and differs to the conventional SPSS method of presenting factor loadings for each factor.

p 193 line 2: Comment: Percentage of total variance explained in each factor was obtained by calculating the eigenvalue (i.e. the sum of squared factor loadings) and dividing the eigenvalue by the number of variables.

p 213 para 2: Comment: A two-factor solution is not suggesting commitment items reflect attitudinal (membership commitment) and behavioural (affective commitment) dimensions. Items are attitudinal in nature representing possible feelings that individual academics might have about the university for which they work. An attitudinal approach to scale development was the primary focus of the original scale developers (see Mowday et al., 1979:225-226). Two items indicative of 'commitment-related behaviours' were deleted in the survey pilot after academics indicated there was no choice activity involved (page 212). Little empirical support was found for the remaining behavioural item (see item 21b, Table 7.8, page 213).

p 315 para 1, line 10: Add full stop after "characteristics"

p 369: Add after Clarke, H. (1998):

"Coakes, S.J. & Steed, L.G. (1997). *SPSS analysis without anguish: Version 6.1 for IBM & Macintosh users*. Sydney: John Wiley & Sons."



**QUALITY OF WORK LIFE OF ACADEMICS IN  
AUSTRALIAN UNIVERSITIES**

by

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**BA (Hons), M.Bus (Curtin)**

**A thesis submitted in fulfilment of the requirements for the award of Doctor of  
Philosophy of Monash University.**

**Department of Management, Monash University.**

**September 2001.**

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## ABSTRACT

This study examines the quality of work life of representative samples of academics in eight Australian universities in order to address the problem of declining morale and motivation in higher education. Utilising qualitative and quantitative data, positive (motivating) and negative (demotivating) features of the academic work environment are highlighted. Significant differences in the responses of academics are identified by personal (age, gender) and professional (position, function, contract, qualifications, discipline, university service, higher education service, university type) demographic variables. Multiple regression analyses indicate positive (job attachment, professor and associate professor levels) and negative (role ambiguity, hierarchy of authority, associate lecturer and lecturer levels) predictors of academic motivation and commitment. Results of structural model comparisons suggest the immediate work environment (i.e., job challenge, task identity, supportive leadership) exerts a more powerful influence on the work attitudes of academics compared to organisation structure and external factors (i.e., changes to the higher education sector).

Quality of work life (QWL) in academe is viewed as a perceptual response to the prevailing work environment (i.e., role demands, job characteristics, supervisory style, organisation structure, sectoral changes) that induces high/low levels of job involvement (Kanungo, 1982a) and organisational commitment (Mowday, Porter, & Steers, 1982). Thus, university work environments that encourage (constrain) involvement and commitment at work provide evidence of high (low) levels of QWL. To examine QWL in academe, a self-administered mail survey (Academic Work Environment Survey) was designed, pre-tested (18 academics at various levels across four disciplines) and piloted in a comprehensive Australian university (Winter, Taylor, & Sarros, 2000). Between August and September 1998, surveys were administered to stratified samples (five positions, five disciplines) of academics ( $n=2,609$ ) in four types of university (sandstone, metropolitan, regional, university of technology). A total of 1,041 usable surveys were returned (effective response rate of 40 per cent).



Academics reported motivating work environment characteristics (i.e., role clarity, autonomy, job challenge, task identity, supervisory consideration, collegiate relationships), demotivating characteristics (i.e., role overload, low job feedback, low participation in decision making, trivial tasks, poor promotions and rewards practices) and moderate levels of job involvement and organisation commitment. Value conflict statements indicated academics felt market behaviour mechanisms and business-related principles were compromising the primary goals of teaching, learning and scholarship and exerting a strong negative effect on academic morale and productivity. Role overload and work attitude responses suggested a perceived violation in the 'psychological contract' between academics and their universities (work stress and poor recognition and rewards practices are cited as evidence of contract violation). The study concludes by discussing the types of university leadership and work structures needed to reduce value conflict in academe and build trust between academics and university managers.

**Keywords:** academics, universities, quality of work life, motivation, work environment, job involvement, organisational commitment, role stress.

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## DECLARATION

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other institution and affirms that to the best of my knowledge, the thesis contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

Signature

A solid black rectangular box used to redact the signature.

Date

24 September 2001

# CHAPTER ONE

## INTRODUCTION

### 1.1 Introduction

This chapter introduces the research problem of declining academic motivation and commitment within Australia's universities. The research problem is situated in the context of corporate reforms in higher education. The purpose, research questions, research design, conceptual framework and assumptions of the study are then outlined. Practical and theoretical contributions are identified as well as the study's limitations and delimitations. The chapter concludes with a thesis outline.

### 1.2 Research Context

Faced with increasing student numbers, decreasing government funding per student head and increased competition across the Unified National System, senior university managers in Australia adopted strong forms of executive control and corporate management principles and practices (Clarke, 1998; Crowley, 1998; Debats & Ward, 1998; Ellingsen, 1999a; Marginson, 1999; Winter, Taylor, & Sarros, 2000). Marginson (1999:7), examining the institutional governance of 17 of the 36 doctoral universities in Australia after a decade of corporate reform, reported:

University purpose and operations is now defined by strong forms of executive control, in which leader-managers take the role of strategic planners and re-engineers, guided by corporate-style institutional missions. Institutional reform emphasises flexibility in resource deployment, personnel and mission. Increasingly decisions are controlled not by legislative-style meetings but by plans, targets and formulae subject to executive control. The nature and extent of these moves varies by university.

Corporate reforms of universities represent a fundamental change in the way the university relates to its environment and functions. At the structural level, executive decision making has either supplemented existing hierarchies or supplanted collegial forms of governance (Marginson & Considine, 2000:4). In the search for discretionary and reliable forms of funding, Cooperative Research Centres (CRCs),

cross-discipline schools and various 'soft money' projects have been created and granted budgetary autonomy. Heads of departments aggressively develop procedures for generating revenues from faculty activity, including income from technology transfer activities and from faculty consulting (Slaughter & Leslie, 1997:20). At the same time, academic identities are "subordinated to the mission, marketing and strategic developments of the institution and its leaders" (Marginson & Considine, 2000:5). Hence, 'frame-breaking' (see Nadler & Tushman, 1989) structural and cultural changes have occurred within the university impacting on the centrality of academic autonomy, professionalism and collegial relations (Buchbinder, 1993; Neave, 1990) and cutting at the heart of traditional academic values (Ramsden, 1998a:22-29).

Successive Australian governments have accelerated the process of corporate reform in higher education by advocating change based on the primacy of the market and 'user-pays' for educational services. The argument for the extension and intensification of market competition has been supported by government reports, most notably the Learning for Life Report (DETYA, 1998b) which recommended allowing universities to set fees for all students. Consequently, universities have been pushed and pulled in the direction of competing in a quasi-market arena for more and more of their operating funds. To cushion the falls in government funding, universities engaged in academic capitalism (Slaughter & Leslie, 1997) and embraced the tenets and practices of managerialism (Clarke, 1998; Patience, 1999). Concomitantly, there has been a steady decline in the culture of the collegium and an increase in the corporate and enterprise cultures of Australian universities (Marginson & Considine, 2000:3-6; Ramsden, 1998a:32-34).

In the United Kingdom, corporate reforms have produced forms of university work organisation that intensifies academic workloads and diminishes the autonomy of professional academics (see Parker & Jary, 1995; Randle & Brady, 1997; Trowler, 1998; Willmott, 1995). Academics have reported increased workloads, time pressures, resource constraints and feeling overworked, stressed-out and demoralised (Doyle, 1998; Doyle & Hind, 1998; Irwin, 1996; Nixon, 1996; Randle & Brady, 1997). In Australia, individual academics report of dumbing-down in Australian

universities (Clarke, 1998; Crowley, 1998), academic megalomania (Crowley, 1999), and increasing academic demoralisation and value conflict given the displacement of academic culture by corporate culture (Ellingsen, 1999a; Gaita, 1998; Martin, 1999; Winter et al., 2000). A 1999 study (DETYA, 1999c:xiii) of the work roles and outlooks of academics (n=2,609) over a five-year period (1993 to 1998) reported "a major decline in a primary source of satisfaction for academics" (the opportunity to pursue their own academic interests), high levels of personal stress (55 per cent of the sample believed their hours had substantially increased over the last five years), and a general decline in job satisfaction (a drop from 67 per cent in 1993 to 51 per cent in 1998). However, the extent to which these negative experiences are due to the impact of corporate reforms is not altogether clear.

But not all academics are dispirited and/or demoralised in Australian universities. Slaughter and Leslie (1997:218), examining market-like behaviours on the part of universities and academics in Australia's research universities, highlight the "relatively rapid involvement of Australian academics with the market". In Australian Research Centres and Institutes, academics "are willing to invest a great deal of professional energy in winning financial awards so long as the resources secured allow them to maintain or even enhance their place in the status and prestige system and permit some degree of discretionary spending" (Slaughter & Leslie, 1997:18). The authors concluded that this type of commercial activity is going to increase in Australian universities with many academics buying themselves out of teaching and being well rewarded for initiatives that increase university income.

Corporate reform of the Australian higher education sector provides the background to this study. University management teams throughout Australia adopted virtually all of the major policy changes desired by Canberra over a short time frame, with relatively little dissent and also with little contribution from university staff (see, for instance Kennedy, 1996:144-155). This new academic environment which had been imposed on staff, was, as intended, considerably more managerial and entrepreneurial than before. This occurred at a time when there was a rapid rise in student enrolment numbers. Between 1989 and 1999, student numbers increased by over 50 per cent reflecting the shift to a mass higher education system (DETYA,

1999b:37). These two aspects of the reform process have, it is argued, exerted a major impact on the work attitudes and performance of academics in Australian universities.

### 1.3 Research Problem

According to Ramsden (1998c:361), "most academics today remain relatively contented with their work while being increasingly dispirited, demoralized and alienated from their organizations". Previous studies of the academic work environment in Australia support the contention that academics are intrinsically motivated by their disciplines and related teaching and research tasks (Lacy & Sheehan, 1997; McInnis, 1996), but extrinsically demotivated by work context factors such as structural arrangements and corporate management processes (Lacy & Sheehan, 1997; Lewis & Altbach, 1996; Mahony, 1996; Martin, 1999; Taylor, Gough, Bundrock, & Winter, 1998). Ramsden (1998c:361) argues that changing the perceived environment of Australian universities (i.e., poor morale and declining commitment) is "likely to produce disproportionately large results" in terms of institutional productivity and profitability.

Lacy and Sheehan (1997:321) also put forward a similar viewpoint stating that "if academic staff are to be encouraged to express higher levels of job satisfaction and lower levels of dissatisfaction, attention must be paid to the environment ['climate' or 'atmosphere'] in which they work". But which aspects of the work environment need to be changed (if at all) to encourage higher levels of academic motivation and performance within Australia's universities? Addressing this problem is the purpose of this study.

### 1.4 Purpose of the Study

The purpose of this study was to identify work environment characteristics that represented sources of high/low academic motivation and commitment in Australian universities. This purpose was achieved through the following research questions.

## 1.5 Research Questions

Five research questions guided the process of data collection and analysis:

1. What are the work environment perceptions and work attitudes of academics across the sample?
2. Which demographic variables account for significant differences in the work environment and work attitude responses of academics?
3. What is the underlying factor structure of survey measures? How well do observed indicator variables measure unobserved latent variables?
4. Which demographic variables and work environment characteristics represent significant work attitude predictors?
5. How do demographic variables and work environment characteristics relate to the work attitudes of academics? What is the strength and direction of this relationship?

## 1.6 Research Design

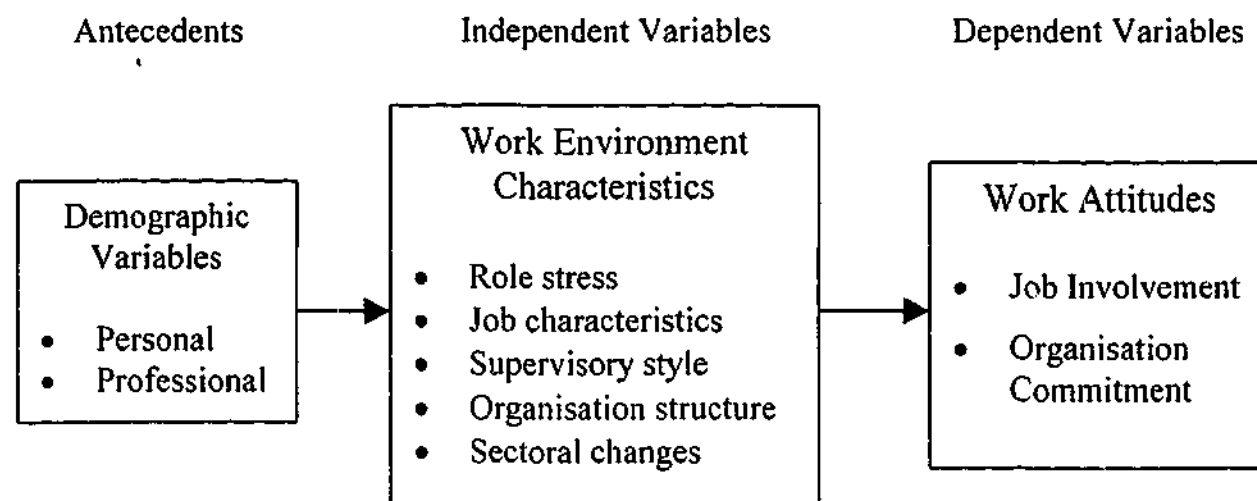
To examine work environment-work attitude relationships in academe, a correlational field study design was employed (Mitchell, 1985). Surveys were administered to stratified samples of academics in eight universities at a single point in time. Consequently, the study incorporated a sample survey cross-sectional research design (Oppenheim, 1992:21-37). Work environment-work attitude hypotheses and inferential statistical methods (correlation, multiple regression, structural equation modeling) were employed in order to address Research Questions Four and Five. Hypotheses were not formulated for descriptive and cross-sample analysis questions (Research Questions 1 and 2 respectively).

## 1.7 Conceptual Framework

This study focuses on the perceived work environment of academics to understand and explain academics' work attitudes (Balch & Blanck, 1989). Of primary interest is the psychological meaning academics attach to their work environments and the consequent work environment-work attitude relationship. To help conceptualise the



perceived work environment-work attitude relationship, a Quality of Academic Work Life (QAWL) conceptual framework is adopted (see Figure 1.1).



**Figure 1.1**

**Quality of Academic Work Life Conceptual Model**

### 1.7.1 Quality of Academic Work Life

Quality of Academic Work Life (QAWL) is conceptualised as a perceptual response to the prevailing work environment that induces high/low levels of job involvement (intrinsic motivation) and organisation commitment. From a social psychological perspective, academic perceptions “form the basis (i.e., frames of reference) for (but are conceptually different from) that person’s evaluations of (attitudes toward) the work environment” (Newman, 1977:521). Hence, academics express strong levels of work motivation (i.e., involvement and commitment) when the immediate work environment satisfies academic’s growth and professional autonomy needs (Kanungo, 1992; Lewis & Altbach, 1996; Meyer & Allen, 1997; Wu & Short, 1996), and when changes in the external environment (i.e., corporate reforms) are perceived favourably (i.e., minimal cognitive dissonance, see Harmon-Jones & Mills, 1999). In this positive mental state, the work environment is perceived as enriching and rewarding (i.e., a positive QAWL). Conversely, academics express weak levels of work motivation when the work environment inhibits growth needs (e.g., autonomy, skill development, job challenge), and when corporate reforms are perceived unfavourably (i.e., maximum cognitive dissonance). In this negative mental state, the

work environment is perceived as demotivating and unrewarding (i.e., a negative QAWL).

### **1.7.2 Demographic Variables**

Demographic variables refer to an academic's personal (age, gender) and professional (qualifications, position, hours, contract, university service, higher education service, function, discipline area, university type) characteristics.

### **1.7.3 Work Environment Characteristics**

In performing their daily teaching, research, and administrative roles, academics perceive a work environment that directly and indirectly shapes their experiences, attitudes and behaviours. The immediate work environment refers to the following fixed and broadly applicable set of dimensions (Denison, 1996:624):

1. Role stress characteristics (i.e., degree of role ambiguity, role conflict, role overload),
2. Job characteristics (i.e., degree of autonomy, job challenge, task identity, feedback),
3. Immediate supervisor's leadership style (i.e., degree of supervisory consideration), and
4. University's organisation structure (i.e., degree of centralisation and formalisation shaping work roles).

Previous research has established these work environment characteristics as psychologically meaningful and significant for most individuals across a range of occupational groups and organisational settings (Amabile, Conti, Coon, Lazenby, & Herron, 1996; Blau, 1987; Campbell, Dunnette, Lawler, & Weick, 1970; Hackman & Oldham, 1980; Hellriegel & Slocum, 1974; James & Sells, 1981; Jones & James, 1979; Oldham & Cummings, 1996; Payne & Pugh, 1976; Rizzo, House, & Lirtzman, 1970; Spector, 1986) including Australian academics (Lysons & Ryder, 1989; Mahony, 1996; Sarros, Gmelch, & Tanewski, 1997a, 1997b, 1998; Winter, Sarros, & Tanewski, 1998a; Winter et al., 2000; Wolverton, Gmelch, Wolverton, & Sarros, 1999).

Sectoral Characteristics include large-scale corporate reforms to the Australian higher education sector that exert both positive and negative effects on the quality of

academic work life. Corporate reforms included the end of the binary divide between colleges of advanced education and universities (Meek, 1991), the emergence of large, multi-campus institutions (Mahony, 1996), the rise of managerialism in academe (Crowley, 1999; DeBats & Ward, 1998; Winter et al., 2000), increased emphasis on academic entrepreneurialism (Marginson, 1999; Sarros et al., 1998; Slaughter & Leslie, 1997), and quality assurance and appraisal systems (McInnis, Powles, & Anwyl, 1995; Taylor et al., 1998).

#### **1.7.4 Work Attitudes**

In the QAWL Conceptual Model (see Figure 1.1), the work attitudes of job involvement and organisation commitment represent evaluative (emotive and behavioural) responses to the perceived work environment. Job involvement and organisation commitment are well-established indicators of an individual's motivation and commitment at work (Brown, 1996; Mayer & Schoorman, 1992; Vandenberg, Richardson, & Eastman, 1999). An academic involved in her/his job "implies a positive and relatively complete state of engagement of core aspects of the self in the job" (Brown, 1996:235). An academic expressing commitment to the university indicates a willingness to remain a member of that institution and to exert considerable effort on its behalf (Mowday, Steers, & Porter, 1979:226). Studies have shown that job involvement and organisation commitment are distinct constructs (Blau, 1987; Mathieu & Farr, 1991) and that respondents are able to distinguish between the degree to which they are attached to their jobs (involvement) and their employing organisation (Brooke, Russell, & Price, 1988:143).

### **1.8 Assumptions of Study**

This study is based on a number of assumptions. First, it assumes that academics' work environment perceptions account for a substantial part of the variability in each individual's work attitudes (Leigh, Lucas, & Woodman, 1988; Newman, 1974, 1975). This assumption is derived from the proposition advanced by Salancik (1977), and Salancik and Pfeffer (1978), that employees hold implicit causal theories about their work environment that partially determine their work attitudes and behaviours. To embrace these causal theories, the study relied on self-report data to assess the

meaning imputed to the work environment by the individual (Endler & Magnusson, 1976; James & James, 1989; Lewin, 1938, 1951).

Second, it assumes that academics' work environment perceptions have an important impact on each individual's intrinsic motivations and task performance (Ashforth & Mael, 1989; Garden, 1987; Jones & James, 1979). That is, the interpretations or cognitive meanings individual academics assign to their work environments result in higher-order beliefs and/or attitudes about the work situation (James & Sells, 1981; Newman, 1977). Furthermore, it is assumed these perceptual reactions are manifest in two broad work attitudes: job involvement and organisation commitment.

Third, it assumes that academics are to some degree intrinsically motivated by autonomy and personal development opportunities (i.e., they place value on self-expression in work and opportunities to acquire and practice learning skills), but are constrained by bureaucratic structural conditions and hierarchical forms of university governance that reduce academic autonomy and/or inhibit learning and skill development (Cassidy, 1998; Clarke, 1998; Lewis & Altbach, 1996; Marginson, 1999; Valentine, 1997; Winter et al., 2000). Conflict surfaces where incompatible structural arrangements and inherent role tensions reveal the divergent values, interests, and goals of administrators and academic staff (Bacharach, Bamberger, & Conley, 1991; Blackburn & Lawrence, 1995; Lachman & Aranya, 1986; Lewis & Altbach, 1996; Nixon, 1996; Randle & Brady, 1997). Incongruent expectations between perceived and designated roles are assumed to be psychologically uncomfortable for academics and induce negative emotional reactions because they diminish perceived effectiveness on the job (Schaubroeck, Cotton, & Jennings, 1989). As a consequence of perceived 'professional-managerialist conflict' (Randle & Brady, 1997:232) academics express low levels of job involvement and organisation commitment (Blackburn & Lawrence, 1995; Currie, 1996; Lewis & Altbach, 1996; Winter et al., 2000).

Fourth, QAWL is assumed to be higher in traditional sandstone universities (e.g., Sydney, University of New South Wales) compared to less resource rich regional universities (e.g., University of New England), metropolitan universities (e.g.,

Flinders University of South Australia) and universities of technology (Queensland University of Technology). Sandstone universities have strong positional status, and by tradition, claimed leadership in research, the academic disciplines, and professional training (Marginson, 1997). Income from fee-paying students and large alumni has also strengthened the positional status of sandstones across the Unified National Sector.

## 1.9 Delimitations of Study

In this study, academic staff refers to full-time Equivalent (FTE) and fractional full-time academic staff, engaged in teaching and/or research, at position levels A to E (i.e., Associate Lecturer to Professor) in Australia's 36 publicly-funded universities that form part of the Unified National Sector. Casual staff, part-time staff, research assistant, research fellow, and non-academic/administrative positions are excluded from this definition. As at 31 March 1998, the numbers of academic staff that fit this definition was 30,148, approximately 43 per cent of all full-time and fractional full-time higher education staff (DETYA, 1998a:4). The distribution of academic staff by position was as follows: Associate Lecturer (5,747; 19 per cent of total), Lecturer (10,558; 35 per cent); Senior Lecturer (7,629; 25 per cent), and Associate Professor/Professor (6,213; 21 per cent). Male staff accounted for a disproportionately high share (66 per cent) of FTE academic staff (DETYA, 1998a:4-6).

The study focuses on the immediate work environment to understand the quality of academic work life (QAWL). Academic conditions of work generally associated with affecting academic recruitment and retention (i.e., salaries, promotion opportunities, status, workloads, research facilities, teaching/research responsibilities, job security and tenure) are not the major foci of this study (Miller, 1995:163). Non-work determinants of QAWL (e.g., family, home, community), job hygiene factors (i.e., salary, award conditions) and general personality traits (e.g., locus of control, work ethic, self-esteem) are also excluded from this study since these factors lie outside university management's power to directly change and/or control. These factors are

also excluded because of questionnaire completion time and response rate considerations.

In modeling a relatively large number of hypothesised person-environment-attitude relationships, the study does not directly measure the consequences of reported attitudes and behaviours (e.g., turnover, job performance). However, inferences and implications for organisational performance will be made in the conclusion section of the study where data reveals an inferential basis for academic attitude-organisation performance linkages.

### **1.10 Limitations of Study**

A major limitation of this study is its cross-sectional research design. The sample survey only provides a description of academic work perceptions and attitudes at one point in time. It cannot track changes in perceptions or attitudes over time since it is not longitudinal. Hence the study is limited by time. The study is also limited by its reliance on one data source: the self-reports of academics. Hence, findings are susceptible to the problem of common methods variance and possible inflated cause-effect relationships (Doty & Glick, 1998).

By not incorporating additional samples of academics for cross-validation purposes, the study cannot prove work environment-work attitude relationships exist for other groups of academics. At best, the study can make work environment-work attitude predictions based on: (1) hypothesised causal relations, and (2) the reliability and validity of self-reports of independent samples of academics at one point in time.

### **1.11 Practical and Theoretical Contributions**

#### **1.11.1 Practical Contributions**

By modeling a large number of person-environment-attitude relationships, the study ascertains how the work environment impacts the work attitudes of Australian academics. Work diagnostic studies of this nature are rare in higher education. The most recent government review of the higher education sector, the Learning for Life

(DETYA, 1998c) report, had no terms of reference relating to the concerns or motivations of academic staff.

The study provides various stakeholder groups in higher education the data to support work redesign in universities. By testing alternative models, the study indicates the relative importance of role, job, supervisor, structural, and sectoral characteristics to academic motivation and commitment at work. Universities, as professional public service organisations, rely on high levels of job involvement and organisation commitment to facilitate the effective and efficient provision of personal and labour intensive services to the community (Balfour, & Wechsler, 1991; Glisson & Durick, 1988; Mayer & Schoorman, 1992). Hence, university managers and leaders need to know exactly what factors in the work environment are encouraging and/or constraining academic motivation at work.

### **1.11.2 Theoretical Contributions**

The study makes a theoretical contribution to the organisational behaviour and work design literature by specifying and testing the applicability of various work environment models for predicting job involvement and organisation commitment in an academic work context (Oldham & Cummings, 1996; Vandenberg et al., 1999). Prior research has yet to understand the work environment- work attitude relationship in academe. In fact, much of the literature on academic work is popular, professional and reflective rather than analytical and empirical (Blaxter, Hughes, & Tight, 1998a). Hence, by analysing the work environment experiences of academics, this study will contribute to the evolving academic work literature.

Previous research has not established the importance of job/structural characteristics, supervisory behaviours, and role perceptions to job involvement (Blau, 1985; Brown, 1996; Emmert & Taher, 1992; Spector, 1986) and organisation commitment (Balfour & Wechsler, 1991; Glisson & Durick, 1988; Morris & Steers, 1980) in public service organisations. According to Brown's (1996:253) review of organisational research on the antecedents and consequences of job involvement, resolving such gaps in the literature can "enrich a fundamental aspect of human experience (i.e., work) and contribute to heightened productivity in organizations and society by

fostering greater use of human potential". By modeling a relatively large number of work environment work attitude relationships, this study will contribute to the evolving theoretical framework that relates job involvement and organisation commitment to its antecedents.

## 1.12 Summary

This study focuses on the perceived work environment of academics to understand and explain their work attitudes and behaviours. Corporate reforms in higher education provide a background to the research problem of declining academic morale and motivation within Australia's universities.

To address this problem, the study's research questions, research design and conceptual framework are outlined. A Quality of Academic Work Life Model (see Figure 1.1) conceptualises quality of academic work life (QAWL) as a perceptual response to the immediate work environment (independent variables) that induces high/low levels of intrinsic motivation and commitment at work (dependent variables). Substantive assumptions, on which the QAWL Model rests, are provided along with the delimitations and limitations of the study. Practical and theoretical contributions are also identified to assess the importance of the study.

## 1.13 Thesis Outline

**Chapter Two** provides a review of the related literature. A three-level change framework situates the work attitudes of academics (individual level) within the context of changes to university work organisation (organisational level) and changes to the higher education sector (national-structural level). On the basis of an explication of relationships between each change level, a QAWL Conceptual Model is presented and work environment-work attitude hypotheses formulated.

**Chapter Three** describes a survey research methodology for the study. The research design, research methods and sampling methodology of the study are first described. The process of survey design, development and validation is then documented. Next, survey measures are described. The steps carried out to collect, prepare and analyse



quantitative and qualitative survey data are then outlined. The chapter concludes by highlighting some methodological limitations.

**Chapter Four** describes the personal and professional characteristics of respondents. Respondents' sample characteristics are compared to the 1998 full-time academic higher education population. Cross-tabulation tables and chi-square statistics highlight bivariate relationships across the sample.

**Chapter Five** describes the work environment perceptions and work attitudes of academic respondents (Research Question 1). Descriptive statistics highlight positive (motivating) and negative (demotivating) work environment characteristics and indicate the strength of work attitudes. Qualitative comments reveal the values, attitudes, and frames of reference of respondents.

**Chapter Six** presents bivariate analysis results. Bivariate tables compare mean scores by personal and professional demographic variables. One-way analyses of variance (ANOVA), *t*-test statistics and Scheffé's post-hoc *S* test indicate differences in mean scores at specified levels of significance (Research Question 2).

**Chapter Seven** assesses the dimensionality and goodness of fit of survey measures (Research Question 3). To demonstrate measurement validity, confirmatory factor analyses (maximum-likelihood estimates) are reported for each work environment and work attitude measurement model. Standardised factor co-efficients and squared multiple correlations indicate the dimensionality of observed variables. Goodness of fit indices indicate the relative fit of measurement models. To conclude, a correlation matrix identifies factor reliabilities and illustrates the strength of relationships among and between factors.

**Chapter Eight** presents multiple regression analysis results. Hierarchical regression results (co-efficient of multiple determination, *F*-statistic, probabilities) identify significant predictors of job involvement and organisation commitment (Research Question 4).

**Chapter Nine** presents structural equation models to examine how demographic variables and work environment characteristics relate to the work attitudes of academics (Research Question 5). Model specification begins with work attitudes and demographic models; work environment (role, job, supervisor, structure, sector) models then follow. Goodness of fit indices offered by AMOS Version 4.0 software (Arbuckle & Wothke, 1999) are employed to assess the relative fit of hypothesised models. Standardised path estimates (regression co-efficients) illustrate the magnitude and direction of variable relationships in the structural model.

**Chapter Ten** presents a summary and discussion of the main findings of the study. The main purpose of the discussion is to explain the work environment and work attitude responses of academics. Various models, integrative concepts and findings from other research studies are utilised to: (1) situate academic responses to corporate reforms and work intensification, (2) reveal differences in responses by academic position, and (3) explain weak and strong work environment-work attitude relationships. Conclusions identify positive and negative QAWL characteristics. Implications for research and practice are highlighted. The chapter concludes by recommending work redesign strategies in Australian universities designed to increase academic motivation and university effectiveness.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

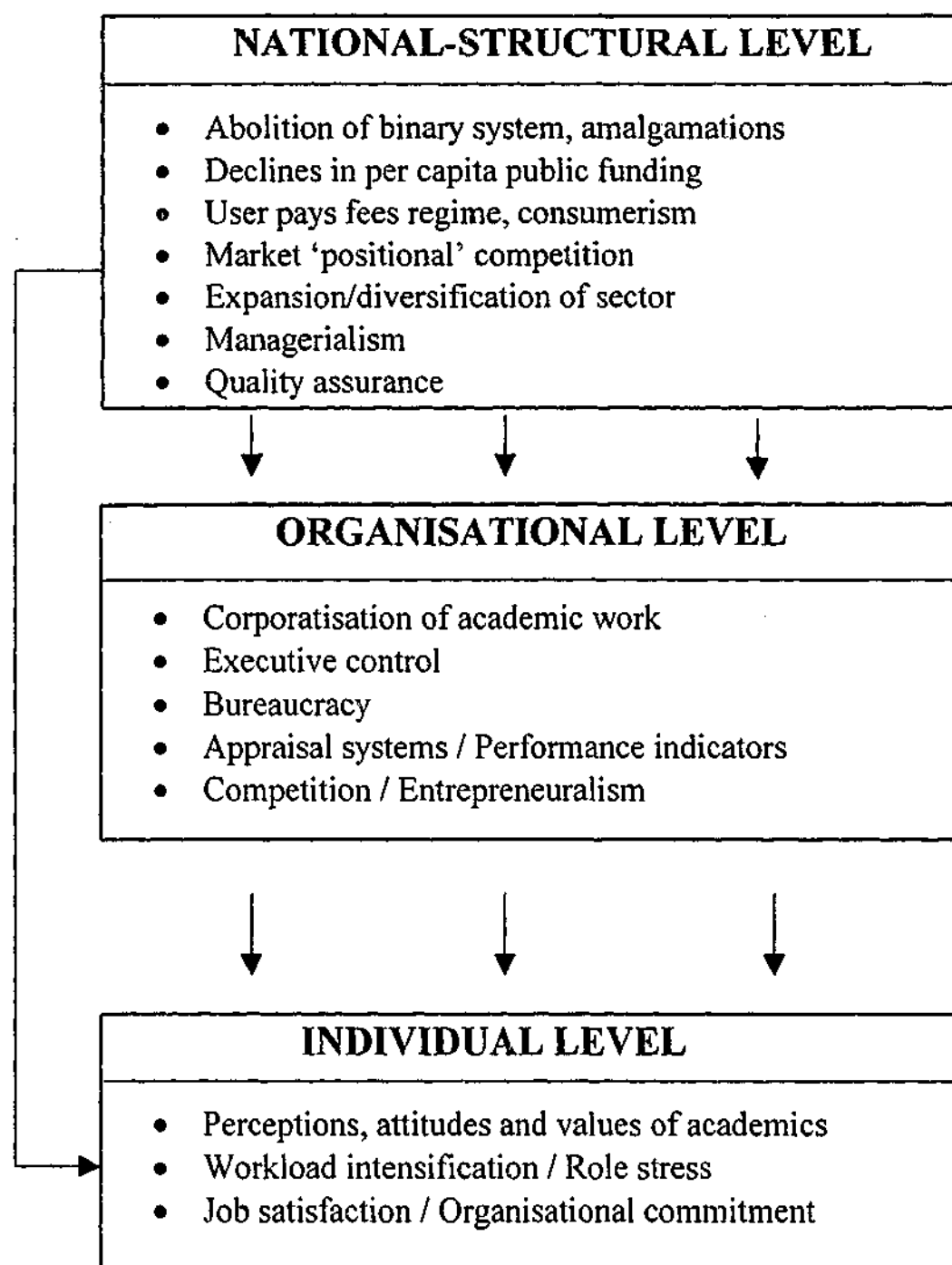
This chapter discusses the changing nature of academic work in universities. To discuss the changing nature of academic work, a three-level change framework is presented that situates academics' work attitudes (individual level) within the context of higher education sector changes (national-structural level) and changes to university organisation (organisational level). Linkages are made across all three levels to illustrate how higher education reforms have impacted on the quality of academic work life (QAWL). On the basis of this discussion, a QAWL Conceptual Model is presented and work environment-work attitude hypotheses formulated.

This chapter includes the following four sections: (1) Three-Level Change Framework, (2) Quality of Work Life, (3) Hypotheses, and (4) Summary.

#### 2.2 Three-Level Change Framework

On the basis of prior research by Clark (1983) and Becher and Kogan (1992), Parker and Jary (1995) present a three-layer change framework for discussing changes to the higher education sector in the United Kingdom. They argue that changes in the political, institutional and funding environment (national-structural level) have produced forms of corporate work organisation (organisational level) that increased the power of university management and diminished the autonomy and motivation of professional academics (individual level). The Three-Level Change Framework (see Figure 2.1) illustrates these three inter-related levels of change.

To examine if similar changes have occurred in the context of the Australian higher education sector, the preceding discussion will examine changes to academic work at the National-Structural, Organisational and Individual levels.



**Figure 2.1**  
**Three-Level Change Framework (Adapted from Parker & Jary, 1995:320)**

At the *National-Structural Level*, key policy and structural changes are referred to which form general constraints on all Australian universities. Key sectoral reforms discussed include the abolition of the so-called binary system which transformed the tertiary higher education sector from an elitist (binary) system to a mass (unitary) higher education system (Meek, 1991, 1995). This comprehensive reform process signalled a decline in per capita sector funding, the legitimisation of a 'user-pays' fees regime (Marginson, 1997; Robinson, 1996a), the emergence of large, comprehensive institutions (Marginson, 1999; Winter, Taylor, & Sarros, 2000), and

an increased emphasis on institutional efficiency (Hambly, 1997; Marginson, 1997). Accompanying the reform process was a managerialist ethos based on executive control, the primacy of the market and the effectiveness of private sector business practices such as strategic planning, performance appraisal, and quality assurance processes. Studies of academic work report corporate reforms have transformed university structures and exerted a major impact on individual academic's work roles, motivation and performance (Currie, 1996; Mahony, 1996; Martin, 1999; Taylor, Gough, Bundrock, & Winter, 1998; Winter et al., 2000).

At the *Organisational Level*, the discussion centres on the increasing corporatisation of academic work and, in turn, the de-professionalisation or de-skilling of the academic labour process (Willmott, 1995; Wilson, 1991). Corporate reforms of universities are defined in the context of "strong forms of executive control, in which leader-managers take the role of strategic planners and re-engineers, guided by corporate-style institutional missions" (Marginson, 1999:7). Executive leadership, strategic plans, hierarchies of authority, entrepreneurialism, institutional and academic performance indicators, modular teaching and quality assurance objectives are cited as prominent corporate characteristics of universities (Cassidy, 1998; DeBats & Ward, 1998; Marginson, 1999; Randle & Brady, 1997).

The *Individual Level* focuses on the work attitudes, values and motivations of academics themselves. Here the focus shifts to the psychological meaning that academics attach to corporate forms of work organisation in their institutions. Studies are referred to that highlight the rise of managerialism in academe (Randle & Brady, 1997; Winter et al., 2000) and the intensification of academic workloads (Currie, 1996; Taylor et al., 1998). Studies of academics' work related attitudes are also featured (Everett & Entekin, 1994; Lacy & Sheehan, 1997; McInnis, 1996).

The Three-Level Change Framework (see Figure 2.1) presents artificial change divisions since it is purely an analytical ordering tool (Parker & Jary, 1995:320). In practice, the higher education sector, university structures and academic subjectivity are mutually constitutive and inter-connected. For example, as governments attempt to change the funding-mix of universities away from public to private sources of

funds and managers react by marketing and positioning their institutions externally and internally, so do academics and their managers begin to view the university in a market-driven way. It is this reorientation in university focus that underpins the changing roles of academics and the psychological meaning that academics attach to their work activities. Academics who perceive market-driven university policies favourably should, *ceteris paribus*, exhibit strong levels of job motivation and commitment to their universities since cognitively their attitudes and behaviours are in alignment with the institution's strategic direction (i.e., minimal cognitive dissonance, see Harmon-Jones & Mills, 1999). Conversely, academics who perceive university corporatisation unfavourably should exhibit low levels of job motivation and organisational commitment since their attitudes and behaviours do not fit the institution's broad strategic direction. Each change level will now be explored in more detail.

### 2.2.1 National Structural Level

Corporate reforms in higher education have taken place in response to the emergence of global markets. Under conditions of globalisation, the state has become less powerful as capital moves easily across national borders to seek the highest rates of return. To not risk disrupting capital flows, governments worldwide embraced 'free market' neo-conservative policies aimed at reducing public services (in the belief that excessive public sector spending 'crowds out' more efficient private sector investment), and deregulated their financial and labour markets (in the belief that privatisation is the engine of economic efficiency). A reduction in public sector expenditures, accompanied by large increases in student numbers, translated in less higher education funds from government in constant dollars per student terms (Slaughter & Leslie, 1997:209). This block grant funding constraint precipitated campus reactions of a 'resource dependence' (Pfeffer & Salanick, 1978) nature leading institutions and staff to engage in 'academic capitalism' (Slaughter & Leslie, 1997:8) and to compete vigorously for external funds. Academic capitalism in universities was promoted by a managerialist ideology that values competition, individualism, managerial prerogative and labour market flexibility (Slaughter & Leslie, 1997; Terry, 1995; Tipples & Krivokapic-Skoko, 1996).

The Enterprise University emerged in Australia (see Marginson & Considine, 2000) in the context of reduced government funding and sustained increases in student numbers (particularly from overseas fee-paying students). Between 1987 and 1998, "the government share of funding of higher education fell from 85 to 55 per cent" (Marginson & Considine, 2000:57). In 1998, the Commonwealth Government provided just over half (51 per cent) of the higher education sector's total operating revenue of \$8.5 billion (DETYA, 1999a:6). Government funding of university revenues is estimated to fall to 48 per cent as revenue from the Higher Education Contribution Scheme (HECS) and fee-paying students rises (Richardson & Illing, 1998:16). Student contributions (HECS, full-fees) in 1998 accounted for approximately 30 per cent of operating revenue. In 1999, 433,357 (94 per cent) students in higher education institutions were enrolled on a HECS liability basis and 25,647 (6 per cent) students were fee-paying (DETYA, 1999b:97).

To cushion the falls in government funding, revenue from overseas and non-overseas students has steadily increased over the past decade. Between 1989 and 1999, numbers of fee-paying overseas students increased by 35,000 (DETYA, 1999b:42). Over the same period, there was a 60,000 increase in non-overseas students. In 1999, approximately 686,200 students were enrolled in Australian publicly funded universities of which 276,300 were commencing students. A decade earlier in 1989, there were 441,000 students enrolled of which 181,000 were commencing students (DETYA, 1999b:37). Between 1989 and 1999, student numbers increased by over 50 per cent reflecting the move to a mass higher education sector.

#### 2.2.1.1 Dawkin Reforms

Corporate reform of Australian universities has its roots in the Commonwealth Ministry of John Dawkins (1987-1992). As Labor Government Minister of the Commonwealth Department of Employment Education and Training (DEET), Dawkins initiated a comprehensive reform process that transformed the tertiary higher education sector from an elitist (binary) system to a mass (unitary) higher education system. Between 1988 and 1994, 19 universities and 44 colleges became 36 universities through an extended process of amalgamation (Aitkin, 1997:46). The

abolition of the so-called binary system, which distinguished between Universities and Colleges of Advanced Education (CAE's) with respect to roles and funding, meant that all institutions were designated comprehensive doctoral universities offering teaching and research programs across a full range of discipline areas. The reforms, according to Dawkins, "achieved much of their intended purpose" since the new Unified National System allowed for:

... the broadening of academic profile, partly through amalgamation, the opportunity to develop campuses closer to where the students lived, an ability to extend its research and consultancy base, and an opportunity to attract more international students (Osmond, 1997:6).

The Dawkins reforms of 1987/88, documented by Meek (1991) and Marginson (1997), transformed the previous binary system into a highly segmented 'positional' market in which institutions actively compete with each other for government funded places and overseas full fee-paying students. This metamorphosis, which took its lead from (and contributed to) broader international movements in educational change, stemmed from two almost contrasting ideologies. The first of these was grounded in the rhetoric of access and equity whilst the second ideology was derived from economic and managerialist notions (see for example, Niklasson, 1996; Woodhouse, 1996). Dawkins was part of a Labor government strongly committed to equity of access to tertiary study and, at the same time, determined to exercise greater control over the tertiary education sector through budgetary devolution and quality control mechanisms.

As a preliminary step towards carrying out these policy initiatives, the Commonwealth Tertiary Education Commission (the authority which had previously interceded between government and the institutions) was eliminated and in December 1987, Dawkins issued a policy discussion Green Paper detailing policy that signalled a "significant expansion of higher education" (Dawkins, 1987:12). A White Paper soon followed in July 1988 detailing the Commonwealth government's long-term strategy for higher education (Dawkins, 1988). The 1987/1988 reforms included:

- the abolition of the so-called binary system, which distinguished between universities and colleges with respect to roles and funding;



- the setting of minimum enrolment levels for institutions, both to enter the new system and to be eligible for certain types of funding;
- a major consolidation of institutions through amalgamation;
- increased emphasis on vocational discipline fields;
- the abolition of the Commonwealth Tertiary Education Commission and its replacement by a National Board of Employment, Education and Training responsible for the administration of four councils, one each for higher education, research, schools and skills training;
- a new Australian Research Council (ARC) to administer a comprehensive portfolio of research programs for the entire higher education system, and an increase in its funds by the progressive transfer of \$65 million from university operating grants;
- the strengthening of management of universities and colleges, and
- the return to a system where individuals and the private sector shared some of the cost of their tuition (Aitkin, 1997; Meek, 1991).

To be eligible for membership of the Unified National System, institutions would need a minimum student enrolment of 2,000 EFTSU (effective full-time student units). However, an institution would need an enrolment of at least 5,000 EFTSU to justify a "broad teaching profile" and some specialised research activity (Barcan, 1993:353). To obtain resources to undertake research across a significant proportion of its profile, an institution would need at least 8,000 EFTSU. This size requirement arose from the government's commitment to "fewer, larger institutions in Australia's higher education system" (Dawkins, 1988:41). It led to a period of systemic restructuring and cross-sectoral amalgamations as universities merged with colleges of advanced education to create large, comprehensive multi-campus institutions (Mahony, 1994, 1996).

#### 2.2.1.2 Public Sector Reform

Corporate reform of Australian universities occurred in the 1980's in the context of economic rationalism, an approach to economic management that "allows the maximum space for unfettered individual choice (via private markets) and minimum coercion by government" (Orchard, 1998:22). In the context of financial

deregulation and a declining public budget, central economic agencies such as Treasury and the Department of Finance, began to dominate the autonomy of market-oriented departments such as social security, health and education (Pusey, 1991). This dominance was exercised through central control of budgeting (to limit and target expenditures) and a greater reliance on corporate management practices in program administration (to plan, monitor and control the most efficient use of resources). Accompanying a private sector model of public management was an ideology that viewed higher education as a resource to serve national economic priorities (Mahony, 1992:228) and an acceptance that bureaucratic public services were incapable of providing cost effective services to consumers (Hughes, 1998:58-59). According to Professor Peter Coaldrake, Deputy Vice-Chancellor of the Queensland University of Technology, the most important outcome of these changes was the fact "that money, whether public or private, no longer came without strings attached. Funds were either earmarked at the outset, or else allocated on grounds of efficiency and effectiveness" (Coaldrake & Stedman, 1998:148-149).

The argument for market reform of higher education was supported by a steady stream of government reports arguing for the extension and intensification of market competition throughout the economy including education, health and welfare (EPAC, 1993; Hilmer, 1993; Productivity Commission, 1996). These reports shared common assumptions and prescriptions as to the value of market competition. For example, Hilmer's (1993:xv-xxxix) National Competition Policy report refers to 'enhanced competition' as an unambiguous good that improves efficiency and productivity, reduces prices, improves services and makes the economy internationally competitive. The Productivity Commission (1996:59) agreed with this prognosis stating that "competition is the key to improving performance, flexibility and productivity across the economy" since it "provides enduring incentives for firms to lift their performance and serve their customers well". According to Marginson (1997: 158):

These [government] reports helped to build a policy consensus on marketisation, deregulation, and contestability in the last years of Hawke and Keating Labor Governments, established favourable conditions for the 1996 Vanstone changes to higher education, and have opened the road to further market reforms.

In response to perceived public service inefficiency, successive Australian governments accelerated the process of public sector reform by advocating the principles and practices of managerialism. In a climate of declining tax revenues, government regarded the introduction of private sector practices to inefficient public services as the most expedient way of securing economic efficiency. Managerialism quickly spread as the dominant organisational change strategy in Australian higher education (Mahony, 1996; McInnis, Powles, & Anwyl, 1994; Meek, 1995; Moses, 1995), health care (Britton, 1995; Davis, 1995) and local government organisations (Albin, 1995). As a public sector reform strategy, managerialism rests on three fundamental assumptions:

- Institutional competition and consumer preferences are more efficient resource allocation mechanisms than government interventions and regulatory frameworks;
- Explicit standards and measures of performance focused on outcomes (not inputs) are appropriate for all types of organisations (i.e., the universal management principle); and
- Senior management can solve almost any problem it faces if it adopts strong executive leadership principles and private sector business techniques.

Pollitt (1993:49), documenting the introduction of private sector business practices to public services in Australia, argues managerialism "provides a label under which private-sector disciplines can be introduced to the public services, political control can be strengthened, budgets trimmed, professional autonomy reduced, (and) public service unions weakened". Trow (1994:11), commenting on the prevalence of 'hard' forms of managerialism in British higher education institutions, suggests political control of this sector reflects "the withdrawal of trust by government in the academic community, and its capacity to assess critically its own activities and to improve them." A so-called withdrawal of trust is evident in external control mechanisms that emphasise the importance of cost reduction, accountability, performance indicators, and quality assurance objectives (Meek, 1995). Thus, external control allows government to be seen as impartial and concerned with the socially recognised objectives of transforming universities into efficient institutions (i.e., doing more with less) and providing quality vocational educational services to members of the community on a user-pays basis (i.e., providing relevant job training).

Hughes (1998:59) agrees with Pollitt's (1993) and Trow's (1994) analysis that political leadership was a key feature of the drive towards managerialism. However, his viewpoint is more benign seeing government intervention as an inevitable response to declining tax revenues and bureaucratic public service inefficiency:

Governments . . . began to challenge some of the most basic beliefs of the traditional model. They began to hire economists or people trained in management instead of generalist administrators, borrowed management techniques from the private sector, pushed back the dividing line between public and private sector activity with the aim of cutting costs, and set out to change working conditions inside the system which were no longer required. Governments were faced with declining real revenue, but with political demands to maintain services at the same levels. In these circumstances, the only avenue was to improve productivity. When theories suggest that bureaucratic provision is inherently inefficient, when economic studies show the same thing, it is little wonder that politicians began to ask awkward questions.

Economists directly engaged in the implementation of public sector reforms, such as John Paterson (1988) and Michael Keating (1989), responded to their critics by challenging commentators to define better theory and frameworks for the practice of government. Paterson (1988:293) asserts managerialist changes led to more disclosure and accountability in government, an accepted "virtue in a parliamentary democracy". Keating (1989:127) states the public sector reforms of the 1980's were "directed at better linking of policy formulation, improving decision-making through resource allocation, (and) delivering service to the public". The changes, he argues, produced a different kind of public service, one better aligned with the economic and social needs of Australian society. Irrespective of the intentions and purposes of governments, managerialism represented a key instrument of public sector reform, one that transformed the higher education sector and its relationship with government and society.

### 2.2.1.3 Primacy of the Market

Successive Australian governments have advocated corporate reform of the higher education sector as the most effective means of improving the sector's productivity while holding the budget resource allocation in check. Government ministers have encouraged university Vice Chancellors (VCs) to embrace private-sector solutions to their funding problems. For example, a previous Minister for Higher Education,

Senator Amanda Vanstone, urged VCs and senior executives to support the government's higher education budget measures which increased university revenue through steeper HECS rates and allowed VCs the right to charge domestic students full fees (above quotas) in 1998:

If you believe universities need a broader base of funding, they need more private funding and that it is fair to ask more from students and to shift to a differentiated HECS, then you better get out there and start selling it. Otherwise you might lose it and you will be in the same position you are now, which is not a good one (Coorie, 1996:2).

The deregulation of university fees is perhaps the most salient indicator of corporate reform of higher education. In 1988, the Labor government allowed universities to charge fees for overseas and postgraduate students respectively. In 1996, a Coalition government cut university operating grants while allowing fees for some domestic undergraduates above HECS agreed quotas. Cuts in operating grants represented 4,600 fewer government funded student places than planned in 1997, 17,145 fewer in 1998 and in 1999, and 20,575 less than previous estimates (Richardson & Illing, 1998:16). In 1998, the West Review of the financing of the higher education sector recommended four stages towards the deregulation of university fees (DETYA, 1998c). Indeed, the West Review regarded tuition fees as an "essential element of a funding structure that meets the objectives of increasing flexibility for students and achieving a globally competitive industry" (Healy & Spencer, 1997:41). All of these changes, specifically declines in university operating grant funding and increases in the use of market funding mechanisms, shifted responsibility for higher education support from governments to other resource providers (Slaughter & Leslie, 1997:215).

Since 1989, Australian students undertaking award courses at Commonwealth-funded higher education institutions have been required to pay approximately 20 per cent of the full cost of their tuition through the Higher Education Contribution Scheme (HECS). The introduction of HECS at \$1,800 per full-time student legitimised a general 'user pays' funding regime (Marginson, 1997:8). This annual course contribution is adjusted each year in accordance with the Higher Education Operating Grants Index. Students may pay their HECS contributions in advance (for

which they receive a fee discount) or elect to defer (if they defer they in effect accept a government loan which is repaid through the taxation system at a rate which varies with the student's taxable income). Between 1988-89 and 1994-95, the amount paid up-front by students more than trebled, rising from \$42 million to \$157 million, while the total revenue generated by HECS payments each year increased more than tenfold, rising from \$42 million to \$485 million (ABS, 1996:93). The primacy of the market is evident in the government's move to a differentiated HECS system whereby HECS fees vary according to high demand (e.g., medicine, dentistry, law) and low demand (e.g., humanities, arts, education) course disciplines.

Today, the marketplace frames higher education. The Conservative coalition (1996-) government of Prime Minister John Howard has steadily pushed universities towards a self-funding model (50 per cent self-funding is the current benchmark). There is now an almost universal acceptance among Vice Chancellors of the need for some type of market-driven funding system based on student preferences (Coaldrake & Stedman, 1998). Vice Chancellors willingly accepted the need to charge full-fees to domestic undergraduate students (above the 25 per cent government-funded quota) in 1998. Full-fees for distinct client groups (i.e., overseas students, postgraduate students, Australian undergraduate students, non-award vocational education students) represents today a major component of university revenues. Universities actively compete for students on the basis of price, facilities, and educational services. At a recent Australian Higher Education Industrial Association conference participants were told "that as academics and universities pursue external funds for institutional survival, government-funded activities such as teaching in HECS-funded programs risked becoming marginalised" (Richardson, 2001:35).

#### 2.2.1.4 Quality Assurance

In 1993, the Commonwealth Government established the Committee for Quality Assurance in Higher Education (CQAHE) to conduct reviews of universities' quality assurance practices, and to identify which universities produced the best outcomes in terms of research, teaching and community service. Quality assurance reviews were conducted from 1993 to 1995. For the first time, Australian universities were ranked into official 'league tables' and 'prize money' was allocated to reward an

institution's place on the quality ladder (which had six rungs). Quality assurance was to be assessed by students (as consumers), and the Department of Employment, Education, and Training (DEET) as purchasers. There was no provision for staff to be instrumental in determining the quality of their own work. According to the Federal Minister of Education, Dr David Kemp, the review process "was instrumental in raising awareness that quality assurance needed to be taken seriously" (Kemp, 1999:29).

To assist the government in budgeting quality assurance funds and help students assess 'value for money', sector-wide efficiency and effectiveness data were collected from individual universities. Government (DETYA, 1998b) and commercial bodies (Ashenden & Milligan, 1998) now publish university performance indicators on an annual basis. The government has also supported other quality initiatives that focus on university outcomes (Kemp, 1999:29). These include a national test of Australian higher education graduates similar to the American Graduate Record Exam or GMAT test. According to the Minister, institutions not providing their customers with job-ready communication and problem solving skills may be penalised in terms of reduced funding (Kemp, 1999:29). In the future, university claims for 'quality' will be verified by the proposed Australian University Quality Agency – a quasi-government body designed to conduct audits and produce reports that "assure students, the community and the outside world that our universities are as good as we know them to be" (Kemp, 1999:30). Institutions themselves will recover the costs of institutional audits.

### **2.2.2 Organisational Level**

As higher education in Australia moved rapidly towards the global market in the late 1980's (Slaughter & Leslie, 1997:13), institutions reformed their strategies, structures and processes in an effort to be more market-driven and customer-focused (Marginson, 1999). Neave (1990) and Buchbinder (1993) described the parameters of change in the university as it inculcates a market orientation. According to Buchbinder (1993:340), a university with a market orientation "focuses on efficiency, cost-cutting, [and] centralization with a much stronger managerial focus.

This [orientation] impacts on the centrality of academic autonomy and collegial participation in governance". To promote a managerialist work culture, pragmatic business ideologies are espoused by senior leader-managers such as becoming 'lean and market-driven' and responsive to the demands of distinct customer groups (Scott, 1995; Terry, 1995). As universities become more market-driven, education objectives are formulated into strategic planning statements as ways of producing knowledge as a marketable, saleable commodity to differentiated segments of the customer (student) population. New flexible learning technologies are embraced to facilitate the transmission of course materials across national boundaries at low cost (Lewis, 1998; Mazzarol & Hosie, 1997). Over time, a culture of quasi-market competition is established (Marginson, 1997) in which institutions adopt aggressive promotional strategies designed to position themselves in the mainstream, and to differentiate themselves from each other (Symes, 1996). These parameters of change have, to all intents and purposes, characterised the reform process in Australian higher education institutions.

#### **2.2.2.1 Corporate Work Structures and Practices**

In accordance with Neave (1990) and Buchbinder's (1996) findings, the shift towards a market orientation in Australian universities was accompanied by strong forms of executive control and organisational models derived from business. Marginson and Considine (2000:9-10), examining the institutional governance of 17 of the 36 doctoral universities in Australia after a decade of corporate reform, reported that:

Universities are no longer governed by legislation: they are more commonly ruled by formulae, incentives, targets and plans. These mechanisms are more amenable to executive-led re-engineering than are the deliberations of a council or an academic board, and less accessible to counter-strategies of resistance. They also fit with management-controlled tools such as soft money budgets, commercial companies, temporary institutes for research or teaching, fund-raising and marketing campaigns, all drawn together in a complex web of accountability tied only to the senior executive office.

To manage large diverse enterprises, university managers have embraced corporate management practices and business-speak. Vice Chancellors have become Chief Executive Officers rather than leaders of academics (Butfoy, 1999:19). Professors "are now what vice-chancellors refer to as 'middle managers' in a large corporate



enterprise, with responsibility for administering teaching, research and employment conditions of academic staff" (Clarke, 1998:55). The language of 'middle managers', 'customers' and 'products' has displaced the academic language of deans, students and courses. At the same time, corporate forms of work organisation have been introduced under the guise of centralised quality assurance mechanisms, staff appraisal, and accounting systems (Taylor et al., 1998).

Corporate reform of the higher education sector imposed a heavy burden on the reporting requirements of universities. According to Barcan (1993:358-359), the bureaucratisation of universities was a direct response to Commonwealth government demands for information that accounts for the expenditure of funds. Coaldrake and Stedman (1998:159-160) agree stating that centralised reporting functions were a necessary response to government and legislative demands for information. From a management perspective, the primary function of such reports was to help university managers coordinate academic work and to assist in the evaluation of faculties, departments, staff, and campuses under their control. They were not primarily intended to limit academic autonomy and decision making.

As universities struggled to merge their distinct campuses to meet the needs of an ever-expanding diverse student population (Mahony, 1996:56-57; Taylor et al., 1998:265), executive decision making has supplemented existing hierarchies (Cassidy, 1998) or replaced collegial forms of governance (Marginson, 1999:10-12; Meek, 1995:3; Moodie, 1997:42). Thus, the executive meetings of senior leaders (not Academic Board) play a key role in the daily running of universities today (Marginson, 1999:10). To ensure academic work is carried out in accordance with strategic plans and institutional missions, senior leader-managers rely on the university hierarchy: a core feature of university work organisation since decision making can be centralised (Cassidy, 1998; Valentine, 1997). Bypassing the academic committee system (see Marginson, 1999:10-12), the hierarchy of university command ensures resources can be quickly deployed on the basis of market demand and external stakeholders' (i.e., government, employers) expectations. Academics, as human resources within a corporate hierarchical structure, are deployed as flexible facilitators and assessors (Crowley, 1999; Randle & Brady, 1997).

To meet the needs of a large number of students in an equitable and cost-effective manner, comprehensive universities have utilised computer-mediated, flexible learning technologies to standardise and modularise the course curriculum. Knowledge is broken down to standard learning modules and grouped into packages of learning resources or subject guides (much like the sub-assemblies in manufacturing) and delivered on-line by flexible assessors or virtual tutors offering 'individualised' instruction (Green, 1998). This Taylorist system of knowledge transmission ensures the customer can easily and quickly assemble standardised units to form an undergraduate or postgraduate degree (credential). To administer this knowledge (content) transmission process, universities have created levels of administrative positions. Administrators, responding to the directives of their faculty managers, have extended their roles in decision making particularly entry standards for students (see Clarke, 1998 and his 'dumbing-down' thesis) and the allocation of funds for academic work.

#### **2.2.2.2 Entrepreneurial Universities**

An expansion of entrepreneurial activity in universities has accompanied cuts in government funding of higher education (Grigg, 1996; Kennedy, 1996; Marginson & Considine, 2000; Slaughter & Leslie, 1997). The commercial side of university operations offers greater potential for institutional discretion and funding independence and hence is central to university operations. Universities look to corporate sponsors rather than government for funding. For example, Deakin University's commercial arm Deakin Australia manages, delivers and brokers all education and training for Coles Supermarkets under the umbrella of the Coles Institute (Healy, 1999:35). The announcement of Australia's first corporate university was lauded by the Federal Education Minister Dr David Kemp as exemplifying the government's approach to the future direction of the Australian higher education sector. Not to be outdone by Deakin, the University of Melbourne has created a private mirror version of itself in the private sector. The Minister, Dr Kemp, said he was "pleased to see that the University of Melbourne is again taking the initiative in creating collaboration between public and private to advance the Australian education system" (Healy, 1998b:35).

Universities directly benefit from engaging in entrepreneurial-type activities and raising funds for themselves. For example, the Australian National University, like a number of other universities, has a commercial arm (ANUTECH) to handle the licensing and commercial exploitation of university inventions. Each year ANUTECH "attracts additional research funding to the university which exceeds \$30 million" (Kennedy, 1996:145). Some of this money is used to support student scholarships. Universities also value the need to publicise their valuable research work to distinct business and customer groups in the community. External professionals are often hired to fulfil this role. For example, at Central Queensland University a former football administrator and CSR manager was appointed to the position of Vice President (Corporate Development) "to increase business and industry investment" and "foster a culture of entrepreneurship and revenue-raising across the university" (Illing, 1998a:35). Entrepreneurial activity is also evident in the marketing of degrees to international full-fee paying students. Slogans in marketing material such as "degrees that pay for themselves over and over", and "your job prospects are about to move with the speed of light" focus on the market worth of degree credentials (Crowley, 1999:26-27).

Since corporatisation implies the adoption of user-pays market principles, academics are required to be increasingly instrumental in their attitudes and behaviours. For example, academics are encouraged to spend an increasing amount of their time on fee-raising activities and other entrepreneurial projects (Kennedy, 1996; Slaughter & Leslie, 1997). Slaughter and Leslie's (1997:20) study of academic capitalism in Australia, the United Kingdom and the United States, fully captured the encroachment of the profit motive into public research universities by observing the actions of heads of departments and centres:

Heads of departments or heads of centres very often aggressively developed procedures for generating revenues from faculty activity, including income from technology transfer activities that provided intellectual property, and from faculty consulting. They used new organizational structures to create interdisciplinary knowledge that tapped fresh revenue flows. Their tactics looked more like business plans than professionalization strategies. Very often the new units called for the addition of large numbers of professional officers and non-academic staff, who were fiercely loyal to centre or institute heads, did not engage much with faculty, and were not interested in teaching. They were much part of the commercial culture than the academic culture and

tended to bring commercial values to their work, concentrating on making their centres operate more like small firms, expanding commercial activity, and generating increased amounts of profit.

In Australia, entrepreneurial activity is clearly evident in the consulting programs of staff. According to Slaughter and Leslie (1997:220), consultancy programs, like special research centres, make resource flows more predictable and reliable. By allowing staff and professional officers to contribute consulting monies to personal accounts, university policy permits staff to realise higher net earnings since income taxes are avoided (so long as account expenditures are for university-related purposes). In some cases, academic staff have generated millions of dollars for their universities making them critical to the financing of the university and thus to its institutional mission (Slaughter & Leslie, 1997:224). As their power base increases as important resource providers, academic entrepreneurs may increasingly demand more privileges (e.g., private health care, executive travel) commensurate with those realised by successful private sector employees.

With direct fee charging to different customer segments across three semesters of study, universities today are actively competing with each other for market position and student income in a highly segmented, Unified National Sector (Marginson, 1997). Zones of commercial activity have been established as the government share of funding of higher education declines. Corporate reforms now mean that academics, in addition to the core activities of teaching and research, have to work more closely with business, industry and the professions in an effort to raise revenues for their universities (Ellingsen, 1999a).

### **2.2.3 Individual Level**

#### **2.2.3.1 Impact of Higher Education Reforms in Australia**

Everett and Enticknap's (1994) study of the work related attitudes of academics (n=2,167) across all levels over an eleven-year period (1979-1990) across eight institutions (four original universities, four former colleges of advanced education) is perhaps the most systematic longitudinal study of the changing attitudes of Australian academics during a period of higher education reform. A majority of

respondents (73 per cent) agreed the mergers of colleges of advanced education and universities were based primarily on economic judgements and not on "considerations of academic quality" (Everett & Entrekin, 1994:219). In addition, staff across each of the eight institutions expressed a sustained increase in dissatisfaction and alienation (Everett & Entrekin, 1994:203). To investigate attitudinal differences between different groups of respondents, Everett and Entrekin (1994) conducted a discriminant analysis of individual items. Increasing academic alienation, the second discriminant axis, was found to relate to unfavourable views of the administrative hierarchy (most staff held a uniformly negative view), the reward structure, a less collegial environment, and more formal treatment of students (Everett & Entrekin, 1994:221). Everett and Entrekin (1994:225) concluded that academics in both types of institution had "become steadily more alienated" and that if this trend persists "the higher education system will face severe problems of recruitment and morale" (Everett & Entrekin, 1994:225).

Harman and Wood (1990) surveyed full-time academic staff (n=641) from five east-coast Australian universities (Sydney, Macquarie, University of Technology Sydney, University of Western Sydney, Riverina-Murray Institute of Higher Education) on issues relating to teaching and research and changes affecting their work since the introduction of the Unified National Sector. While most academics reported satisfaction with their jobs (ranging from 69 to 83 per cent across each university), a majority of academics (50 to 77 per cent) rated staff morale as only "poor" or "fair" (Harman & Wood, 1990:59). Staff in the newer universities (i.e., Riverina, University of Western Sydney) expressed a generally low opinion of the "intellectual environment" in their departments and schools (Harman & Wood, 1990:59). In relation to research/teaching orientations, clear differences in opinions were evident between staff from the established universities and those of the former CAE's. While almost half of Sydney and Macquarie staff indicated their primary interests were in research, about the same proportion of staff at Western Sydney and Riverina identified teaching as their primary interest (Harman & Wood, 1990:64). These results indicate the end of the binary system did not signify an end to the divides between teaching and research orientations in universities (see Taylor et al., 1998:260-262).

Results of a 1993/1994 national study of Australian academics' perspectives on quality and accountability indicated Australian academics were generally negative about the benefits of higher education reforms (McInnis, Powles, & Anwyl, 1994). The majority (63 per cent) of the 1,621 sample respondents disagreed with the statement "the 1988 (higher education) reforms had achieved their efficiency and effectiveness goals" (McInnis et al., 1994:12). A majority of academics (72 per cent), mostly at senior levels and tenured, also disagreed with the statement that "quality assurance mechanisms will ensure genuine improvement to the higher education system" (McInnis et al., 1994:12). Academics that expressed negative opinions about higher education reforms felt their autonomy and influence in university decision making had declined. Conversely, academics (mostly younger, at lower ranks, untenured) that expressed positive opinions about reforms and the quality agenda thought their autonomy had improved. Surprisingly, 44 per cent of the sample believed their level of professional autonomy had actually improved since the 1988 higher education reforms. Perhaps the most striking feature of the survey was the finding that a majority of academics (80 per cent) said they were motivated solely by the intrinsic interests of their work (discipline) and not externally imposed quality criteria (McInnis et al., 1994:21).

To examine the impact of restructuring on academics' values and attitudes, Mahony (1996) in August 1993 surveyed 293 academics (67 per cent males, 33 per cent females, all levels represented) in ten post-binary universities in Australia. A multivariate analysis of variance of responses indicated academics found it difficult to adjust to the post-binary changes. Respondents did not perceive the move to a unitary system as beneficial, were negative about university autonomy, and did not agree that their institution was a well-integrated institution (Mahony, 1996:43). Comments indicated amalgamation was frequently a personally and professionally painful experience for academic staff and this had led to low academic morale:

We are now going through a de-amalgamation and this is very stressful – using up valuable emotional energy. People have not been prepared for adequate leadership in the process of amalgamation and resultant structures. University management has been very poor in adjusting to the new structure – led to low morale (Mahony, 1996:46).

A survey of academic staff perceptions to changes in higher education between 1991 and 1996 revealed a high level of concern in many areas of academic responsibility and a dismal assessment of future prospects (Taylor, Gough, Bundrock, & Winter, 1998:255). A majority of academic staff (n=411) at Monash, Adelaide and Canberra universities, responding to a questionnaire that specifically related to the period 1991-1996, did not agree that during the last five years "the quality of teaching in higher education has improved" (Taylor et al., 1998:259). Similarly, "the responses on the issues of improved research quality and the standard of final award students were also negative" (Taylor et al., 1998:259). Almost half of academics' substantive comments focused on the difficulties caused by dealing with larger student numbers at a time of relative decline in resources and funding. In response to teaching and research issues, a majority of respondents did not agree that support for teaching or research had increased in universities in the last five years (Taylor et al., 1998:261-263). Academics indicated a positive response to the statement "students have become more interested in vocational outcomes" (Taylor et al., 1998:261). Finally, respondents rejected the propositions that academic freedom had increased over the past five years and that freedom in course design had increased (Taylor et al., 1998:265). In fact, only six per cent of respondents detected an increase in academic freedom. Written comments suggested academic freedom was limited by economic pressures and by the actions of university management (Taylor et al., 1998:265). Survey findings are similar to those conducted in the United Kingdom over a similar timespan (Mahony, 1996; Randle & Brady, 1997).

#### **2.2.3.2 Cultural Change: Managerialism in Academe**

As university leaders embraced the tenets and practices of managerialism in the mid-1990's (Clarke, 1998; Crowley, 1999; Ellingsen, 1999a; Trow, 1994; Trowler, 1998; Willmott, 1995), academic staff in Australia and the United Kingdom responded with negative comments vis-à-vis the lack of consultation, loss of collegiality, and excessive accountability measures (Mahony, 1996:56-57; Martin, 1999:15-22). Comments from academic staff across all levels and disciplines indicated a steady decline in the culture of the collegium (as power is shifted from academic

committees to university managers) and an increase in the corporate cultures of Australian and U.K. universities.

Willmott (1995), analysing a number of major developments in higher education in the U.K. over a ten-year period, refers to managerialism as an indicator of the commodification of academic labour. Higher education reforms, he argues, shifted the orientation of academic labour away from use value (i.e., valuing the academic contribution to the development of the student as a citizen, as a carrier of culturally valued knowledge) to exchange value (i.e., valuing the student as a source of income and/or valuing resources that flow from a strong performance on measures of research output and teaching quality). By treating the student as a client, students have been reified as "customers", a development that "further reinforces the idea that a degree is a commodity (or 'meal ticket') that (hopefully) can be exchanged for a job..." (Willmott, 1995:1002). To reinforce the importance of exchange values, university managers rely on centralised performance management systems and quality assurance audits. Academics are rewarded for willingly restricting "their work to duties and activities that provide the greatest measurable, visible output for the lowest risk and least effort" (Willmott, 1995:1024). The shift from collegial to managerial control in U.K. universities, he argues, implies the input of staff into decision making is:

... degraded from collegial participation to, at best, a consultative role in which staff willingly accept and support their heads of department who then managerialize the processes through which resources are won and allocated. For, clearly, 'strong managers' will be more successful in conditions where managerial rather than collegial values dictate how resources are allocated (Willmott, 1995:996).

Blackburn and Lawrence (1995:3) also reported a marked change over the past decade in the institutional climate in which United States faculty (n=2,370) work. In their study of faculty members' sense of both collective and personal well being (i.e., morale) across 19 campuses, Blackburn and Lawrence (1995:2-3) reported:

When faculty look upward, they see a burgeoning administration, one that is becoming increasingly distant from them. Involvement in decision-making, the collegial norm, has more than waned; it appears to have ended. Power is fully in the hands of the bureaucrats. They reward the rich (business, medicine, engineering, law) and starve the poor (art, education, philosophy).



. . . Competition has replaced collegiality. The pressures to publish – the requirement for a successful university career for some time now – and to secure grants have intensified. The university has been hiring superspecialists who seem to have no time for cross-disciplinary intellectual conversations. Their training immerses them in a language all their own, one others cannot understand. They are 'foreigners in their own land'. Their immediate colleagues who joined the university with them are now competitors courting the same funding agencies. Organizational anxiety has replaced the formerly supportive, cooperative environment.

Mahony's (1996) comparative study of staff reactions to restructuring in ten Australian and nine British universities highlighted the prevalence of bureaucratic and managerialist processes in Australian institutions. Academic respondents (n=293, 67 per cent males, 33 per cent females) commented on increasing bureaucracy (in response to government reporting demands) and a new executive style of management within their institutions – characteristics of a managerialist work environment. Interestingly, respondents strongly agreed that universities would have to become more entrepreneurial to cope more effectively with change (Mahony, 1996:56). The end of collegiality and the new managerialist style within incorporated universities was thought to exert the greatest change on academic morale (Mahony, 1996:56-57).

In New Zealand, Tipples and Krivokapic-Skoko (1996) surveyed 238 academics at Lincoln University, Canterbury to ascertain their reactions to state sector reforms and the rise of managerialism within their institution. Respondents (n=147, 62 per cent response rate) were mostly negative about administrative issues perceiving the changes to be overly bureaucratic and unproductive:

Not only had the amount of administration increased automatically but much of the associated work was seen as being unproductive, formalistic and bureaucratic. Also, it was tending to push research into personal time such as evenings. Some of that growth in administration may be attributed no doubt to the increasing size of the university. However, a second theme was also apparent with the increase of auditing type arrangements derived more directly from the State Sector Reforms, and the development of a 'them/us' antagonistic culture rather than a supportive collegial one which had existed before. A sense of pride and individual responsibility among academic staff had been destroyed . . . Rather than being supportive, the administration had developed an exclusive management style which was a law unto itself (Tipples & Krivokapic-Skoko, 1996:10).

Currie (1996:5) captured the rise of managerialism in academe in her study of the physical and emotional effects of globalisation on 115 academics at Murdoch and Edith Cowan universities in Western Australia. She reported that:

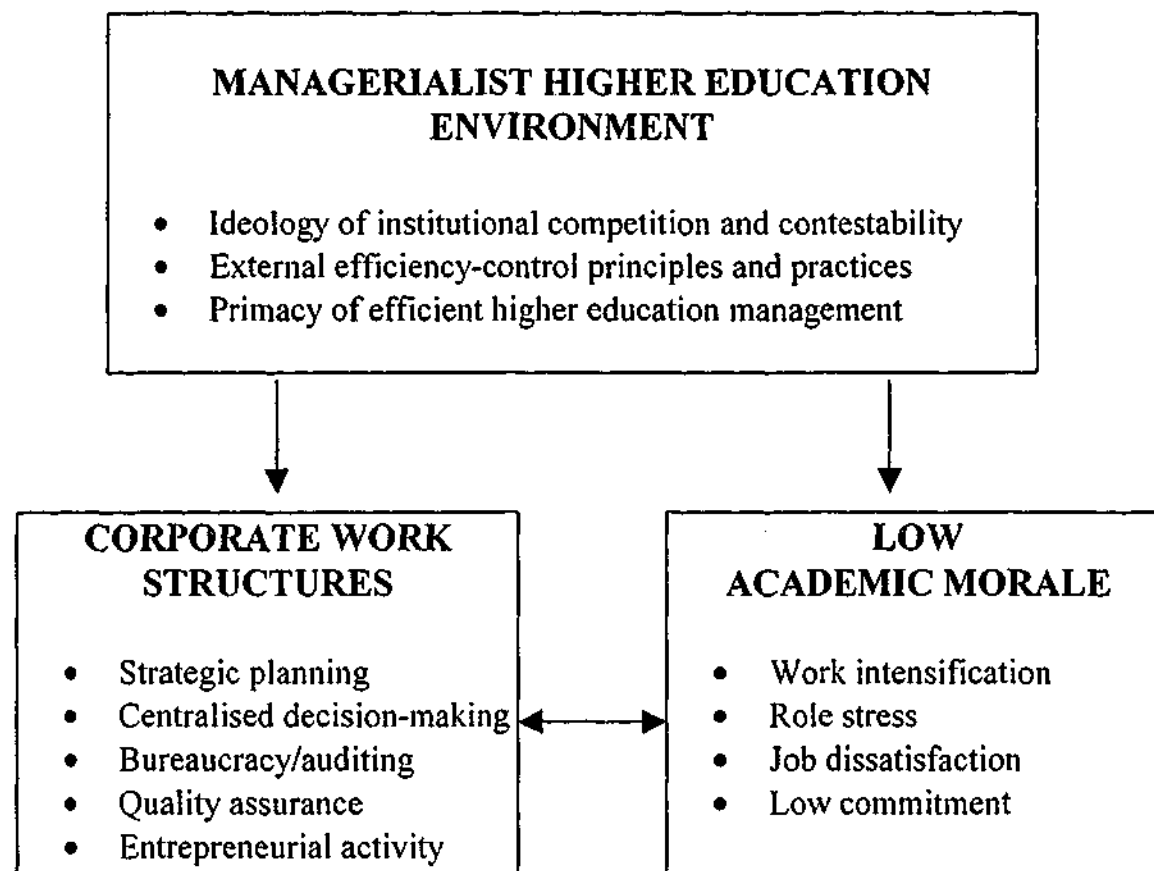
The jobs of academics are becoming increasingly 'proletarianized', controlled by external forces. The bosses are demanding ever greater productivity (quantity at the expense of quality). Academics are being asked to go beyond the university and go out into the world into the market place and show profits on the cash register. It is the market, and not the quality of creative ideas and scholarship, that is determining their lives to an ever greater extent.

To investigate if staff had detected any change in the university work environment, Currie's (1996:20) qualitative study posed this question to respondents: "Has there been any change in the sense of community in your university generally over the past five years?" At Murdoch, a majority of staff (92 per cent) reported "there was a definitely a change in the sense of community and it was overwhelmingly a negative change" (Currie, 1996:20). Negative comments at Murdoch highlighted the loss of collegiality, the insularity of staff and increased competition accompanying the new managerialist agenda (Currie, 1996:21). In contrast, a majority of academics (59 per cent) at Edith Cowan felt there had been a positive change in the sense of community due partly to the arrival of a new Vice Chancellor (Currie, 1996:22).

### **2.2.3.3 Managerialism and Low Academic Morale**

Studies suggest managerialism in higher education promotes corporate structures that increase managerial control of the academic labour process and reduces the motivation and morale of academic staff (Blackburn & Lawrence, 1995; Currie, 1996; DeBats & Ward, 1998; Mahony, 1996; Randle & Brady, 1997; Taylor et al, 1998; Tipples & Krivokapic-Skoko, 1996; Willmott, 1995). Low academic morale is predicated on the fundamental contradictions that exist between professional and managerial paradigms for structuring academic work (Brett, 1997; McCollow & Lingard, 1996; Scott, 1966; Sorensen & Sorensen, 1974; Wallace, 1995). Professional-bureaucratic conflict theory (see Bacharach et al., 1991; Benson, 1973; Hall, 1968; Raelin, 1986) predicts low levels of academic morale whenever corporate work structures come into direct conflict with academics' work autonomy expectations (see Nixon, 1996; Randle & Brady, 1997 for empirical evidence).

Figure 2.2 illustrates the relationships among a managerialist higher education environment, corporate work structures, and low academic morale.



**Figure 2.2**  
**Managerialism in Higher Education: Corporate Work Structures and Low Academic Morale**

Surveys across the academic profession indicate external management control systems and strong chains of command challenge academics' sense of professionalism and the associated values of autonomy, self-direction, and collegiality (DeBats & Ward, 1998; Lacy & Sheehan, 1997; Lewis & Altbach, 1996; Taylor et al., 1998). The Carnegie International Survey of the Academic Profession (Lewis & Altbach, 1996:255), which studied academics in fourteen countries including Australia, found "nearly universal and significant alienation of faculty from administration". A large proportion of respondents expressed concern "about the trend toward the growing bureaucratisation in higher education" . . . and how to cope with the more hierarchical, more rigid governance structure" (Lewis & Altbach, 1996:256). Lacy and Sheehan's (1997:315) study of Australian academics' job satisfaction (n=1,420 from eight 'research' universities and twelve 'other'

universities) found less than one in five academics were satisfied with the way their institutions were managed. Academic staff from both research and other institutions gave "fair" to "poor" assessments of faculty morale (76 per cent), sense of community (74 per cent), the clarity of institutional mission (70 per cent), the academic-administration relationship (68 per cent), and the intellectual atmosphere (50 per cent). These five climate factors were found to predict academic job dissatisfaction accounting for 32 per cent of the variance (Lacy & Sheehan, 1997:318).

Low academic morale reflects tensions between competition and collegiality in academe (Blackburn & Lawrence, 1995; DeBats & Ward, 1998). Academic morale declines when the immediate university environment encourages corporate principles and practices that clash with academics' expectations of professional autonomy, collegial relations, and capable academic leadership (Ramsden, 1998a:363). According to Brett (1997:19), managerialism threatens the psychological climate necessary for certain aspects of academic work such as creativity and teamworking. That is, these aspects of academic work depend not on competition and external management control principles but on a psychological climate that encourages: (1) professional collegial relations, and (2) autonomy, creativity, and extra-role behaviours. Thus, rational, self-interested profit-maximising behaviour provides no mechanism to elicit trust and collegial working relationships central to the intrinsic motivation of academics.

Since morale is a measure of academic members' overall well-being within the institution in which they are employed (see Blackburn & Lawrence, 1995; Bowen & Schuster, 1986; Rice & Austin, 1988), it will be directly and indirectly influenced by changes to the external higher education sector as well as changes to the immediate university environment. Consequently, organisational climates in which academics and administrators hold similar views about the academic workplace tend to promote and sustain high faculty morale. In these cohesive institutions, faculty "have an unusually compelling identification with the institution" (Rice & Austin, 1988:52). Conversely, competing sets of beliefs, values, and expectations in an institution can have a negative impact on individual morale and productivity. For example, Randle

and Brady's (1997:232) cross-sectional survey of 400 full-time lecturers in a large U.K. further education college reported "85 per cent of (survey) respondents believed that the college management did not share the same educational values as staff". Professional-managerial conflict was evident in lecturers' concerns with respect to "the loss of control over their teaching process during 1992-94" (Randle & Brady, 1997:237). This loss of professional autonomy was associated with declining morale (93 per cent of respondents reported declining morale between 1992-1994) and increased stress levels (43 per cent of staff were considered at clinical levels of anxiety). On the basis of this evidence, Randle and Brady (1997:229) asserted managerialist processes both within the college, and across the higher education sector as a whole, acted to de-professionalise the work of the further education lecturer (see Wilson, 1991 and the academic proletarianisation thesis).

Miller, Topping, and Wells-Parker (1989) and Nixon (1996) argue differences between the perceived control system (i.e., amount of power exerted by academic administrators) and the desired control system (i.e., amount of power desired by academics) manifest themselves in terms of low academic morale. That is, academics experience 'ecological dissonance' (Miller et al., 1989), or a crisis of 'professional self-identity' (Nixon, 1996) when the corporate work system and professional value systems are in conflict. In examining the relationship between ecological dissonance (index of power discrepancy within the department head's position) and worker morale (index of job satisfaction, job involvement, work alienation) for 94 faculty members in various departments at Mississippi State University, Miller, Lin, Giesen, McMillen, Wells-Parker, and Sanderson (1992:222) found "ecological dissonance in the department head's position was the best predictor of each of the three measures of worker morale".

Nixon (1996) presents an analysis of professional identity based on 30 interviews conducted with two groups of university teachers (equal numbers of men and women) in two different institutions: an 'old' (pre-restructuring) and a 'new' (post-restructuring) university in the U.K. According to Nixon (1996:7), an adverse consequence of the changing conditions of higher education (i.e., expansion of student numbers, resource constraints, changes in curriculum, teaching and

assessment, changing conditions of academic work) is the loss of autonomy and status of university teachers. Since autonomy and status are defining characteristics of a profession (see Bell, 1985:21), these changes have increased the role tensions and alienation of the university teacher. A decline in professional autonomy means academics find it difficult to emphasise the importance of "independent learning", "learning as dialogue" and "relevant learning" (Nixon, 1996:10-11). Unable to exercise discretion and control over the teaching process, interviewees spoke of "their own sense of professional isolation and of the competitive atmosphere that prevails within and across certain departments" (Nixon, 1996:13). In order for learning to flourish, interviewees stressed the importance of collegiality (i.e., mutually supportive relationships with colleagues keep ideas alive), the need for consultation and participation (about where the institution is going and why), and support for professional development (as teachers and researchers).

In Australia, there exists some evidence of professional-managerial conflict and low morale in universities (Clarke, 1998; Crowley, 1999; Currie, 1996; Lacy & Sheehan, 1997; Martin, 1999; Taylor et al., 1998). Academics with a strong sense of professional identity lament the decline of scholarship in their institutions and mock the commercialisation of university activities (Ellingsen, 1999a). Academics have expressed high levels of disenchantment with the hierarchy of authority and their inability to influence university decision making (Taylor et al., 1998:265; Winter et al., 2000:289). Academic freedom is limited (and morale declines) when academics are prohibited from speaking about public issues other than those administrators deem suitable (Butfoy, 1999; Gaita, 1998; Patience, 1999). Morale also declines when academics perceive academic programs to have been "dumbed down" (Clarke, 1998:56) and/or converted into "digital degrees" (Crowley, 1999:24) in order to increase student enrolments and revenues.

#### **2.2.3.4 Work Intensification and Non-Core Work**

Higher education reforms, and the associated government/institutional demands for efficiency and public accountability, have intensified and changed academic workloads in Australia. A Department of Education, Training and Youth Affairs

(DETYA, 1999c:xiii) commissioned study of the "changing work roles and values of the academic profession in Australia" confirmed academics are working longer hours, spending less time on teaching, and more time on administration work. Based on the responses of 2,609 academics from 15 universities across five states, the study found average working hours had increased since 1993 from 47.7 to 49.2 hours per week in 1999, 40 per cent of academics now worked more than 50 hours a week, 56 per cent reported their job was a source of considerable stress, and 55 per cent believed their hours had substantially increased over the last five years (DETYA, 1999c:xiii). The study also highlighted a major decline in a primary source of satisfaction for academics: the opportunity to pursue their own academic interests.

A number of studies have reported academics spending an increasing amount of their time engaged in 'non-core' task activities associated with quality assurance mechanisms, student evaluation of teaching and institutional profile assessments (Currie, 1996; McInnis, 1996; Winter et al., 2000). In 1999, academics spent on average 8.4 hours per week (17 per cent of the working week) on such administrative tasks (DETYA, 1999c:xiv). Many academics regard these bureaucratic tasks as "makework" activities (Winter et al., 2000:288) and a "serious distraction from the core activities of teaching and research" (DETYA, 1999c:xiv). McInnis (1996) and Currie (1996) in Australia, and Parker and Jary (1995) and Nixon (1996) in the U.K. provide evidence to suggest non-core administrative tasks are partly responsible for diminishing the motivation and commitment of academic staff. Currie's (1996:5) qualitative study of 115 academics at Murdoch and Edith Cowan universities reported:

What seems to be frustrating academics today is not so much that their love of their work has taken over their private lives, but the fact that the institution is demanding other forms of work from them that is disrupting their primary work of teaching and research. It seems to be more the fact that academics are losing their autonomy and having to wrestle with how to use their time most productively because of the demands upon their time being made by administrivia. What is important is that they experience themselves as losing that internal rhythm to their lives which allows them to be creative and reflective about ideas.

Higher education reforms may have accelerated the demands for staff to work smarter and harder (especially in situations where teaching and research values are high). Academics in teaching and research roles face multiple and contesting job demands and probably will continue to do so in the future (DETYA, 1999c; Maslen, 2000). Lecturers are expected to prepare technology-rich learning materials and carry regular teaching loads whilst being productive researchers. This can result in impossible workloads for lecturing staff and associated role stress. Staff at higher levels do not favour much better. The studies of academic deans and department heads by Sarros, Gmelch and Tanewski (1997a, 1997b, 1998) and Wolverton, Gmelch, Wolverton and Sarros (1999) reinforce these observations. The pressure to secure external grant funding, maintain a quality research profile, raise external revenue, and carry large administrative workloads increases the stress levels of senior academic staff. It seems that balancing the roles of researcher and teacher, leader and manager, and budgeting in the context of rapid change is challenging and stressful for many senior staff.

### 2.3 Quality of Work Life

Quality of Work Life (QWL) is a chameleon-like concept. It can be defined "in terms of people's reactions to work, particularly individual outcomes related to job satisfaction and mental health" and it can also be defined "as an approach or method" for improving the existing work design (Cummings & Worley, 1997:302). Both definitions reflect the fact that QWL is a way of thinking about people, work, and organisations that reflects concern about the impact of poor work design on employee morale and organisational effectiveness (Gowdy, 1987; Kanter, 1980; Nadler & Lawler, 1983; Vandenberg, Richardson, & Eastman, 1999).

As an approach or work design method, QWL interventions seek to clarify roles and responsibilities (i.e., role negotiation), enrich individual jobs (i.e., increase task variety, autonomy), speed up decision making (i.e., decentralisation, layering), and humanise leadership practices (i.e., process consultation). All of these interventions are based on the principles of employee involvement (Cummings & Worley, 1997:302). Employee involvement signifies a human relations viewpoint. From this



perspective, employees are assets with abilities and ideas that if given the opportunity to develop, will result in improved employee motivation and increased organisational effectiveness (Gollan, 1998; Lawler, 1992; Pfeffer, 1998). Employee involvement (EI) is encouraged by: (1) managers sharing their decision making authority with employees, (2) providing employees with access to relevant information to making effective decisions, (3) providing training and development programs to improve employees' knowledge and skills, (4) rewarding EI with meaningful job designs, and (5) linking pay to participative performance outcomes (Cummings & Worley, 1997:304-305).

As an attitudinal outcome, QWL focuses on a person's perceptual response to the prevailing work environment. Researchers utilise broad work related attitudes, such as job satisfaction, job involvement, organisation commitment and role stress, to indicate a person's motivation and morale at work (Brown, 1996; Oldham & Cummings, 1996; Vandenberg et al., 1999). Surveys of academic work include these measures to indicate academics' work environment evaluations (McInnis et al., 1994; Lacy & Sheehan, 1997; Sarros et al., 1997a, 1997b; Thorsen, 1996). It is generally assumed that the strength and intensity of these attitudes will vary according to the distinct work environment characteristics perceived by individual academics.

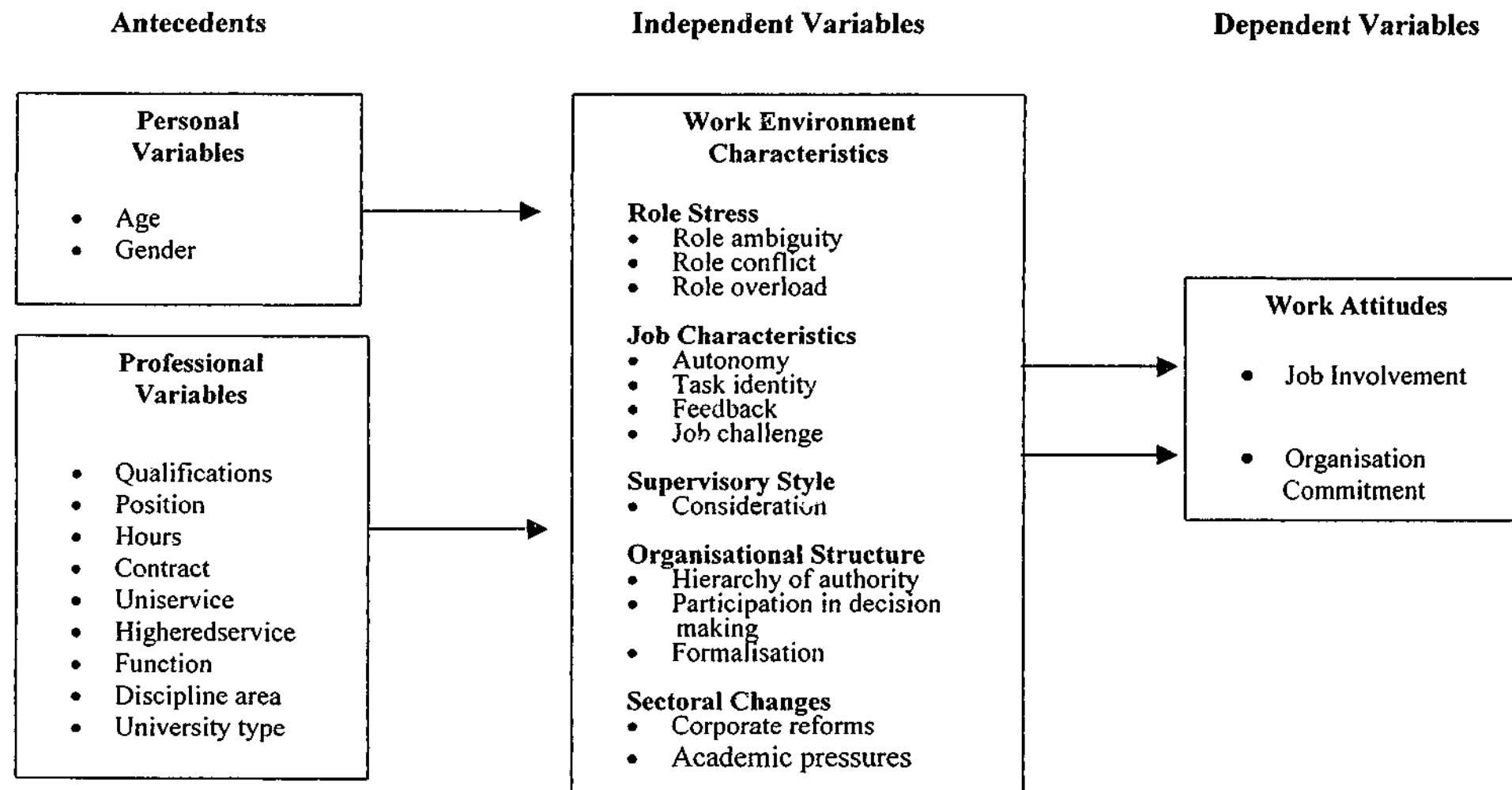
To improve academic morale and motivation in universities, researchers argue that attention must be paid to the perceived environment in which academics work (Lacy & Sheehan, 1997:321; Ramsden, 1998c:361-362). It is the perceived work environment that shapes an individual's motivation and commitment at work (James & Sells, 1981; Newman, 1974, 1975). Consequently, work environments that induce high levels of academic motivation and commitment at work provide evidence of high quality of work life (Lawler, 1992; Pfeffer, 1996). Work environments that induce low levels of academic motivation and commitment at work provide evidence of low levels of quality of work life (Hackman & Oldham, 1980). Positive/negative work environments imply positive/negative states of quality of work life (QWL) since QWL cannot be separated from the work environment in which it is perceived and embedded (Balch & Blanck, 1989:44).

### 2.3.1 Conceptual Model

This study conceptualises academic work from the perspective of individual academic's quality of work life (QWL). From a QWL perspective, academic motivation and commitment at work represents an attitudinal response to the prevailing university work environment (Lacy & Sheehan, 1997; Lysons & Ryder, 1989; Mahony, 1996). Since job involvement and organisational commitment are well established indicators of an individual's motivation and commitment at work (Brown, 1996; Mayer & Schoorman, 1992; Mowday, Porter, & Steers, 1982; Vandenberg et al., 1999), and the perceived work environment shapes an individual's motivation and commitment at work (James & Sells, 1981; Newman, 1974, 1975), QWL is inferred from both academics' work environment perceptions and work related attitudes. The Quality of Academic Work Life Conceptual Model is shown in Figure 2.3.

#### 2.3.1.1 Demographic Variables

Antecedent demographic variables refer to an academic's personal (age, gender) and professional (qualifications, position, hours, contract, years of university service, years of higher education service, function, discipline area, university type) and professional characteristics. Demographic variables are included in the QWL Model (see Figure 2.3) for cross-sample analysis purposes. Previous studies indicate generally weak and non-significant relationships between demographic variables and job involvement (Brown, 1996:243) and demographic variables and organisation commitment (Mathieu & Zajac, 1990:180).



**Figure 2.3**  
**Quality of Academic Work Life Conceptual Model**

### 2.3.1.2 Work Environment Characteristics

Following previous psychological climate (James & Sells, 1981; Lysons & Ryder, 1989; Ryder & Southey, 1990) and perceived work environment (Amabile et al., 1996; Newman, 1977) studies, the academic work environment is conceptualised in terms of:

1. **Role stress** (i.e., the nature of academics' work role expectations and demands: role ambiguity, role conflict, role overload),
2. **Job characteristics** (i.e., the nature of academics' job tasks: job challenge, autonomy, task identity, feedback),
3. **Supervisory style** (i.e., the nature of the supervisor-academic relationship: considerate/supportive supervision),
4. **Organisational structure** (i.e., degree of university structure shaping/restricting academic job positions and roles: centralisation, formalisation), and
5. **Sectoral changes** (i.e., large-scale corporate reforms to the Australian higher education sector such as the end of the binary system, the rise of managerialism in academe; academic pressures such as an expansion and diversification of the student population).

Previous research has established the first four immediate work environment characteristics as psychologically meaningful and significant for most individuals across a range of job classifications and different organisational settings (e.g., Amabile et al., 1996; Blau, 1987; Campbell, Dunnette, Lawler, & Weick, 1970; Hackman & Oldham, 1980; Hellriegel & Slocum, 1974; James & Sells, 1981; Jones & James, 1979; Oldham & Cummings, 1996; Payne & Pugh, 1976; Rizzo, House, & Lirtzman, 1970; Spector, 1986) including Australian academics (Lysons & Ryder, 1989; Mahony, 1996; Winter, Sarros, & Tanewski, 1998a; Wolverson et al., 1999). It is these immediate work environment characteristics that account for a substantial part of the variability in individual's work attitudes and behaviours (Leigh, Lucas, & Woodman, 1988; Newman, 1974, 1975).

Research suggests in professional bureaucracies such as universities (see McCollow & Lingard, 1996:14), work environments that clarify roles and job tasks, design jobs based on work autonomy and enrichment principles, provide timely and relevant feedback on job performance, promote considerate and supportive supervision, and encourage employee participation in decision making are often associated with high levels of job involvement and organisation commitment (Blau, 1987; Brown, 1996;

Lawler, 1992; Pfeffer, 1996; Spector, 1986). Perceived threats to these environmental domains are often associated with deleterious psychological and behavioural outcomes (i.e., job dissatisfaction, alienation, low commitment) and hence are seen as important to academics' intrinsic motivation and QWL.

A fifth domain, sectoral changes, explores the impact of corporate reforms and associated academic pressures on academics' work attitudes. Corporate reforms indicate the end of the binary divide between CAE's and universities (Meek, 1991), the rise of managerialism in academe (Crowley, 1999; DeBats & Ward, 1998), and increased emphasis on academic entrepreneurialism (Marginson, 1999; Slaughter & Leslie, 1997) and quality assurance and appraisal systems (McInnis et al., 1994; Taylor et al., 1998). There is some evidence to suggest that corporate reforms have exerted a negative effect on the quality of academic work life in Australian universities (DeBats & Ward, 1998; Taylor et al., 1998).

#### 2.3.1.3 Work Attitudes

Academics' evaluations of their work environments are manifest in two broad work related attitudes: job involvement (Blau, 1985; Kanungo, 1982a) and organisation commitment (Mowday et al., 1982). Job involvement and organisational commitment are closely related but distinct constructs (Blau, 1987; Brooke, Russell, & Price, 1988; Mathieu & Farr, 1991). The primary difference between them is their respective reference points. Job involvement is defined as a cognitive belief state reflecting a person's psychological identification with her/his job, whereas organisational commitment refers to the attitude of attachment or loyalty to the employing organisation (Morrow, 1983, 1993).

Research on the determinants of job involvement (e.g., Blau, 1985, 1987; Brown, 1996; Kanungo, 1982b) and organisational commitment (e.g., Angle & Perry, 1981; Blau, 1987; Mowday et al., 1982) has emphasised the importance of 'fit' of a person with her/his work environment. For example, Hackman and Oldham's (1980) Job Characteristics Model assumes that individuals with a higher need for personal growth respond more positively to 'enriched' jobs (i.e., those with high levels of autonomy, feedback, task identity and job challenge). This positive motivation is

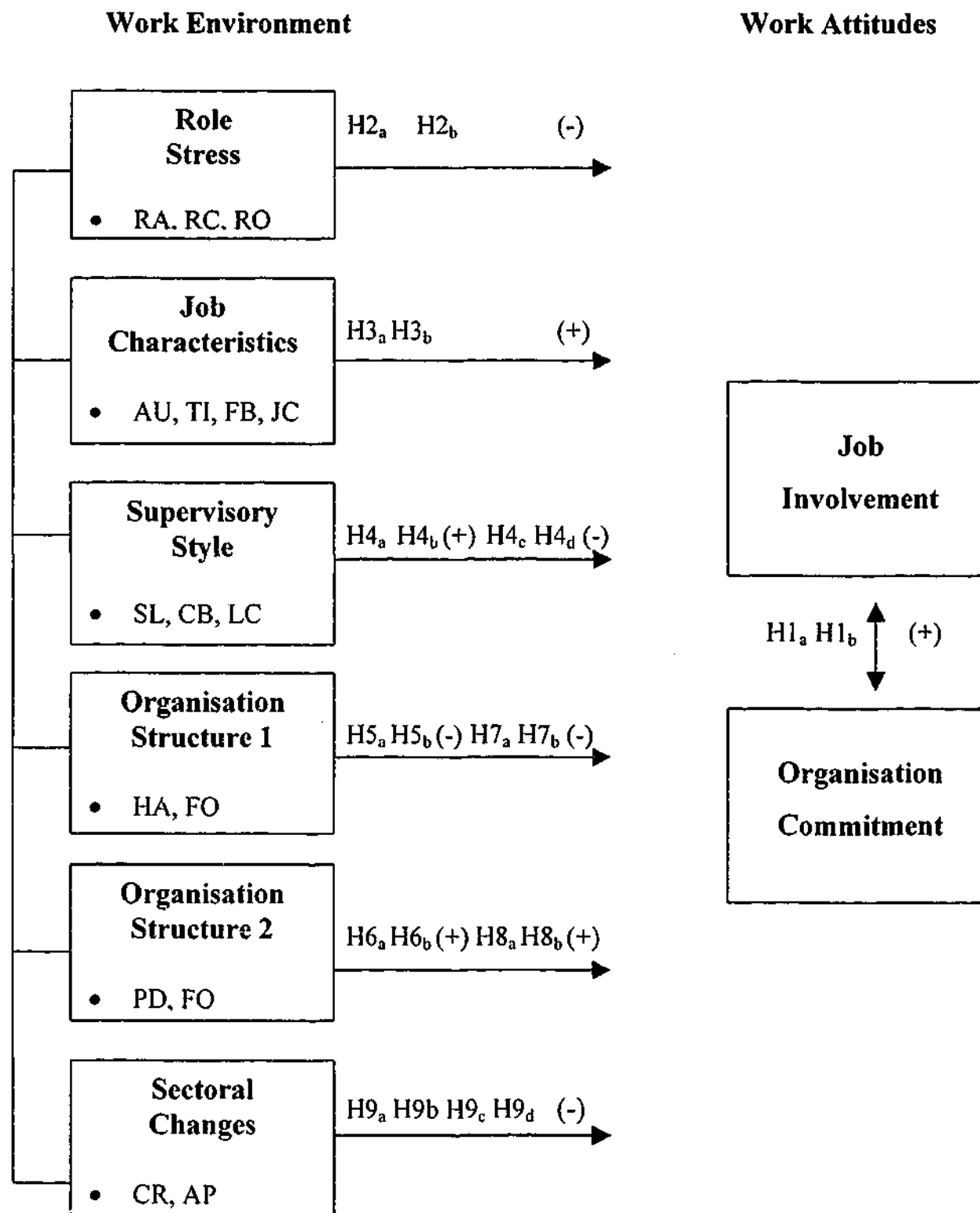
evident in attitudinal outcomes such as job satisfaction, job involvement and organisation commitment (Brown, 1996; Cherniss & Kane, 1987; Emmert & Taher, 1992; Spector, 1986; Wu & Short, 1996). Person-environment fit findings support the proposition that a work environment that meets academics' intrinsic needs for autonomy, job challenge and participation in decision making will result in increased job involvement and organisation commitment, and lower absenteeism and turnover (Blau, 1987; Blau & Boal, 1987; Rice & Austin, 1988).

## **2.4 Hypotheses**

In this section, research hypotheses propose work environment-work attitude relationships. Research hypotheses are illustrated in the Work Environment – Work Attitudes Model (see Figure 2.4). For example, Hypothesis 1<sub>a</sub> and Hypothesis 1<sub>b</sub> refers to the proposed positive relationships between job involvement and organisation commitment. Each research association will now be examined based on a discussion of the extant literature.

### **2.4.1 Job Involvement and Organisation Commitment**

Job involvement and organisation commitment are well-established indicators of an individual's intrinsic motivation and commitment at work across the work design, work psychology and organisational behaviour literature (Brown, 1996; Lam & Schaubroeck, 2000; Mathieu & Farr, 1991; Mayer & Schoorman, 1992; Mowday et al., 1982; Vandenberg et al., 1999). Brooke, Russell, and Price's (1988:143) validation study of the two constructs (n=577 staff of a Medical Centre; 86 per cent professionals) indicated respondents were able to distinguish between "the degree to which they are absorbed in or preoccupied with their job (involvement), and the degree of attachment or loyalty they feel towards their employing organisation (commitment)". Results from other studies suggest job involvement and organisational commitment are empirically distinct constructs (Blau, 1987; Mathieu & Farr, 1991). Consequently, academics may express a strong sense of involvement in their respective jobs but not express the same level of attachment to their university, or vice versa.

Note:

RA = Role ambiguity, RC = Role conflict, RO = Role overload

AU = Autonomy, TI = Task identity, FB = Feedback, JC = Job challenge

SL = Supportive leadership, CB = Considerate behaviour, LC = Lack of consideration

HA = Hierarchy of authority, FO = Formalisation

PD = Participation in decision making

CR = Corporate reforms, AP = Academic pressures

**Figure 2.4**  
**Work Environment – Work Attitudes Model**

According to Brown (1996:239), prior research has not "clarified, or even addressed, the causal precedence of job involvement with respect to organizational commitment". However, needs satisfaction theory predicts employees first become familiar with and involved in particular jobs and then develop commitment to the organisation as their psychological needs are satisfied over time (Mowday et al., 1982). That is, organisation commitment "is more often likely to evolve from a state of job involvement" assuming organisations provide employees with jobs they desire (Brown, 1996:239). But it is also reasonable to postulate that employees, given certain financial (e.g., superannuation, leave provisions) and social (e.g., work group relations) inducements are likely to maintain membership of the organisation, and as a consequence, express strong levels of attachment to both their jobs (job involvement) and their organisations (organisation commitment) over time.

Previous studies indicate strong positive associations between job involvement and organisation commitment (Blau, 1987; Blau & Boal, 1987; Brown, 1996; Lam & Schaubroeck, 2000; Mathieu & Zajac, 1990; Mowday et al., 1979). Brown's (1996:244) meta-analyses of 51 pairwise relationships involving job involvement (212 studies, 249 independent samples) found a strong positive mean-corrected correlation ( $r=.50$ ,  $p<.01$ ) between job involvement and organisation commitment in 71 studies with a cumulative sample size of over 26,000. In the same meta-analysis, a strong positive mean-corrected correlation ( $r=.51$ ,  $p<.01$ ) was reported between job involvement and Mowday et al.'s (1979) affective commitment scale in 53 studies with a cumulative sample size of over 22,000 (Brown, 1996:243). Mathieu and Zajac's (1990:176) meta-analysis results of correlates of organisational commitment found a large positive mean-corrected correlation ( $r=.44$ ,  $p<.01$ ) for job involvement based on 20 samples with a cumulative sample size of 5,779. Based on the responses of 360 tellers at a large Hong Kong international bank, Lam and Schaubroeck (2000) reported significant positive correlations between involvement and commitment over three periods of time (.48, .42, .40,  $p<.01$ ). On the basis of these findings, H1a and H1b are proposed:

**Hypothesis 1a:** The more job involvement academics express, the greater their organisation commitment.



**Hypothesis 1b:** The less organisation commitment academics express, the lower their job involvement.

### **2.4.2 Role Stress and Work Attitudes**

Role stress (i.e., role conflict, role ambiguity, role overload) exerts direct negative effects on academics' work attitudes. This proposition is based on previous studies of academic work whereby academics experiencing work stress also report negative attitudes such as frustration, alienation, job dissatisfaction and low morale (Currie, 1996; Everett & Entrekin, 1994; Mahony, 1996; Nixon, 1996; Randle & Brady, 1997). Work stress induces negative attitudes and behaviours whenever organisation role demands: (1) do not match the orientations or values of the role occupant (i.e., person-role conflict), (2) are not clearly defined (i.e., role ambiguity), and (3) exceed the time and resources available for their accomplishment (i.e., role overload).

Kahn, Wolfe, Quinn, Snoek and Rosenthal (1964) provide the theoretical base for the study of role stress within organisations. Each role construct is seen as having an objective or work environment component and a subjective, experienced, or psychological component. That is, 'objective' role conflict, role ambiguity and role overload are regarded actual, verifiable conditions in the work environment, and 'subjective' role conflict, ambiguity and overload are internal states of the focal person (King & King, 1990:49). Incongruent expectations between perceived and designated roles are psychologically uncomfortable for professional employees and induce negative emotional reactions because they diminish perceived effectiveness on the job (Kahn & Byosiore, 1992; Kahn et al., 1964; Schaubroek, Cotton, & Jennings, 1989). This negative stress response is reflected in lower reported levels of job involvement and organisation commitment.

Kahn et al. (1964) defined two major types of role ambiguity: (1) task ambiguity and (2) socio-emotional ambiguity. Task ambiguity "results from lack of information concerning the proper definition of the job, its goals and the permissible means for implementing them" (Kahn et al., 1964:94). In such a situation, job responsibilities and accompanying tasks are not clearly defined and employees are unsure of the

exact behavioural requirements to fulfil their required roles. Socio-emotional ambiguity relates to aspects of role performance such as the uncertainty a person experiences when they are worried about the effects of their actions on their own well-being, the work group, or the organisation as a whole. Kahn et al. (1964:19-20) also identified four facets of role conflict:

1. *Person-role conflict* - the extent to which role expectations are incongruent with the orientations or values of the role occupant.
2. *Intersender conflict* - the extent to which role expectations from role senders oppose those from other members of a role set.
3. *Intrasender conflict* - the extent to which role expectations from a single role sender are mutually incompatible.
4. *Role overload* - the extent to which various role expectations communicated to a role occupant exceed the amount of time and resources available for their accomplishment.

Academics report role conflict when organisation role demands do not match their orientations or values. Nixon (1996) and Randle and Brady (1997) argue 'person-role conflict' is a function of the incongruities that exist between the professional and managerial paradigms for structuring academic work. According to Nixon (1996:5), academics with a strong sense of professional identification can experience "a crisis of professional self-identity" and express low levels of organisation commitment when their goals and values conflict with academic managers.

Role overload refers to an incompatibility between work demands and the time available to fulfil those demands (Beehr, Walsh, & Taber, 1976; Kahn, 1980). According to Shull (1972:59), role overload is a two-dimensional construct since it relates not only to the personal capacity of the role incumbent, but also to the organisation resources (including time) made available to the person. Previous studies of stress among university academics report role overload is a significant component of work stress (Currie, 1996; Gmelch, Wilke, & Lovrich, 1986; Irwin, 1996; Lease, 1999; Winter et al., 1998a; Wolverson et al., 1999).

Meta-analytic studies of role stress (e.g., Fisher & Gitelson, 1983; Jackson & Schuler, 1985) and organisation commitment correlates (e.g., Mathieu & Zajac, 1990) support the proposition role stress moderates an employee's identification

with, and willingness to exert effort on behalf of, their organisation. Empirical support of a negative role stress-commitment relationship has been found for public sector occupational groups such as state employees (Mathieu & Farr, 1991; Morris & Sherman, 1981), manual, clerical and professional workers (Brooke et al., 1988; Morris & Koch, 1979), hospital employees (Welsch & LaVan, 1981) and human service workers (Glisson & Durick, 1988). Mathieu and Zajac's (1990:175) meta-analysis of the antecedents of organisational commitment, based on the results of 124 published studies conducted between 1967 and 1987 (average sample size = 294), reported medium and small mean negative correlations between role ambiguity, role conflict, role overload and organisation commitment (-.24, -.27, -.14,  $p < .01$  respectively).

Fisher and Gitelson's (1983:325) meta-analysis of the correlates of role ambiguity and role conflict found both stress measures to be negatively and significantly related to organisation commitment and job involvement (mean correlations of -.34, -.26 and -.25, -.15,  $p < .05$  respectively based on the results of 42 studies between 1970 and mid-1981). Brown's (1996:242) more recent meta-analysis and review of organisational research on job involvement provided only limited support for negative associations between role states and job involvement (mean correlations of -.16, -.17,  $p < .01$  between role ambiguity, role conflict and job involvement respectively). Fisher and Gitelson's (1983), Mathieu and Zajac's (1990) and Brown's (1996) results suggest adverse role stress perceptions have smaller negative effects on job involvement than they do on organisation commitment. However, these findings still support the proposition employees who report greater levels of role stress will also report lower levels of organisation commitment and job involvement. On the basis of these findings, H2a and H2b are proposed:

**Hypothesis 2a:** The more role ambiguity, role conflict, and role overload academics perceive, the lower their job involvement.

**Hypothesis 2b:** The more role ambiguity, role conflict, and role overload academics perceive, the lower their organisation commitment.

### 2.4.3 Job Characteristics and Work Attitudes

Job characteristics theory suggests jobs that are narrow in job content and job scope (see Deci, 1975; Herzberg, 1966; Turner & Lawrence, 1965) and lacking autonomy, challenge, and feedback (Amabile, 1988; Hackman & Oldham, 1975, 1980) are characteristic of jobs with very little or no motivating potential. Such jobs offer little opportunity for satisfying professional employees' needs for engaging, meaningful work activities: a critical psychological state associated with important outcomes such as intrinsic motivation, job satisfaction, and work effectiveness (Hackman & Lawler, 1971; Hackman & Oldham, 1976, 1980; Kiggundu 1990). Academics motivated by intrinsically rewarding job tasks are expected to exhibit high levels of job involvement and strong affective commitment to their universities. Jobs that contain little challenge, autonomy, or feedback for academics are expected to decrease involvement and commitment since they fail to meet academics' expectations of intrinsic task fulfilment at work (Barnabé & Burns, 1994; McInnis, 1996).

According to the work of Hackman and his associates (Hackman & Lawler, 1971; Hackman & Oldham, 1976, 1980), the motivating potential of jobs can best be represented by the following core job dimensions: skill variety (the number of different skills required by the job), autonomy (the degree to which the individual has freedom in deciding how to do the work), task identity (the degree to which the job produces something meaningful), and feedback (the degree to which the individual obtains ongoing feedback indicating success in the work, ideally from work outcomes). An underlying assumption of growth need theory is 'enriched' jobs possess relatively high levels of these attributes and therefore employees are motivated toward higher levels of task performance (Holland, 1985). A meta-analysis of over seventy-five empirical studies that included these four core dimensions found some support for the contention that enriched jobs provide both challenging and motivating work opportunities (Fried & Ferris, 1987). Studies of employee creativity also suggest individual's produce their most creative work when working autonomously on complex, challenging job tasks (Amabile & Grysiewicz, 1989; Oldham & Cummings, 1996).

Hackman and Oldham's (1980) Job Characteristics Model (JCM) is the dominant theoretical construct in work redesign. However, the JCM has been developed on the basis of findings in business settings. To test its utility in education settings, Barnabé and Burns (1994) conducted an exploratory study of 247 Quebec teachers' job characteristics and motivation. Their results provided some support for the theory in educational settings. All five job dimensions were positively related to internal work motivation and general satisfaction although the positive correlations found (.12 to .44,  $p < .01$ ) were not as strong in every case as those reported by Hackman and Oldham (1975:167). Winter et al.'s (2000:286) exploratory study of the quality of academic work life within a comprehensive university in Australia ( $n=189$ ) reported moderate to strong positive correlations between skill variety, task identity, autonomy, feedback, job challenge and organisation commitment ( $r=.21, .22, .30, .34, .41, p < .01$  respectively). The same study reported moderate to strong negative correlations between task identity, feedback, autonomy, skill variety, job challenge and work alienation, the inverse of job involvement ( $r=-.27, -.32, -.43, -.47, -.61, p < .01$  respectively).

A number of studies have consistently demonstrated that an employee's perception of task characteristics influences his/her job involvement (Brown, 1996) and affective commitment to the organisation (e.g., Agarwal & Ramaswami, 1993; Losocco, 1989; Mathieu & Zajac, 1990; Steers, 1977). Enriched jobs, it seems, stimulate job involvement and other forms of intrinsic motivation (Hackman & Lawler, 1971; Hackman & Oldham, 1980). Brown's (1996:242) meta-analyses of relationships between job characteristics and job involvement (212 studies, 249 samples) revealed medium to large, significant positive correlations (task identity,  $r=.21$ ; autonomy,  $r=.22$ ; feedback,  $r=.28$ ; task significance,  $r=.34$ ; skill variety,  $r=.36$ ; job challenge,  $r=.47, p < .01$ ) suggesting job involvement is substantially related to such situational influences. Commitment to an organisation is greatest among jobs that provide considerable task variety (Mathieu & Hamel, 1989), autonomy (Losocco, 1989; Rabinowitz, Hall, & Goodale, 1977), identity (Glisson & Durick, 1988; Steers, 1977), and feedback (Blau, 1987; Porter & Steers, 1973). Conversely, jobs having limited scope and depth provide fewer intrinsic motivation opportunities and employees are likely to express lower levels of commitment to

their organisations. On the basis of these reported relationships, H3a and H3b are proposed:

**Hypothesis 3a:** The more autonomy, task identity, feedback, and job challenge academics perceive, the greater their job involvement.

**Hypothesis 3b:** The more autonomy, task identity, feedback, and job challenge academics perceive, the greater their organisation commitment.

#### **2.4.4 Supervisory Style and Work Attitudes**

A key empirical indicator of managerial control in large bureaucratic organisations is the nature of the supervisor-employee relationship. Strong supervisory direction establishes and maintains the hierarchy of command (Aiken & Hage, 1966; Hall, 1963; Kakabadse, 1986). A supervisory style that is experienced as controlling tends to be task-oriented and directed toward goal attainment (e.g., giving instructions, scheduling activities, emphasising deadlines). Researchers at Ohio State University labelled such a style as 'initiating structure' (Schriesheim & Bird, 1979). Typically this style undermines intrinsic motivation since it shifts an employee's focus of attention away from immediate work activities toward external concerns (Deci & Ryan, 1987). Alternatively, a consideration style describes the extent to which a leader is mindful of subordinates, respects their ideas and feelings, establishes mutual trust, and is oriented toward their subordinates' welfare (Daft, 2000:508). Supervisors exhibiting a considerate style promote intrinsic motivation and the accomplishment of immediate work activities, a condition that encourages employee skill development and creative achievement (Amabile, 1983; Deci & Ryan, 1987; Oldham & Cummings, 1996). In professional organisations, a considerate supervisory style is associated with teamworking environments whereby professionals collaborate on a variety of project-related tasks and report high levels of commitment to their organisations (Griffin, 1980; Winter, 1992).

To reduce the stress and increase the commitment of professional employees, managers are often advised to exercise considerate styles of behaviour (Raelin, 1986). Supervisory consideration provides professional employees with the psychological support they need to cope with complex job demands and frustrations.

Hence, considerate styles of management are participatory in that professionals are provided with opportunities to negotiate role demands (and hence reduce role stress) that can enhance their psychological commitment to their organisations (Agarwal & Ramaswami, 1993; Gaertner & Nollen, 1989; Michaels, Day, & Joachimsthaler, 1987; Zeffane, 1994).

Results from Brown's (1996) and Mathieu and Zajac's (1990) meta-analyses of organisational research on job involvement and organisation commitment respectively support the prediction considerate supervision enhances intrinsic motivation thereby increasing an individual's job involvement and organisation commitment. Leader consideration across nine ( $n=4,139$ ) and twelve separate samples ( $n=2,642$ ) respectively yielded moderate but significant positive mean-corrected correlations of .27 ( $p<.01$ ) with job involvement (Brown, 1996:242) and .33 ( $p<.01$ ) with organisation commitment (Mathieu & Zajac, 1990:175). Hypotheses H4a and H4b reflect these research associations:

**Hypothesis 4a:** The more supportive leadership and considerate behaviour academics perceive, the greater their job involvement.

**Hypothesis 4b:** The more supportive leadership and considerate behaviour academics perceive, the greater their organisation commitment.

### 2.4.5 Organisation Structure and Work Attitudes

Organisation structural factors, such as the degree of centralisation (i.e., hierarchy of authority, participation in decision making) and formalisation (i.e., use of policies, rules and procedures) perceived by employees can exert a direct effect on the intrinsic motivation and commitment of professionals by limiting/expanding their opportunity to exert self-control, and/or significantly change the nature of their work activities (Morris & Steers, 1980; Organ & Greene, 1981; Wallace, 1995). Studies based on data from samples of university academics (e.g., Mottaz, 1981; Nixon, 1996; Randle & Brady, 1997), teachers (e.g., Bacharach, Bamberger, & Conley, 1990c; Hoy, Blazovsky, & Newland, 1983; Mottaz, 1981), nurses (e.g., Bacharach et al., 1990a, 1990b; Millen, 1989), sales/marketing representatives (e.g., Michaels et

al., 1988; Ramaswami et al., 1993), engineers (e.g., Bacharach et al., 1990b; Miller, 1967; Organ & Greene, 1981; Podsakoff, Williams, & Todor, 1986), police officers (e.g., Mottaz, 1981), and social service administrators (e.g., Erera, 1989; Kakabadse, 1986) support the proposition that bureaucratic work factors are critical to the levels of internal motivation and organisation commitment experienced by professionals at work.

Organisation research presents two conflicting views of the attitudinal outcomes of bureaucratic structure (see Adler & Borys, 1996; Finlay, Martin, Roman, & Blum, 1995). According to the positive view, organisation structure is 'enabling' when it provides needed guidance and clarifies responsibilities thereby reducing role ambiguity and increasing a person's affective commitment to the organisation (Finlay et al., 1995; Organ & Greene, 1981; Podsakoff et al., 1986). According to the negative view, organisation structure is 'coercive' when it reduces personal autonomy, stifles creativity and demotivates employees (Gaziel & Weiss, 1990; Greene, 1978; Hoy et al., 1983; Kakabadse, 1986; Morris & Steers, 1980; Sorensen & Sorensen, 1974). Both views are discussed in order to formulate organisation structure-work attitude hypotheses for Australian academics.

#### **2.4.5.1 Centralisation and Work Attitudes**

Scott (1966:268) and Benson (1973:383), applying a dialectical approach to the study of professional-bureaucratic conflict in organisations, argue alienation is inevitable in bureaucratic structures given the fundamental differences that exist between bureaucratic and professional modes of work organisation. Because professionals participate in two systems (the profession and the organisation) there will always be potential conflict associated with the organisation's attempts to deploy professionals in a rational, unitary manner with respect to its goals (Blau & Scott, 1962; Thompson, 1961; Raelin, Sholl, & Leonard, 1985). A number of studies provide empirical evidence in support of 'professional-bureaucratic' conflict theory (Ashforth, 1989; Kakabadse, 1986; Michaels et al., 1988; Millen, 1989; Mottaz, 1981; Organ & Greene, 1981; Podsakoff et al., 1986; Ramaswami et al., 1993; Sorenson & Sorenson, 1974; Zeffane & Macdonald, 1993).



In large bureaucratic structures such as universities (see Mahony, 1996:56-57; Valentine, 1997), there exists the potential for conflict between academics and administrators over decisions that impact the immediate work environment (Copur, 1990; Ramsden, 1998d). A hierarchy of centralised authority can often limit an academic's control over work activities (e.g., Hoy et al., 1983; Hunter, 1982; Lewis & Altbach, 1996; Mahony, 1996) making academics increasingly instrumental in their attitudes and behaviour (Nixon, 1996; Parker & Jary, 1995; Randle & Brady, 1997). Thus, by lowering individuals' perceived degree of professional autonomy and status centralisation can exert a negative effect on academics' work attitudes. Brooke et al. (1988:143) reported significant negative correlations between centralisation and work attitudes (-.38, -.39,  $p < .001$  respectively for involvement and commitment) based on a sample of 577 full-time Medical Centre employees. DeCotiis and Summers (1987:459) and Winter et al. (2000:286) reported the same negative correlation (-.32,  $p < .01$ ) between centralisation and organisation commitment based on samples of managerial employees ( $n=367$ ) and academics ( $n=189$ ) respectively.

By increasing individuals' perceived degree of professional control over work activities participation in decision making can increase academic job involvement, commitment and performance. Spector's (1986:1012) meta-analyses of perceived control studies (1980 to 1985) found strong positive mean correlations ( $r=.50$ ,  $p < .05$ ) between participation and job involvement based on a large sample size ( $n=5,866$ ). Similarly, Brown (1996:242) reported a significantly strong positive association between participation and job involvement ( $r=.55$ ,  $p < .01$ ) based on his meta-analyses of relationships between situational variables and job involvement (9 samples,  $n=7,577$ ). Bateman and Strasser (1984:102), and Gaertner and Nollen (1989:984) have also found strong positive correlations between participation and organisation commitment based on diverse samples of employees (.44, .60,  $p < .001$ ,  $p < .05$  respectively). Finally, Winter et al. (2000:286) reported participation correlated positively and significantly with organisation commitment based on a sample of Australian academics ( $r=.27$ ,  $p < .01$ ). On the basis of these findings, H5a, H5b, H6a, and H6b are proposed:

- Hypothesis 5a:** The more hierarchy of authority academics perceive, the lower their job involvement.
- Hypothesis 5b:** The more hierarchy of authority academics perceive, the lower their organisation commitment.
- Hypothesis 6a:** The more participation in decision making academics perceive, the greater their job involvement.
- Hypothesis 6b:** The more participation in decision making academics perceive, the greater their organisation commitment.

#### 2.4.5.2 Formalisation and Work Attitudes

Only a small number of studies have examined the influence of formalisation on job involvement. Brown's (1996) meta-analysis of the antecedents of job involvement did not classify formalisation as an antecedent variable. This omission suggests studies of formalisation "typically explain only a small proportion of its attitudinal impacts, reflecting the fact that employee attitudes differ considerably across organizations with comparably high levels of formalization" (Adler & Borys, 1996:66). Finlay et al. (1995) suggest equivocal organisation structure-attitude results may be due to measures that conflate the effects of job and structural characteristics. Finlay et al.'s (1995:437) study of the effects of formalisation (standardisation of procedures, rule enforcement) on the job satisfaction of 169 Employee Assistance Program administrators in the US, found a moderately negative relationship ( $r = -.20$ ,  $p < .01$ ) between standardisation of procedures and employee job satisfaction even when controlling for job characteristics.

Work alienation studies indicate formalisation may reduce academic job involvement when external rules and procedures are perceived as limiting and a threat to professionals' autonomy expectations (Gaziel & Weiss, 1990; Greene, 1978; Hoy et al., 1983; Kakabadse, 1986; Morris & Steers, 1980; Sorensen & Sorensen, 1974). Examining the relationship between bureaucratic structure (centralisation, formalisation) and work alienation in U.S. secondary schools (2,500 educators in 41 New Jersey schools), Hoy et al. (1983:116) reported formalisation (job codification, rule observation) related positively and significantly to alienation from work ( $r = .46$ ,

.63,  $p < .05$  respectively). Similarly, Gaziel and Weiss's (1990) study of the effects of bureaucratic structure on the alienation of Israeli primary school teachers (529 teachers in 31 schools), reported significant positive correlations between formalisation and alienation from work ( $r = .31, .46, p < .001$  respectively). In their study examining the associations between perceived organisational structure and alienation among management trainees ( $n = 100$ ), Allen and LaFollette (1977:337) found formalisation (job codification) to be directly related to alienation from work ( $r = .39, p < .01$ ). Winter et al.'s (2000:286) exploratory study of the QWL of 189 academic staff also reported a strong positive association between formalisation and work alienation ( $r = .29, p < .01$ ). These results are consistent with Greene's (1978:491) findings that formalisation relates positively to alienation and negatively to job involvement for those individuals with a strong professional identification.

To explain the relationship between organisational structure and employee reactions to the work context, Oldham and Hackman (1981) collected data from 2,960 employees working on 428 jobs in 36 organisations. Oldham and Hackman (1981:75) reported small but significant negative correlations between formalisation (i.e., the extent to which rules, procedures, instructions and communications are written) and three employee reactions: (1) employee internal motivation ( $-.14, p < .05$ ), (2) general job satisfaction ( $-.16, p < .05$ ), and (3) growth satisfaction ( $-.12, p < .05$ ). Winter et al.'s (2000:286) exploratory study of 189 academic staff's QWL also reported a moderately negative correlation ( $-.18, p < .05$ ) between formalisation and organisation commitment and a positive, more significant correlation between formalisation and work alienation ( $.29, p < .01$ ). Study results indicate formalisation is associated with negative attitudinal outcomes when it limits personal autonomy and demotivates employees (Greene, 1978; Hoy et al., 1983; Sorensen & Sorensen, 1974).

Studies of scientists and engineers (Organ & Greene, 1981), lawyers, architects and clerical workers (Podsakoff et al., 1986), salespersons (Michaels et al., 1988) and marketing employees (Ramaswami et al., 1993) report positive relationships between formalisation and organisation commitment. Organ and Greene (1981:245), examining formalisation and alienation relationships based on a sample of U.S.

scientists and engineers ( $n=247$ ), reported formalisation reduced feelings of alienation by reducing role ambiguity ( $r=-.40$ ,  $p<.01$ ) and enhancing organisational identification ( $r=.33$ ,  $p<.01$ ). Studies testing Organ and Greene's (1981) 'compensatory process model' (i.e., formalisation reduces alienation through the effects of reducing role ambiguity and increasing organisational commitment) have found some support for the proposed effects. Podsakoff et al's (1986:826) study of the effects of formalisation on alienation among professionals ( $n=88$ ) and non-professionals ( $n=168$ ) reported formalisation reduced alienation through its effects on reducing role ambiguity ( $r=-.59$ ,  $p<.01$ ) and increasing organisational commitment ( $r=.61$ ,  $p<.01$ ). Similarly, Michaels et al. (1988) found formalisation reduced alienation by lowering levels of role ambiguity ( $r=-.52$ ,  $-.56$ ,  $p<.001$ ) and role conflict ( $r=-.24$ ,  $-.25$ ,  $p<.001$ ) for samples of salespersons ( $n=215$ ) and industrial buyer ( $n=330$ ). However, little association was found between formalisation and organisational commitment. On the basis of this evidence, formalisation increases job involvement when information clarifies role demands and highlights behaviours that will be rewarded by the organisation. In such situations, formalisation increases job motivation by reducing role ambiguity and role conflict (Michaels et al., 1988; Nicholson & Goh-Swee, 1983; Organ & Greene, 1981; Podsakoff et al., 1986). Formalisation may increase organisational commitment when rules, procedures and written communications are perceived as useful, enhancing perceptions of the organisation's dependability (Morris & Steers, 1980).

On the basis of negative (coercive) and positive (enabling) formalisation-work attitude findings, H7a, H7b, H8a and H8b are proposed:

- Hypothesis 7a:** The more formalisation academics perceive, the lower their job involvement.
- Hypothesis 7b:** The more formalisation academics perceive, the lower their organisation commitment.
- Hypothesis 8a:** The more formalisation academics perceive, the greater their job involvement.
- Hypothesis 8b:** The more formalisation academics perceive, the greater their organisation commitment.

### 2.4.6 Sectoral Changes and Work Attitudes

Studies of academic work have generally reported negative staff responses to major corporate reforms across the Australian higher education sector (Currie, 1996; Mahony, 1996; Martin, 1999; Taylor et al., 1998; Winter et al., 2000). Taylor et al. (1998), surveying the perceptions of academic staff to higher education reforms in three Australian universities (n=411), revealed a "high level of concern in many areas of academic responsibility and a dismal assessment of future prospects" (Taylor et al., 1998:255). Written comments by academics suggested "academic freedom had been limited by economic pressures" and "university management was responsible for the limiting of academic freedom" (Taylor et al., 1998:265). Comments by academics from within one comprehensive university revealed "many academics felt disenchanted and demoralised with the tenets and practices of managerialism" (Winter et al., 2000:279).

Large-scale institutional mergers, brought about by the combining of universities and CAE's into a single Unified National System, has intensified academic workloads (DETYA, 1999c) and left academic work roles and responsibilities ill-defined and ambiguous (Wolverton et al., 1999). Role overload (Currie, 1996; Sarros et al., 1997a, 1997b), and an increase in non-core tasks associated with quality assurance mechanisms and institutional profile assessments (McInnis, 1996; Taylor et al., 1998), has been reported in academe along with frustration, dissatisfaction, and low commitment (Currie, 1996; Lacy & Sheehan, 1997; Taylor et al., 1998; Winter et al., 2000).

As academic morale falls and work intensification increases, a commensurate decrease in academic job involvement is expected in Australia's universities as academics find fewer and fewer opportunities to pursue their own academic interests (DETYA, 1999c:xiii). Likewise, academics experiencing uncertainty in changing organisational structures, systems and processes at work should reduce their affective commitment to their universities as corporate reforms and academic pressures increase (Nelson & Cooper, 1995; Stabler, 1995). Hypotheses H9a, H9b, H9c and H9d reflect these research associations:

- Hypothesis 9a:** The greater the perceived impact of corporate reforms on academic work, the lower the job involvement of academics.
- Hypothesis 9b:** The greater the perceived impact of corporate reforms on academic work, the lower the organisation commitment of academics.
- Hypothesis 9c:** The more academic pressures academics perceive, the lower the job involvement of academics.
- Hypothesis 9d:** The more academic pressures academics perceive, the lower the organisation commitment of academics.

## 2.5 Summary

This chapter utilised a three-layer organisational change framework to discuss corporate reforms to higher education (national-structural level), the impact on university work structures (organisational level), and possible effects on academics' perceptions, attitudes and behaviours (individual level). On the basis of this discussion, a Quality of Work Life Conceptual Model was presented (see Figure 2.3) and work environment-work attitude hypotheses formulated (see Figure 2.4). Positive associations were hypothesised between job involvement and organisation commitment work attitudes (Hypotheses 1a and 1b).

Role stress factors were posited to lower the job involvement and organisation commitment of academics at work (Hypotheses 2a and 2b respectively). Reflecting a 'professional-bureaucratic conflict' view of academic work (see Copur, 1990; Nixon, 1996; Randle & Brady, 1997), negative relationships were posited among hierarchy of authority, formalisation structural characteristics and academics' work attitudes. Thus, the more hierarchy of authority and formalisation academics perceive in university structures, the lower the job involvement (Hypotheses 5a and 7a respectively) and organisation commitment (Hypotheses 5b and 7b respectively) of academics. Similarly, the greater the perceived negative impact of corporate reforms and academic pressures on academic work, the lower the job involvement (Hypotheses 9a and 9c respectively) and organisation commitment (Hypotheses 9b and 9d respectively) of academics.

Reflecting job enrichment (Deci, 1975; Hackman & Oldham, 1980), employee involvement (Lawler, 1992; Pfeffer, 1998; Vandenberg et al., 1999) and role clarification (Morris & Steers, 1980; Organ & Greene, 1981; Podsakoff et al., 1986) principles, positive relationships were posited among job characteristics (Hypotheses 3a and 3b), supervisory consideration (Hypotheses 4a and 4b), participation in university decision making (Hypotheses 6a and 6b), formalisation (Hypotheses 8a and 8b) and academics' work attitudes. Thus, the more job enrichment (i.e., greater autonomy, task identity, feedback, job challenge), supervisory consideration, participation in decision making, and formalisation (to clarify role demands) academics perceive at work, the greater the job involvement and organisation commitment of academics.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Introduction**

This chapter describes a survey research methodology for examining the quality of academic work life within Australian universities. First, the purpose, conceptual framework, research design and methods of the study are described. The population for the study is then delimited and the process of sample selection specified. The process of survey design and development is then documented. Next, survey measures are described, and the steps carried out to collect, prepare and analyse quantitative and qualitative survey data explained. The chapter concludes by outlining some methodological limitations of the study.

The chapter is divided into nine sections: (1) Research Design and Methods, (2) Sampling Methodology, (3) Survey Design and Development (4) Measures, (5) Data Collection, (6) Data Preparation (7) Data Analysis, (8) Methodological Limitations, and (9) Summary.

#### **3.2 Research Design and Methods**

##### **3.2.1 Purpose of the Study**

The purpose of this quality of work life study was to identify work environment characteristics that represented sources of high/low academic motivation and commitment in Australian universities. In addressing the problem of declining academic morale and motivation, the study addressed the following five questions:

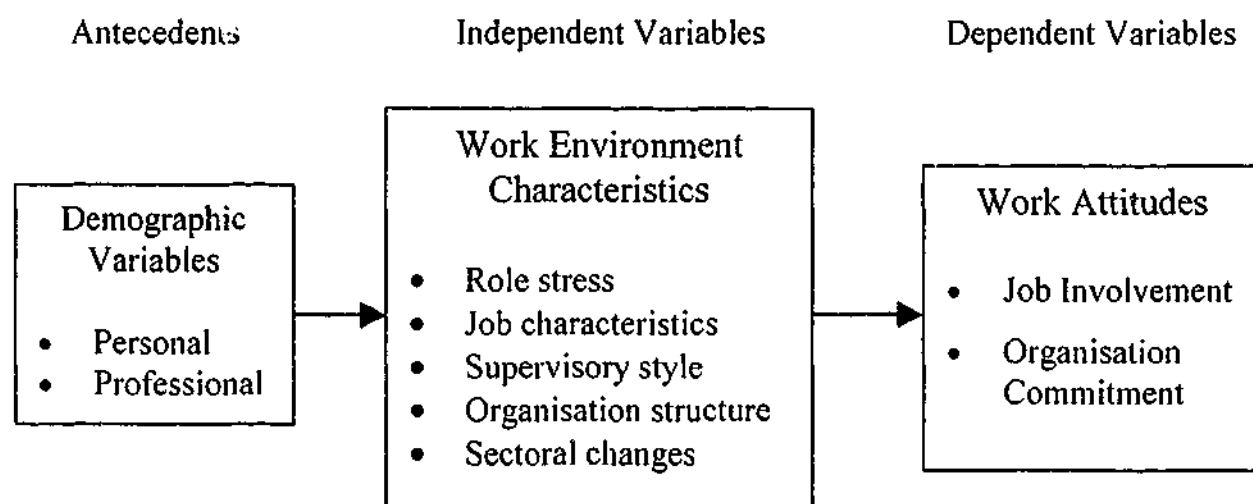
1. What are the work environment perceptions and work attitudes of academics across the sample?
2. Which demographic variables account for significant differences in the work environment and work attitude responses of academics?
3. What is the underlying factor structure of survey measures? How well do observed indicator variables measure unobserved latent variables?



4. Which demographic variables and work environment characteristics represent significant work attitude predictors?
5. How do demographic variables and work environment characteristics relate to the work attitudes of academics? What is the strength and direction of this relationship?

### 3.2.2 Quality of Academic Work Life

In examining the quality of work life in academe, the study focused on work environment characteristics that directly and indirectly shape the work related attitudes of academics on a daily basis. Thus, quality of academic work life was conceptualised as a perceptual response to the prevailing work environment that induces high/low levels of job involvement and organisation commitment (Balch & Blanck, 1989). As a consequence, work environment characteristics were designated independent (predictor) variables and work attitudes designated dependent (criterion) variables. The Quality of Academic Work Life Model is shown in Figure 3.1.



**Figure 3.1**  
**Quality of Academic Work Life Model**

#### 3.2.2.1 Demographic Variables

Two personal (age, gender) and nine professional (qualifications, position, hours, contract, university service, higher education service, function, discipline area, university type) characteristics were designated antecedent variables for cross-sample analysis purposes. Previous academic-related research has included these demographic variables to highlight differences in work stress, morale, and

motivation between academic staff (Blix, Cruise, Mitchell, & Blix, 1994; Copur, 1990; Currie, 1996; Sarros, Gmelch, & Tanewski, 1998).

### 3.2.2.2 Work Environment Characteristics

On the basis of prior work environment/climate reviews and research (e.g., Amabile, Conti, Coon, Lazenby & Herron, 1996; Amabile & Gyskiewicz, 1989; Campbell, Dunnette, Lawler, & Weick, 1970; Hackman & Lawler, 1971; Hackman & Oldham, 1976, 1980; House & Rizzo, 1972; Insel & Roos, 1975; James & James, 1989; James & Jones, 1974; James & Sells, 1981; Jones & James, 1979; Newman, 1975, 1977; Payne & Pugh, 1976; Schneider, 1975), including studies of the perceived work environment in Australian higher education institutions (Currie, 1996; Lysons & Ryder, 1989; McInnis, Powles & Anwyl, 1994; Ryder & Southey, 1990; Sarros, Gmelch & Tanewski, 1997a, 1997b, 1998; Taylor, Gough, Bundrock, & Winter, 1998; Winter, Taylor, & Sarros, 2000), five work environment domains, and their related measures, were selected as important to academics' work attitudes and performance. The five domains are:

1. *Role stress* (i.e., role ambiguity, role conflict, role overload);
2. *Job characteristics* (i.e., autonomy, job challenge, task identity, feedback);
3. *Supervisory style* (i.e., supportive/considerate supervision);
4. *Structural characteristics* proximal to individual academic experiences (i.e., degree of centralisation, formalisation); and
5. *Sectoral changes* (i.e., corporate reforms shaping the Australian higher education sector).

Previous research has established the first four domains as psychologically meaningful and motivating for most individuals across a range of job classifications and different organisational settings (e.g., Amabile et al., 1996; Campbell et al., 1970; Hackman & Oldham, 1980; James & James, 1989; Mulinge, 2001; Payne & Pugh, 1976). In professional service organisations such as universities, work environments that clarify roles and job tasks, design jobs based on enrichment principles, provide timely and relevant feedback on job performance, and encourage employee involvement in decision making can have a positive impact on employee morale and organisational performance (Lawler, 1992; Pfeffer, 1996, 1998; Spector, 1986; Vandenberg, Richardson, & Eastman, 1999). Perceived threats to these environmental domains are often associated with deleterious psychological and

behavioural outcomes (i.e., stress, alienation, low commitment) and hence are seen as important to academic motivation and performance at work.

Large-scale corporate reforms to the Australian higher education sector (e.g., DeBats & Ward, 1998; Marginson, 1999) were also designated predictor variables in order to assess the impact of external forces on academic motivation and performance. Recent evidence suggests that corporate education reforms in Australia have exerted a negative effect on academic morale and job performance (Taylor et al., 1998; Winter et al., 2000).

### 3.2.2.3 Work Attitudes

Job involvement and organisation commitment are well-established indicators of an individual's motivation and commitment at work (Brown, 1996; Mayer & Schoorman, 1992; Vandenberg et al., 1999). An academic involved in her/his job "implies a positive and relatively complete state of engagement of core aspects of the self in the job" (Brown, 1996:235). An academic expressing commitment to the university indicates a willingness to remain a member of that institution (i.e., reduced turnover) and to exert considerable effort on its behalf (Mowday, Steers, & Porter, 1979:226). This extra-role effort, referred to in the literature as 'organisational citizenship behaviour' (Smith, Organ, & Near, 1983), means universities can potentially derive a greater variety and level of personal services from its academic staff without having to resort to more formal and costly mechanisms of employee control (Podsakoff & MacKenzie, 1997).

According to Morrow (1983), job involvement and organisational commitment are related but distinct types of work attitudes. Job involvement is a job-specific attitude. Organisation commitment is a general attitude towards an organisation as a whole. Thus, it is possible to be very involved in a specific job but not be committed to the organisation, or vice versa. Studies have shown that job involvement and organisation commitment are distinct constructs (Blau, 1987; Mathieu & Farr, 1991) and that respondents are able to distinguish between the degree to which they are attached to their jobs (involvement) and the degree of attachment or loyalty they feel toward their employing organisation (Brooke, Russell, & Price, 1988:143).

### 3.2.3 Research Design

To examine the relationships between and among antecedent (demographic), independent (work environment) and dependent (work attitude) variables at a single point in time, a correlational field study research design was selected (Creswell, 1994; Mitchell, 1985). A correlational field study refers to data collected by questionnaire in the field that invokes no manipulations, and makes associational inferences between clearly-defined independent and dependent variables (Mitchell, 1985). Relationships between variables are usually based on statistical techniques such as correlations and multiple regressions. Hence, this correlational field study was primarily quantitative by design. Surveys were administered to stratified samples of academics in eight university work environments at a single point in time. Consequently, the study incorporated a sample survey cross-sectional design (Oppenheim, 1992:21-37).

A correlational sample survey design provided an efficient, cost-effective, and accurate means of examining a large number of variable relationships for a given sample of academics without having to take a census of the entire academic higher education population. A stratified sampling design also allowed for relationships among and between contextual (independent) and work attitude (dependent) variables to be examined by descriptive and multivariate statistical techniques. This design also enabled the researcher to test hypotheses derived from theory across eight independent samples of university academics (Creswell, 1994).

### 3.2.4 Research Methods

#### 3.2.4.1 Data Collection

A self-administered mail survey, the Academic Work Environment Survey (see Appendix A), was developed to collect both quantitative and qualitative self-report data from independent samples of full-time university academics. A major advantage of questionnaires in field study research is they are often the most plausible alternative for measuring unobservable constructs such as employees' attitudes, values, and intentions (Moorman & Podsakoff, 1992). A mail questionnaire was also selected in order to "reach a geographically dispersed sample simultaneously and at a

relatively low cost" (Zikmund, 1994:205). Mail questionnaires allowed for data confidentiality to be communicated to potential respondents, an important requirement given the researcher collected sensitive data relating to the stress and organisational commitment of respondents.

Subjective self-report data were collected since the researcher was interested in soliciting respondents' perceptions of external environmental variables and identifying how these perceptions may influence individual academic's attitudes and motivation (Podsakoff & Organ, 1986: 532). Hence, multi-item self-report measures were constructed to study individual academic's perceptions and affective responses at work. Spector's (1987:442) empirical study of method variance (i.e., variance attributable to measurement method rather than to the variables of interest) reported method variance was not a problem for multiple-item scales measuring self-reported affect and perceptions at work (Spector, 1987:442).

A *three-stage* data collection methodology was employed to develop the Academic Work Environment Survey (AWES), test its reliability and validity, and collect data from sample respondents across eight universities. In *Stage One*, the survey was pre-tested (18 academic participants at various levels across four disciplines) to gauge academics' reactions to questions, particularly the relevance and applicability of questions in an academic work context. In *Stage Two*, two pilot studies were conducted in two types of institution in two different geographical locations: (1) a west coast university of technology, and (2) an east coast multi-campus university. The first pilot study utilised the Internet and electronic mail (e-mail) to contact a geographically dispersed sample of academics. The second pilot study consisted of an internal mail survey of staff across four campuses. In *Stage Three*, the main study, the piloted survey was administered to a stratified random sample of 2,630 academic staff in eight universities representative of the Unified National System.

#### 3.2.4.2 Data Analysis

The data analysis comprised three stages: (1) descriptive analysis, (2) bivariate analysis, and (3) inferential analysis. In *Stage One*, descriptive statistics (means,

standard deviations) and qualitative comments described the work environment perceptions and work attitudes of academics (Research Question 1). In *Stage Two*, one-way analyses of variance (ANOVA), *t*-tests and Scheffé post-hoc tests indicated significant differences in overall mean scores at specified levels of significance (Research Question 2). In *Stage Three*, confirmatory factor analyses assessed the validity of survey measures (Research Question 3), multiple regression analyses identified significant work attitude predictors (Research Question 4), and structural equation modeling techniques examined relationships among demographic, work environment and work attitude variables (Research Question 5).

### 3.2.5 Permission to Conduct the Research

On 27 November 1996, the Standing Committee on Ethics in Research on Humans (SCERH), a central ethics committee of Monash University, approved the Project 96/320: Academic morale in Australian universities as conforming to NHMRC guidelines (see Appendix B: Ethics Approval Letter).

## 3.3 Sampling Methodology

Cost, time and sampling considerations made it impractical to attempt to survey academics in all of Australia's 36 unified higher education institutions. Instead, a two-stage stratified sample survey design was employed to accurately reflect the target population of full-time and fractional full-time academics on the basis of current position (i.e., Academic Duties Classification) and discipline area (i.e., Academic Organisational Unit).

A major advantage of a stratified sampling design is that because sampling units drawn from each stratum are in direct proportion to the relative population size of each stratum, there is less variability and hence less sampling error for a given sample size (Zikmund, 1994:379). In effect, this method ensured that the sample accurately reflected the target population on the basis of academic position and discipline, the major criteria used for sample stratification. In addition to sample accuracy, a two-stage proportional sampling design was adopted for reasons of time and cost. This 'focused' sampling approach has been used extensively by researchers

to study the academic profession in Australia (DEETYA, 1996b; Taylor et al., 1998), the academic profession across Europe, America, and Asia (Boyer, Altbach & Whitelaw, 1994), faculty stress in the United States (Gmelch, Wilke & Lovrich, 1986), as well as studies of academic chair and dean role stress in the United States and Australia (Sarros, Gmelch, & Tanewski, 1997a, 1997b, 1998).

### 3.3.1 Primary Sampling

For sampling purposes, the 36 publicly funded universities that provided higher education courses in Australia (as at 31 March 1996) were designated primary sampling units according to the criteria specified by the Department of Employment, Education, Training and Youth Affairs (DEETYA, 1996a). These 36 institutions were then classified into four distinct groups as suggested by Professor David Pennington, the former vice-chancellor of Melbourne University (see Appendix C: Pennington University Classification). In his submission to the West review of higher education, Professor Pennington suggested universities "should be separated into four groups: major research institutions; regional universities; generalist metropolitan universities; and universities of technology" (Coorey, 1997:39). The Pennington Classification, according to Richard James, a higher education researcher at the Centre for the Study of Higher Education, Melbourne University, is a "classification that has some merit, principally that of clarity" (R. James, personal communication, May 26, 1997).<sup>1</sup> To ensure adequate numbers for cross-sector analysis purposes, two universities were randomly selected from each of the four university groups and designated primary sampling units. Table 3.1 identifies the primary sampling units by university groups.

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<sup>1</sup> Marginson (1997) and Tight (1998) propose alternative university typologies.

**Table 3.1**  
**Primary Sampling Units by University Groups**

University Groups	n	Primary Sampling Units
Sandstone research	9	University of Sydney University of New South Wales
Generalist metropolitan	11	Flinders University of South Australia Macquarie University
Regional	10	University of New England James Cook University
Universities of Technology	6	Queensland University of Technology Swinburne University of Technology <sup>a</sup>

<sup>a</sup> Higher education division only

### 3.3.2 Secondary Sampling

In the second stage of sampling, full-time equivalent (FTE) academic staff in the eight target institutions were designated secondary sampling units. Academic staff listings provided in the 1998 issues of each institution's Calendar identified academics by institution and their respective faculties or schools. This information was used to construct sampling frames for each institution (Zikmund, 1994:360-361). The sampling frames, from which independent academic samples were drawn, were constructed on the basis of two stratification variables: (1) Academic Duties Classification, and (2) Academic Organisational Units. Table 3.2 illustrates this five by five stratified sampling design.

#### 3.3.2.1 Sample Selection

Sample selection was a proportional stratified sampling procedure of ensuring academics randomly selected were in direct proportion to the relative population size of each stratification variable (Leedy, 1989:206-213). Since sampling units were selected in direct proportion to their respective population sizes, this sampling method ensured a greater degree of sample representation thus decreasing the possibility of sampling error (Babbie, 1990). A further advantage of this method is that "the population mean can be estimated simply by calculating the mean of all sample cases" (Cooper & Emory, 1995:222).



**Table 3.2**  
**Academics by Academics Duties Classification and Academic Organisational Units**

Academic Organisational Units <sup>2</sup>					
Academic Duties Classification <sup>1</sup>	EHS	SMC	BEL	AREP	HS
Associate Lecturer					
Lecturer					
Senior Lecturer					
Associate Professor/Reader					
Professor					

**Notes:**

<sup>1</sup> Academic Duties Classification refers to full-time equivalent (FTE) staff's current academic position in the university.

<sup>2</sup> Academic Organisational Units (AOU's) refers to faculties/schools/departments within an institution where academics are currently located. AOU's are indicators of the following discipline areas:

EHS	Education , Humanities, Social Studies
SMC	Science, Mathematics, Computing
BEL	Business, Economics, Law
ARE	Architecture, Renewable Resources, Engineering
HS	Health Sciences

### 3.3.3 Target Population and Survey Sample

The target population was 6,932 full-time equivalent (FTE) academic staff, at five academic levels, across five discipline areas, in eight universities representative of the Unified National System. Table 3.3 classifies the target population of university groups by current academic position.

The target population of full-time academic staff was distributed across sandstone (n=3618, 52%), metropolitan (n=1312, 19%), university of technology (n=1118, 16%), and regional (n=884, 13%) university groups. By university group, the academic population was representative of associate lecturer (9%), lecturer (34%), senior lecturer (29%), associate professor/reader (15%), and professor (13%) positions. Table 3.4 classifies the target population of university groups by discipline areas. By university group, the academic population was representative of health sciences (27%), humanities (26%), sciences (22%), business (14%), and engineering and renewable resources (11%) discipline areas.

**Table 3.3**  
**Target Population of University Groups by Current Position**

University Groups <sup>a</sup>										
Current Position	1		2		3		4		TOTALS	
	f	%	f	%	f	%	f	%	f	%
A/Lecturer	244	6.7	147	11.2	110	9.8	101	11.4	602	8.7
Lecturer	1036	28.7	435	33.2	571	51.1	307	34.7	2349	33.9
S/Lecturer	1099	30.4	412	31.4	286	25.6	247	27.9	2044	29.5
A/Professor	667	18.4	155	11.8	97	8.7	127	14.4	1046	15.1
Professor	572	15.8	163	12.4	54	4.8	102	11.6	891	12.8
TOTALS	3618	100.0	1312	100.0	1118	100.0	884	100.0	6932	100.0

<sup>a</sup> 1 = Sandstone research (University of Sydney, University of New South Wales).

2 = Generalist metropolitan (Flinders University of South Australia, Macquarie University).

3 = University of Technology (Queensland University of Technology, Swinburne University of Technology - Higher Education Division).

4 = Regional (University of New England, James Cook University).

**Table 3.4**  
**Target Population of University Groups by Discipline Areas**

University Groups <sup>a</sup>										
Discipline Areas <sup>b</sup>	1		2		3		4		TOTALS	
	f	%	f	%	f	%	f	%	f	%
EHS	672	18.6	448	34.1	292	26.1	359	40.6	1771	25.6
SMC	724	20.0	299	22.8	285	25.5	228	25.8	1536	22.2
BEL	414	11.4	192	14.6	252	22.6	144	16.3	1002	14.4
ARE	440	12.2	18	1.4	195	17.4	97	11.0	750	10.8
HS	1368	37.8	355	27.1	94	8.4	56	6.3	1873	27.0
TOTALS	3618	100.0	1312	100.0	1118	100.0	884	100.0	6932	100.0

<sup>a</sup> 1 = Sandstone research (University of Sydney, University of New South Wales).

2 = Generalist metropolitan (Flinders University of South Australia, Macquarie University).

3 = University of Technology (Queensland University of Technology, Swinburne University of Technology - Higher Education Division).

4 = Regional (University of New England, James Cook University).

<sup>b</sup> EHS = Education, Humanities, Social Studies

SMC = Science, Mathematics, Computing;

BEL = Business, Economics, Law

ARE = Architecture, Renewable Resources, Engineering

HS = Health Sciences

### 3.3.3.1 Survey Sample

Survey sample size was estimated based on a desired sample size of 2,600 academics (approximately 325 academics in each of the eight universities) with sample proportions for each institution being  $\pm 5$  per cent of the population proportions with a 95 per cent level of confidence (Krejcie & Morgan, 1970:607-610). To ensure adequate numbers for statistical analysis, sample proportions were increased by 50 per cent. The effective sample size, adjusted for non-respondents and inactives (i.e., those no longer at the institution, on study leave), was 2,609. Table 3.5 shows the survey sample statistics and response rates for each university.

**Table 3.5**  
**Survey Sample Statistics and Response Rates by University**

Survey Sample Statistics <sup>a</sup>										
University	1		2		3		4		Response	
	f	%	f	%	f	%	f	%	f	%
SYD	2031	29.3	324	15.5	486	16.3	398	15.3	162	15.6
UNSW	1587	22.9	310	14.8	465	15.6	398	15.3	155	14.9
FUSA	725	10.5	255	12.2	382	12.8	335	12.8	147	14.2
MU	587	8.4	233	11.2	350	11.7	313	12.0	122	11.7
QUT	830	12.0	264	12.6	396	13.3	358	13.7	135	13.0
SUT <sup>b</sup>	288	4.1	288	13.8	288	9.6	261	10.0	95	9.1
UNE	469	6.8	212	10.2	318	10.6	282	10.8	111	10.7
JCU	415	6.0	202	9.7	303	10.1	264	10.1	112	10.8
TOTALS <sup>c</sup>	6932	100.0	2088	100.0	2988	100.0	2609	100.0	1041	100.0

<sup>a</sup> 1 = Target Population (full-time equivalent staff stratified by current position and discipline area. Population numbers derived from the 1998 editions of each institution's Calendar and excluded research fellows or associates, research officers, research only positions, visiting professors, adjunct professors, and all part-time or casual academic positions.

2 = Survey Sample (sample proportion was within  $\pm .05$  of the population proportion with a 95 per cent level of confidence (Krejcie & Morgan, 1970:607-610).

3 = Adjusted Sample (oversampling by 50 per cent ensured adequate numbers for statistical analysis).

4 = Effective Sample (excluded non-respondents and inactives - those who refused to participate in the study, those included in the initial sample who were no longer at the survey institution, were on study leave, were on secondment, or could not be contacted at the address provided).

<sup>b</sup> Population consisted of 288 Hawthorn/Prahran campus higher education division staff. All staff were surveyed.

<sup>c</sup> Total number of responses included 2 returns that could not be classified by institution.

A total of 1,041 usable surveys were returned, an effective response rate of 40 per cent. Response rates were slightly higher for sandstone institutions (SYD = 16%, UNSW = 15%) compared to regional (UNE = 11%, JCU = 11%) universities and universities of technology (QUT = 13%, SUT = 9%). However, no significant differences were found in the proportion of sample responses to those expected to respond given the effective sample-target population proportions ( $\chi^2 = 0.21$ ,  $df = 7$ ,  $p > .05$ ).

The final sample was slightly under-representative of the target population in terms of lecturer positions and health sciences discipline areas, and slightly over-representative in terms of senior lecturer positions and humanities discipline areas. However, no statistical differences were found between the final sample and target population in terms of academic positions ( $\chi^2 = 1.45$ ,  $df = 4$ ,  $p > .05$ ) or discipline areas ( $\chi^2 = 0.66$ ,  $df = 4$ ,  $p > .05$ ). Table 3.6 shows the target population and final sample by academic position and discipline area categories.

**Table 3.6**  
**Target Population and Final Sample by Academic Position and**  
**Discipline Areas**

Category	Target Population		Final Sample <sup>a</sup>	
	f	%	f	%
<b>Academic Position<sup>a</sup></b>				
Associate Lecturer	602	8.7	79	7.6
Lecturer	2349	33.9	316	30.4
Senior Lecturer	2044	29.5	343	32.9
Associate Professor	1046	15.1	151	14.5
Professor	891	12.8	123	11.8
Missing			29	2.8
TOTALS	6932	100.0	1041	100.0
<b>Discipline Areas<sup>b</sup></b>				
Education/Humanities	1771	25.5	326	31.3
Science/Maths/Computing	1536	22.2	222	21.3
Business/Economics/Law	1002	14.5	163	15.7
Architecture/Engineering	750	10.8	105	10.1
Health Sciences	1873	27.0	222	21.3
Other			1	0.1
Missing			2	0.2
TOTALS	6932	100.0	1041	100.0

<sup>a</sup> Chi-square test indicated no statistically significant difference ( $\chi^2 = 1.45$ ,  $df = 4$ ,  $p > .05$ ).

<sup>b</sup> Chi-square test indicated no statistically significant difference ( $\chi^2 = 0.66$ ,  $df = 4$ ,  $p > .05$ ).

### 3.4 Survey Design and Development

The Academic Work Environment Survey (AWES) was designed to provide a comprehensive measure of the perceptual domains that are psychologically meaningful and significant for most individuals in their daily work environments. Over a period of fourteen months, the relevant work psychology, organisational behaviour, and education literature was reviewed for established work environment perception scales. The review included a search of ABI-Inform, Psychlit, Sociolit, and the Australian Education Index (AEI) bibliographic databases (1970 to 1995). This search produced over 100 journal articles and text references on the topic of work environment measures. Work environment perception items were sourced for inclusion in the AWES on the basis of their reported reliability and discriminant validity. Selected items were then formatted so that the response scales contained

consistent wording. All of the scales were changed systematically to ensure they went from negative to positive on a five-point Likert scale (i.e., 1 = strongly disagree to 5 = strongly agree).

### 3.4.1 Self-Report Measures

Since individuals' work attitudes are primarily based on their perceptions of the immediate work environment (Balch & Blanck, 1989; Hackman & Oldham, 1980; James & Sells, 1981; Newman, 1974, 1975, 1977), academics were asked to report on aspects of the environment in which they worked. By asking individual academics to report on "relatively proximal situational events, expressed in terms that reflect the psychological meaning and significance of the situation to the individual", self-report measures captured the perceived work environment of eight universities representative of the Unified National System (James & Sells, 1981:275). To indicate the quality of academic work life, academics were also asked to evaluate their work environments in terms of two broad attitudinal measures: job involvement (Kanungo, 1982a) and organisational commitment (Mowday, Steers, & Porter, 1979).

Since Kurt Lewin's (1951) classic formulation of behaviour as a function of the person and his or her psychological environment, researchers have attempted to measure the psychological climate or general health of an organisation by asking individuals to report on aspects of their workplace (Glick, 1985; James & Jones, 1976; James & Sells, 1981). For example, the Jones and James (1979) Perceived Climate Questionnaire (PCQ) has been applied to Australian higher educational institutions to assess senior management's perceptions of organisational conflict and ambiguity, group processes and other climate factors (Lysons, 1990; Lysons & Ryder, 1989). Individual perceptions have also featured in person-environment fit models that predict a person's job motivations, satisfactions, and task performance (Blau, 1987; Blau & Boal, 1987; Spokane, Meir, & Catalano, 2000; Wolverton, Gmelch, & Wolverton, 2000).

### 3.4.2 Scale Development

The Academic Work Environment Survey (see Appendix A) was designed to contain analytical measures of academics' work environment perceptions and work related attitudes. Likert five-point ordinal scales were selected to measure academics' perceptions and attitudes since these scales are easy to construct, administer and interpret (Likert, 1932). Likert scales were also chosen as the basis of measurement since they represent "a systematic and refined means for constructing indexes from questionnaire data" (Babbie, 1989:405). Index construction was simply the scoring of individual academic's responses to a particular job or work characteristic (e.g., 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree) and the summation of these independent scores to obtain work environment and work attitude indices for each respondent. Aggregating employee perceptions is a common and valid means by which to assess work environment or climate variables (Rousseau, 1985) since it reduces error by averaging out random individual-level errors and biases (Robinson & O'Leary-Kelly, 1998:662).

Following psychological tests and scale construction conventions and procedures (see Loewenthal, 1996:94) and behavioural science research methods texts (see Kerlinger, 1986:402-403; Labovitz, 1974:388), Likert ordinal measurement scales included in the AWES were treated as interval scales. According to Kerlinger (1986:402), the assumption of interval equality works when two or three measures of the same variable are substantially and linearly related. That is, "the more nearly a relation approaches linearity, the most nearly equal are the intervals of the scales" (Kerlinger, 1986:402). To approximate linearity, item analysis was conducted to examine which items best correlated with the composite scale. Items that attained the highest item-total correlation were assumed to be substantially and linearly related to approximate interval scale characteristics. On the basis of interval scale approximation, measures of central tendency (i.e., arithmetic mean), dispersion (i.e., standard deviation) and parametric tests (i.e., product moment correlation, *t*-tests, analyses of variance) were computed.

### 3.4.3 Survey Design

To collect respondent's perceptual, attitudinal and demographic data, the Academic Work Environment Survey (see Appendix A) was initially divided into three sections: Your Profile (demographic data), Your Job/Work (job, role, supervisory items), and Your University/Workplace (organisation commitment, organisation structure items). On the basis of pre-test interviews with academics, a fourth section, Changes To Higher Education, was added. To minimise self-report method bias, survey items were not aggregated under construct identifiers but randomly distributed under generic section headings. The six-page survey was double-sided and printed on sand A4 paper for visual impact. The Monash University crest was printed on the front of the survey.

#### 3.4.3.1 Introduction to Survey

An introductory page to the Academic Work Environment Survey (AWES) provided clear directions to the purpose and completion of the survey and definitions of key terms. A contact e-mail address was also provided for respondents to request a summary report of the study's findings. The title page contained the Monash University crest, the title 'Quality of Work Life of Academics in Higher Education: Influence of Work Environment Factors', the survey title and year, and the researcher's campus and school.

An accompanying letter to the AWES (see Appendix D: Survey Cover Letter) sought respondent participation in the study by: (1) introducing the researcher as a fellow academic staff member, (2) highlighting the importance of understanding how job/work environment characteristics influence academic motivation, (3) stressing confidentiality and the anonymity of individual participants, (4) mentioning approval of the study by the Research Ethics Committee of Monash University, and (5) including an e-mail contact address for participants interested in a summary of research findings.



### 3.4.3.2 Survey Sections

*Section One* of the survey, 'Your Profile', included twelve items designed to collect personal (e.g., age, gender) and professional characteristics (e.g., qualifications, contract) data for cross-sample analysis purposes.

*Section Two*, 'Your Job' included forty-five items focusing on the academic's job and work role. This section included eleven role stress, fifteen job characteristics, fourteen supervisory style, and five participation in decision making items. To get a 'snapshot' of the academic's current job/work environment, respondents were asked to indicate how frequently certain statements applied using a five-point 'How Often True' scale (1=Never True, 2=Seldom True, 3=Sometimes True, 4=Often True, 5=Always True). For the survey pre-test and pilot, the AWES included five skill variety items (Sims et al., 1976). These items were omitted in the main survey after pilot findings revealed the measure had poor reliability and construct validity in an academic work context. At the end of Section Two, space was provided for respondents to indicate their feelings towards their current job environment.

*Section Three*, 'Your Job/University', contained twenty-seven items of which seventeen had the university as their reference point. Items included five hierarchy of authority items, five formalisation items, seven organisational commitment items, and ten job involvement items. Respondents were asked to indicate the extent to which they disagreed or agreed with statements concerning their jobs and university workplace on a five-point disagree-agree scale (1=Strongly Disagree, 2=Disagree, 3=Neither Disagree or Agree, 4=Agree, and 5=Strongly Agree).

*Section Four*, 'Changes to Higher Education', contained twelve items relating to large-scale changes to the Australian higher education sector. The change items were assembled based on previous studies of higher education change (Mahony, 1996; McInnis, 1996; Randle & Brady, 1997) and comments made by the ex-DETYA higher education head David Phillips (McDermott, 1997). Issues identified included technological change, the rise of managerialism in higher education, the creation of a Unified National Sector, the emergence of large multi-campus institutions, quality assurance mechanisms, and the expansion and diversification of the student

population. It was postulated that academics with a low tolerance to environmental uncertainty would perceive corporate reforms across the higher education sector as potentially threatening (e.g., a risk to job security, role status), and as a consequence, report lower levels of job involvement and organisational commitment. Respondents were asked to rate each trend's importance in terms of the size of the impact to their current jobs and workplaces (1=Very Small Impact, 2=Small Impact, 3=Moderate Impact, 4=Large Impact, 5=Very Large Impact). Below this section space was provided for respondents to indicate their reactions to these changes. The survey concluded by reminding respondents to insert the completed survey in the reply-paid envelope and by thanking respondents for their time and assistance.

### **3.4.4 Survey Pre-Test**

A survey pre-test was conducted between August 1996 and June 1997. The pre-test was designed primarily to assess the applicability of job/work environment questions and to gauge respondent reactions to the format of the AWES, particularly its length, layout, overall appearance, and instructions.

The pre-test involved eighteen academics (thirteen males, five females) located across three campuses of Monash University and two Melbourne Centres for Higher Education Development (see Appendix E: Pre-Test Participants). Participants were purposefully selected to represent five academic levels (Associate Lecturer=5; Lecturer=7; Senior Lecturer=4; Associate Professor=1; Professor=1) and three discipline areas (Business=13; Education=4; Health Sciences=1). A letter, requesting colleagues to participate in a work related project, is shown in Appendix F: Pre-Test Letter.

#### **3.4.4.1 Semi-Structured Interviews**

Semi-structured interviews with twelve academic colleagues (eight males, four females at each academic level) were conducted between August 1996 and April 1997. The 45-minute semi-structured interviews occurred in the offices of participants. Respondents were asked to read through the survey, make a mental note of their initial response, and provide a checkmark next to any item they felt was: (1) confusing, (2) not applicable to their job, role or work situation, and (3) poorly

constructed. A brief discussion then ensued of how participants interpreted the questions. Survey completion times were recorded. The average completion time was found to be approximately twenty-two minutes.

After each interview was conducted, the survey was reconstructed to take account of each respondent's comments and recommendations. For instance, Profile Q10 'Work Activities' was removed after respondent JR6 commented, "the hour classes was too imprecise a measure to take account of an academic's work activities." The question was subsequently headed 'Role Orientation' and an instruction added: 'Please indicate which role you find most fulfilling at work: Mark one box only'. In another example, respondent MF8 suggested a statement such as: 'Please round down to nearest year' be included as an instruction for Profile Q8 (Years in Present University) as she didn't know "where to fit 6.5 years" in the years classes provided. One organisation commitment item was removed ('I am extremely glad I chose this university to work for over others I was considering at the time I joined') after respondents indicated there was no choice activity involved when they were considering joining the university. Respondents' comments, their positions and institutional affiliations are included in Appendix G: Pre-Test Results.

#### 3.4.4.2 Expert Advice

Two higher education researchers and educational consultants (RJ1 and ME18) made valuable contributions to the design of the survey. Consultant RJ1 suggested the idea of eliminating the overlap of theoretical constructs by splitting the survey into sections entitled 'Your Workplace' and 'Your Morale'. This compressed design reduced the apparent length of the survey making it easier to include a relatively high number of job/work environment perception items. Consultant ME18 suggested a frequency or consistency-based scale to significantly improve his rate of responding to job/work survey items. On the basis of this expert advice, the work environment original scales were reviewed and the job/work item scale revised to a 'how often true' scale. A further examination of the items by academic colleagues suggested they were more consistent and meaningful.

Six male academics were asked to complete the survey, make comments on its design, and record their survey completion times. Feedback was sought from these academics on the relevance of questionnaire items, the adequacy of instructions, and the overall format of the survey.

### **3.4.5 Survey Pilot**

To validate the reconstructed survey, two pilot studies were conducted during second semester 1997 and first semester 1998. Pilot One, by electronic mail (e-mail) and the Internet, involved a representative sample of academics in a west coast Australian university (n=305). Pilot Two consisted of an internal mail survey of academics in an east coast Australian university (n=319). These pilot studies are now examined in detail.

#### **3.4.5.1 Electronic Mail Pilot**

To cut costs and time, it was decided to pilot the Academic Work Environment Survey over the Internet and to contact a representative sample of 305 academics by e-mail. On 11 October 1997, 305 e-mails were sent to potential recipients informing them of the survey and its web site address. One and two weeks after the initial e-mail, follow-up letters were sent to all 305 recipients. In total, the electronic mail pilot yielded 12 responses for an overall response rate of 4 per cent. A full-report of the electronic mail pilot, including reasons for the poor response rate, is provided in Appendix H: Electronic Mail Pilot.

#### **3.4.5.2 Survey Mail Pilot**

In view of the low response rate from the electronic mail pilot, it was decided to revert to a hard copy mail pilot and survey academic staff at an east coast university during second semester 1997. Between 5 November and 7 November 1997, surveys were distributed via internal mail to 301 academic staff stratified by level (five positions) and faculty/school (five discipline areas) across three campuses of the university. To improve response rates, a follow-up was conducted on the 26 and 27 November 1997, three weeks after the initial mailing. In total, the survey mail pilot yielded 189 responses (an effective return rate of 63 per cent).

An exploratory principal-components factor analysis (varimax rotation) based on a sample of 177 subjects indicated survey measures had adequate reliability and validity. Cronbach alpha reliability co-efficients ranged from .59 (Formalisation) to .88 (Consideration). Moderate to high correlation co-efficients for extracted factors indicated scale items were unidimensional and measured a common factor. A full-report of the mail pilot, including details of the exploratory factor analysis conducted to assess the reliability and validity of survey measures, is provided in Appendix J: Survey Mail Pilot.

On the basis of the principal-components factor analysis (Tabachnick & Fidell, 1996) and the set significance criterion of .40 ( $\alpha=.01$ ) for a factor score (Stevens, 1996:371), three items were deleted from the Academic Work Environment Survey. The deleted items were: 'Whatever situation arises, this university has adequate procedures to deal with it' (Formalisation = .23), 'I know that I have divided my time properly' (Role Ambiguity = .31), and 'I would accept almost any type of job assignment in order to keep working for this university' (Organisational Commitment = .38).

### 3.4.6 Scale Reliability and Validity

Scale reliability and validity were tested in a number of ways. First, the reliability of all scales was reported using Cronbach's alpha co-efficients, since reliability is a necessary condition for validity and "Cronbach's alpha has the most utility for multi-item scales at the interval level of measurement" (Cooper & Emory, 1995:155). Alpha co-efficients ranged from .50 (task identity) to .92 (consideration). Eleven of the fourteen scales exceeded or approximated Nunnally's (1978) .70 criterion for adequate reliability. Table 3.7 shows alpha reliability co-efficients for the survey scales.

**Table 3.7**  
**Items Deleted and Cronbach Alpha Co-Efficients of Survey Scales**

Scale	No. of items	Items deleted	Alpha Co-Efficient
Role Ambiguity	5	None	0.83
Role Conflict	3	None	0.61
Role Overload	3	None	0.71
Autonomy	5	None	0.73
Task Identity	2	TI2 <sup>a</sup>	0.58 (0.50) <sup>b</sup>
Feedback	3	None	0.70
Job Challenge	4	None	0.83
Consideration	14	None	0.92
Hierarchy	5	None	0.76
Participation	5	None	0.84
Formalisation	3	FO2 <sup>c</sup> , FO4 <sup>d</sup>	0.69 (0.54) <sup>b</sup>
Higher Ed. Changes	12	None	0.85
Org. Commitment	7	None	0.84
Job Involvement	10	None	0.87

<sup>a</sup> TI2 = I handle work from beginning to end by myself (task identity).

<sup>b</sup> Alpha Co-Efficient before item(s) deletion.

<sup>c</sup> FO2 = The central university administration keeps me informed with bulletins, newsletters, and other publications (formalisation).

<sup>d</sup> FO4 = There is a formal orientation program for most new members of the university (formalisation).

#### 3.4.6.1 Internal Consistency

Three scales exhibited moderate internal consistency: task identity (.50), formalisation (.54) and role conflict (.61). To improve the internal consistency of these scales, item-total reliability statistics (i.e., Corrected Item-Total Correlation, Alpha If Item Deleted Co-efficient) were computed (Coakes & Steed, 1997:175-181). Items in each scale were progressively deleted and reliability re-computed to assess any change in the alpha co-efficients. In this procedure, the task identity item 'I handle work from beginning to end by myself' (TI2) was deleted since it showed more of an association to autonomy than task identity measures. Two formalisation items, 'The central university administration keeps me informed with bulletins, newsletters, and other publications' (FO2) and 'There is a formal orientation program for most new members of the university' (FO4) were deleted. Item inspection revealed both measures carried excess meaning other than the presence and/or use of formal rules, policies, and procedures in an organisation. Reliability co-efficients subsequently increased for task identity (.50 to .58) and formalisation (.54 to .69) scales (see Table 3.7).

The internal consistency of each scale was also checked using the split-half method of examining one half of the results of a set of scaled items against the other half (Zikmund, 1994:289). Descriptive survey results (i.e., means, standard deviations) were separated into even-numbered ( $n = 41$ ) and odd-numbered ( $n = 43$ ) scaled items and a simple bivariate correlation computed to assess internal consistency (i.e., the higher the correlation, the higher the reliability). A correlation coefficient of .35 ( $p < .05$ , two-tailed) indicated a significant positive relationship between the two sets of scale items. Table 3.8 shows the means, standard deviations, and product moment correlations for the even-half and odd-half scale items. These results indicate adequate scale reliability in terms of internal consistency.

**Table 3.8**  
**Means, Standard Deviations and Correlation Co-Efficients**  
**of Even-Half and Odd-Half Scale Items**

Scale	n	Mean	SD	Correlation
EVEN-HALF	1041	3.20	0.64	0.35
ODD-HALF	1041	3.27	0.38	0.35

#### 3.4.6.2 Construct Validity

Construct validity refers to the "ability of a measure to confirm a network of related hypotheses generated from a theory based on the concepts" (Zikmund, 1994:291). A measure is generally considered to have good construct validity if it logically associates with measures of similar constructs (convergent validity) and has a low correlation with measures of dissimilar concepts (discriminant validity). To make this assessment, a correlation matrix was computed for all survey variables. Pearson's correlation co-efficients for the main study ( $n=1,041$ , eight independent samples) were little different to those reported in the survey pilot ( $n=189$ , one sample) conducted eleven months earlier.

Convergent and discriminant validity were established by computing mean inter-item, and mean off-diagonal correlation co-efficients (Dewar, Whetten & Boje,

1980:123). Scale items were said to have convergent and discriminant validity if the mean inter-item correlation was greater than the mean off-diagonal co-efficient (Dewar et al., 1980:123). Table 3.9 displays the mean inter-item and mean off-diagonal correlation co-efficients for each survey scale.

**Table 3.9**  
**Mean Inter-Item and Mean Off-Diagonal Scale**  
**Correlation Co-Efficients of Survey Scales**

Scale	No. of Items	Mean Inter-Item Correlation	Mean Off-Diagonal Correlation
Role Ambiguity	5	0.50	0.27
Role Conflict	3	0.35	0.22
Role Overload	3	0.46	0.16
Autonomy	5	0.36	0.24
Task Identity	2	0.41	0.21
Feedback	3	0.44	0.22
Job Challenge	4	0.55	0.25
Consideration	14	0.47	0.27
Hierarchy of Authority	5	0.38	0.26
Participation	5	0.51	0.20
Formalisation	3	0.43	0.12
Higher Ed. Changes	12	0.32	0.15
Org. Commitment	6	0.50	0.28
Job Involvement	10	0.40	0.12
TOTALS	80	0.43	0.21

Mean inter-item correlations ranged from .32 (Higher Education Changes) to .55 (Job Challenge) indicating moderate to high degrees of convergent validity for the survey scales. For each scale, mean inter-item correlations were greater than their respective mean off-diagonal co-efficients indicating moderate to high degrees of convergent and discriminant validity. Formalisation, participation, job challenge and role overload items displayed high levels of convergent and discriminant validity as indicated by the high mean inter-item, mean off-diagonal correlation differences (.31, .31, .30, .30 respectively). Hierarchy of authority, autonomy and role conflict items displayed low mean inter-item, mean off-diagonal correlation differences indicating these scale items had lower discriminant validity (.12, .12, .13 respectively).



### 3.5 Measures

The Academic Work Environment Survey included 100 self-report measures to assess a number of academic characteristics:

- personal characteristics (i.e., age, gender, marital status);
- professional characteristics (i.e., qualifications, position, hours, contract, university/higher education service, function, discipline area, university type);
- work environment perceptions (i.e., role, job, supervisory, structural, sectoral characteristics); and
- work related attitudes (i.e., levels of reported job involvement and organisational commitment).

Table 3.10 presents these variables and their corresponding survey measures. In the following section, variables are defined and their measurement items identified.

#### 3.5.1 Demographic Variables

Twelve demographic variables were designated antecedent variables for cross-sample analysis purposes. Previous academic-related research has utilised demographic variables (i.e., age, gender, marital status, education level, length of time in organisation) to highlight differences in work stress, morale, and motivation between academic staff (Blix, Cruise, Mitchell, & Blix, 1994; Copur, 1990; Currie, 1996; Gmelch, Lovrich, & Wilke, 1984; Gmelch, Wilke, & Lovrich, 1986; McInnis, Powles & Anwyl, 1994; Thorsen, 1996; Sarros, Gmelch & Tanewski, 1997a, 1997b, 1998).

##### 3.5.1.1 Personal Variables

- Age was recorded according to the following interval classes: Less than 25; 25-29; 30-39; 40-49; 50-59; 60-64; 65+
- Gender was represented as a dichotomous variable (0 = Male; 1 = Female)
- Marital status was coded as a dichotomous variable (0 = Married; 1 = Single/De-facto relationship).

**Table 3.10**  
**Variables and Survey Measures**

Variables	Survey Measures
Personal variables (AV)	Age, gender, marital status
Professional variables (AV)	Qualifications (highest degree attained) Position (five academic levels) Hours (full-time, fractional full-time) Contract (tenured/ongoing, fixed-term) Uniserv (years in present university) Heserv (years in higher education) Function (primary work role) Discipline area (affiliated faculty/department) University type (four group classification)
Role stress (IV)	Role ambiguity, role conflict (Rizzo, House, & Lirtzman, 1970) Role overload (Beehr, Walsh, & Taber, 1976)
Job characteristics (IV)	Autonomy, task identity, feedback (Sims, Szilagyi, & Keller, 1976) Job challenge (Amabile & Gryskiewicz, 1989)
Supervisory style (IV)	Consideration (Stogdill, 1963)
Structural characteristics (IV)	Participation in decision making, hierarchy of authority (Aiken & Hage, 1966) Formalisation (Finlay, Martin, Roman, & Blum, 1995; Pugh, Hickson, & Hinings, & Turner, 1968)
Sectoral changes (IV)	Corporate reforms to the Australian higher education sector (McDermott, 1997; McInnis, 1996; Meek, 1991)
Work attitudes (DV)	Job involvement (Kanungo, 1982a) Organisation commitment (Mowday, Steers, & Porter, 1979)

AV = Antecedent variables.

IV = Independent variables.

DV = Dependent variables.

### 3.5.1.2 Professional Variables

- Qualifications were indicated by the highest degree attained (1 = Doctorate or equivalent; 2 = Masters by research or coursework; 3 = Graduate Certificate or Diploma; 4 = Bachelors or Honours degree; 5 = Other, please specify) and was dummy coded.
- Position referred to current duties classification (1 = Associate Lecturer; 2 = Lecturer; 3 = Senior Lecturer; 4 = Associate Professor/Reader; 5 = Professor) and was dummy coded.

- Hours (0 = Full-time; 1 = Fractional full-time).
- Contract measured respondent's current employment status (0 = Tenured/ongoing; 1 = Fixed-term).
- University Service referred to employment years in the present university (rounded down to nearest year) and was coded using an interval scale: Less than 3 years, 3-6 years, 7-10 years, 10 years +.
- Higher Education Service, the respondent's total number of years in higher education, was coded using an interval scale: Less than 3 years, 3-6 years, 7-10 years, 10 years +.
- Function indicated the respondent's primary work role (1 = Teaching only; 2 = Teaching and research; 3 = Research only; 4 = Other, please specify) and was dummy coded.
- Faculty/School indicated the respondent's discipline area:  
  
1 = Science; 2 = Administration, Business, Economics, Law; 3 = Health Sciences; 4 = Education; 5 = Humanities, Arts, Visual/Performing Arts; 6 = Social Studies; 7 = Mathematics, Computing; 8 = Engineering, Processing; 9 = Agriculture, Renewable Resources; 10 = Built Environment; 11 = Other, please specify). This variable was dummy coded.
- University indicated type of university (1 = SAN1; 2 = SAN2; 3 = REG1; 4 = REG2; 5 = MET1; 6 = MET2; 7 = UOT1; 8 = UOT2) and was dummy coded.

### 3.5.2 Role Stress

Kahn, Wolfe, Quinn, Snoek, and Rosenthal's (1964:19-20) role episode model provided a theoretical base for the study of role conflict, ambiguity and overload within organisations. According to Kahn et al. (1964), role stress can occur when organisation role pressures influence the focal person's behaviour in a manner discordant with the role receivers' expectations. For example, academic person-role conflict may occur whenever role expectations are perceived as incongruent with the orientations or values of academics (Nixon, 1996; Randle & Brady, 1997). Role ambiguity may be stressful when there is a "lack of information concerning the proper definition of the job, its goals and the permissible means for implementing them" (Kahn et al., 1964:94). According to Kahn et al. (1964), another form of role conflict is role overload. Role overload can exist whenever role demands exceed the

time and resources available to fulfil those demands (Beehr et al., 1976; Gmelch, Wilke, & Lovrich, 1986; Lease 1999).

Rizzo, House and Lirtzman's (1970) self-report measures of role conflict and role ambiguity dominate the work stress literature and are largely based on Kahn et al's (1964) theoretical framework (King & King, 1990:51). The measures have been used in a large number of organisation behaviour studies (e.g., Jackson, Schwab, & Schuler, 1986; Leigh, Lucas & Woodman, 1988; Organ & Greene, 1981; Podsakoff, Williams, & Todor, 1986; Ramaswami, Agarwal, & Bhargava, 1993). Recent studies have validated both the stability and the reliability of the constructs (Kelloway & Barling, 1990; King & King, 1990; Netermeyer, Johnson, & Burton, 1990; Smith, Tisak, & Schmieder, 1993). For example, Smith et al. (1993:43) examined the internal item characteristics of the scales across three diverse samples of workers (social service workers,  $n=203$ ; manufacturing workers,  $n=234$ ; various full-time workers,  $n=507$ ). They calculated the median item reliability for each scale across samples and reported .33 for role conflict and .34 for role conflict (using the criterion of .20 as potential items for revision). For three samples of male and female full-time workers ( $n=944$ ), composite scale reliability co-efficients ranged from .75 to .82 for role conflict and .73 to .80 for role ambiguity. Confirmatory factor analyses provided strong support for the discriminant validity of the two scales (Smith et al., 1993:45).

Rizzo et al.'s (1970) measures have been extensively used in educational settings. In 1995, Sarros, Gmelch and Tanewski (1997a) examined the roles of 827 department heads in Australian universities using Rizzo et al's (1970) 14-item Role Conflict and Ambiguity Questionnaire. Sarros et al. (1997a:13) reported Cronbach reliability coefficients of .86 and .81 for the role ambiguity and role conflict scales respectively. Both scales were negatively correlated ( $r = -.33$ ) "indicating that the constructs measure two discrete work conditions" (Sarros et al., 1997a:19). In a 1996 study of 1,370 academic deans in the United States, Wolverton, Wolverton and Gmelch (1999:85) reported reliability co-efficients of .83 and .86 for role conflict and role ambiguity respectively. Winter et al. (2000:286), in a 1997 study of 189 academic staff in a comprehensive Australian university, reported alpha reliabilities of .62 and

.83 for a shortened version of the role conflict/role ambiguity inventory (three items, five items respectively).

Beehr et al. (1976:43) defined role overload as "having too much work to do in the time available". To measure this construct, Beehr et al. (1976:42) constructed a three-item measure and reported a Spearman-Brown reliability co-efficient of .56 based on a sample of 79 male and 64 female manufacturing employees. In 1997, Winter et al. (2000:286) piloted the Academic Work Environment Survey across three campuses of a large Australian university ( $n=189$ ) and reported a Cronbach alpha reliability of .66 for the role overload measure.

For all items, respondents answered on five-point 'how often true' scales (1 = never true, 5 = always true). Five reverse-scored role ambiguity items ( $\alpha = .83$ ,  $n=1,017$ ), three role conflict items ( $\alpha = .61$ ,  $n=1,014$ ) and three role overload items ( $\alpha = .71$ ,  $n=1,023$ ) were averaged to produce scale scores. Table 3.11 identifies individual role stress items.

**Table 3.11**  
**Role Stress Items<sup>a</sup>**

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**Role Ambiguity ( $\alpha = .83$ )**

1. I feel certain about how much authority I have in my job.<sup>b</sup>
2. Clear, planned goals and objectives exist for my job.<sup>b</sup>
3. I know exactly what is expected of me.<sup>b</sup>
4. In my job, there is clear explanation of what has to be done.<sup>b</sup>
5. I know what my responsibilities are.<sup>b</sup>

**Role Conflict ( $\alpha = .61$ )**

1. I have to do things at work that should be done differently.
2. I work on unnecessary things.
3. I receive a task assignment without adequate resources and materials to execute it.

**Role Overload ( $\alpha = .71$ )**

1. The performance expectations for my job are too high.
  2. I am given enough time to do what is expected of me in my job.<sup>b</sup>
  3. It often seems like I have too much work for one person to do.
- 

<sup>a</sup> Respondents answered on five-point scales: 1 = never true, 2 = seldom true, 3 = sometimes true, 4 = often true, 5 = always true.

<sup>b</sup> Reverse-scored items.

### 3.5.3 Job Characteristics

Sims, Szilagyi, and Keller's (1976) Job Characteristics Inventory (JCI) measures perceived job characteristics and incorporates the core job dimensions of autonomy, task identity and feedback proposed by Hackman and Lawler (1971). Autonomy is defined as the "extent to which employees have a major say in scheduling their work, selecting the equipment they will use, and deciding on procedures to be followed" (Sims et al., 1976:197). Task identity is the extent to which employees "do an entire or whole piece of work and can clearly identify the results of their efforts" and feedback is the degree to which employees "receive information as they are working which reveals how well they are performing on the job" (Sims et al., 1976:197). Sims et al. (1976:203) reported split-half reliabilities (corrected by the Spearman-Brown formula) above the .70 level for autonomy, task identity and feedback scales based on two diverse samples of female (n=941) and male employees (n=300).

Brief and Aldag (1978a:662) evaluated the psychometric properties of Sims et al.'s (1976) JCI based on samples of registered nurses in the United States (n=155, n=115) and reported strong Cronbach alpha co-efficients for the autonomy, task identity and feedback scales (.81, .80, .84 respectively). However, the study provided little support for the convergent or discriminant validity of the JCI (superior and subordinate ratings significantly converged for only two of the six JCI subscales). Pierce and Dunham (1978a, 1978b) examined the convergent and discriminant validity of the JCI constructs in a study of 155 United States clerical employees and reported the autonomy measure could not be discriminated from centralisation and formalisation scales developed by Aiken and Hage (1967). Nevertheless, the JCI demonstrated high reliability values for each of the three subscales (autonomy = .85; task identity = .89; feedback = .90) suggesting strong internal consistency across different samples.

Griffin, Moorhead, Johnson and Chonko (1980) investigated the reliability and dimensionality of the JCI scales across four diverse samples of employees in the United States (171 manufacturing employees, 168 retail employees, 87 physicians, 163 MBA students). All Cronbach alpha co-efficients exceeded .80 (Griffin et al.,

1980:775). The dimensionality of job tasks, as measured by the JCI, was determined by subjecting data from each sample to a principal components factor analysis (oblique rotation). Factor analysis results for the four individual samples "generally confirmed the a priori dimensionality of the scale. In all cases, four-factor solutions emerged naturally, were supported by the eigenvalue patterns, and were most interpretable" (Griffin et al., 1980:775).

Hunt, Chonko and Wood (1985) performed a confirmatory factor analysis of the JCI based on data collected from 916 marketing management personnel and marketing researchers in the United States. Their results indicated a high degree of reliability for the three job dimensions with reliabilities ranging from .79 to .89 (Hunt et al., 1985:115). In addition, scale-factor correlations (fidelity co-efficients) in all cases were above .90 indicating the summated scales used to represent the core job dimensions of the JCI were appropriate (Hunt et al., 1985:116). Agarwal and Ramaswami (1993:56) reported similar reliabilities based on a sample of 648 professional salespeople: autonomy (.85), task identity (.74) and feedback (.73).

In 1997, Winter, Sarros and Tanewski (1998b:5) surveyed 189 academic staff in an Australian university and reported moderate alpha reliabilities of .69, .67 and .62 for autonomy, task identity, and feedback scales respectively. Moderate to high mean-item correlations indicated adequate construct validity for each of the subscales (.32, .42, .36 respectively). Sims et al.'s (1976) autonomy, task identity, and feedback scale items are shown in Table 3.12. Respondents answered on five-point 'how often true' scales (1 = never true, 5 = always true). Four autonomy items ( $\alpha = .73$ ,  $n=1,009$ ), two task identity items ( $\alpha = .58$ ,  $n=1,026$ ), and three feedback items ( $\alpha = .70$ ,  $n=1,002$ ) were averaged to produce scale scores.

**Table 3.12**  
**Job Characteristics Items<sup>a</sup>**

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Autonomy ( $\alpha = .73$ )

1. I have the freedom to do pretty much what I want in my job
2. My job provides the opportunity for independent thought and action.
3. I am left on my own to do my own work.
4. I am able to exert control over the pace of my work.
5. I can act independently of my supervisor in performing my job function.

Task Identity ( $\alpha = .58$ )

1. I see projects or jobs through to completion.
2. In my job, there is the opportunity for me to complete work that I start.

Feedback ( $\alpha = .70$ )

1. I receive feedback from my supervisor on how well I'm doing my job.
2. As I'm working, I am able to find out how well I'm doing my job.
3. Information, about how my job performance will be evaluated, has been directly communicated to me.

Job Challenge ( $\alpha = .83$ )

1. The tasks in my work are challenging.
  2. I feel that I am working on important tasks and projects.
  3. I feel challenged by the work I am currently doing.
  4. The tasks in my work bring out the best in me.
- 

<sup>a</sup> Respondents answered on five-point scales: 1 = never true, 2 = seldom true, 3 = sometimes true, 4 = often true, 5 = always true.

Job challenge is an important psychological climate variable with demonstrated generalisability across a range of occupations and work settings (Amabile, Conti, Coon, Lazenby, & Herrin, 1996; James & Sells, 1981). Job challenge occurs when an individual is engaged in tasks or projects that make full use of their abilities, skills, and knowledge. According to Amabile (1993:188), and Amabile and Gryskiewicz (1989:250), job challenge is a key source of intrinsic work motivation and creativity in the workplace. Amabile and Gryskiewicz's (1989) job challenge items are shown in Table 3.12.

Assessing the stimulants and obstacles to creativity in the work environment, Amabile and Gryskiewicz (1989) designed the Work Environment Inventory (WEI), which included a five-item job challenge measure. The WEI's reliability and validity was established across a range of professional levels and organisations including a government laboratory, educational institution, textile and chemical company. Across these organisational environments ( $n=645$ ), the scale reliability of job



challenge was strong (.82). Test-retest reliability (3 months duration,  $n=40$ ) was extremely high (.91). In addition, job challenge items loaded on a common factor (mean inter-item correlation = .47) indicating strong construct validity. Amabile et al. (1996), assessing the work environment for creativity, found the reliability of job challenge to be satisfactory across a range of different organisations ( $\alpha = .79$ ,  $n=12,100$ ; test-retest = .82,  $n=40$ ). In an academic work context, Winter et al. (1998b:5) reported an alpha coefficient of .79 and a mean inter-item correlation of .48 for four of Amabile and Gryskiewicz's (1989) job challenge items indicating good reliability and construct validity. Respondents answered on five-point 'how often true' scales (1 = never true, 5 = always true). Four items were averaged to produce a scale score ( $\alpha = .83$ ,  $n=1,026$ ).

### 3.5.4 Supervisory Style

Supervisory consideration is defined as the degree to which a supervisor is perceived to act in a friendly and supportive manner, shows concern for employees, and looks out for their personal welfare (Yukl, 1989:75). Consideration is incorporated into a subscale of the Leadership Behavior Description Questionnaire - Form XII (LBDQ; Stogdill, 1963), an instrument that has been extensively studied and shown to have adequate reliability and validity (Schriesheim & Kerr, 1974; Stogdill, 1969; Szilagyi & Keller, 1976). For example, Szilagyi and Keller (1976:643) collected data from a sample of male, managerial and engineering personnel ( $n=192$ ) in a large U.S. manufacturing firm and reported a split-half reliability (corrected by the Spearman-Brown formula) of .89 for leader consideration. Schriesheim and Stogdill (1975) reported a Kuder-Richardson internal reliability co-efficient of .90 for the consideration subscale based on a sample of 230 U.S. university employees. Again in a university work environment, Winter et al. (2000:286) reported a Cronbach alpha coefficient of .88 based on a sample of 189 Australian academics. A mean inter-item correlation of .47 and mean off-diagonal coefficient of .27 for a larger sample of academics ( $n=967$ ) indicated consideration items had adequate construct validity.

Scale items are shown in Table 3.13. Respondents answered on five-point 'how often true' scales (1 = never true, 5 = always true). Fourteen supervisory consideration items were averaged to produce a scale score ( $\alpha = .92$ ,  $n = 967$ ).

**Table 3.13**  
**Supervisory Consideration Items<sup>a</sup>**

Consideration ( $\alpha = .92$ )

1. My supervisor helps me solve work-related problems.
2. My supervisor gives advance notice of changes that affect my work.
3. My supervisor refuses to explain his or her actions.<sup>b</sup>
4. My supervisor encourages me to develop new skills.
5. My supervisor encourages group members to speak up when they disagree with a decision.
6. My supervisor acts without consulting the group.<sup>b</sup>
7. My supervisor looks out for the personal welfare of group members.
8. My supervisor puts suggestions made by the group into operation.
9. My supervisor does little things to make it pleasant to be a member of the group.
10. My supervisor is willing to make changes.
11. My supervisor keeps informed about how group members think and feel about things.
12. My supervisor keeps to himself or herself.<sup>b</sup>
13. My supervisor is friendly and approachable.
14. My supervisor treats all group members as his or her equals.

<sup>a</sup> Respondents answered on five-point scales: 1 = never true, 2 = seldom true, 3 = sometimes true, 4 = often true, 5 = always true.

<sup>b</sup> Reverse-scored items.

### 3.5.5 Organisation Structure

Hall (1963) and later, Hall and Tittle (1966), Aiken and Hage (1966), and Hage and Aiken (1967) developed and validated analytical measures of the degree of bureaucratisation experienced by individual employees. Bureaucracy is represented in terms of two continuous structural dimensions: centralisation and formalisation. Formalisation refers to the degree to which work activities are governed by administrative rules, policies, procedures, formal communications, and instructions. Centralisation of authority is represented by two subconstructs: participation in decision making, and hierarchy of authority. Participation refers to the extent to which employees participate in the decision making process. Hierarchy of authority measures the extent to which employees can implement assigned tasks without interference from superiors (Aiken & Hage, 1966:498). Hage and Aiken (1967:88)

concluded participation was "the more important dimension of the distribution of power (centralisation) than hierarchy of authority". According to Aiken and Hage (1966), the bureaucratic scales and individual items are not highly inter-correlated. Aiken and Hage (1966:502) reported product moment correlations of -.12 and -.26 between participation in decisions (centralisation), and job codification and rule observation (formalisation) respectively based on data from 16 social welfare agencies in the United States ( $n=314$  professionals).

Dewar, Whetten and Boje (1980) examined the reliability and validity of Hage and Aiken's (1967) centralisation and formalisation scales based on data from four separate studies (see Cook, Hepworth, Wall, & Warr, 1981:208). The alpha reliability co-efficients for both centralisation measures were high across the data sets ranging from .70 to .96 for hierarchy of authority and .81 to .95 for participation (Dewar et al., 1980:124). High median inter-item correlations (twice the size of the median off-diagonal correlations) for the data sets indicated both centralisation measures had high degrees of convergent and discriminant validity (Dewar et al., 1980:125). The formalisation subconstructs of job codification and rule observation (i.e., the extent to which employees must consult rules and procedures to fulfil job responsibilities) were found to have moderate to good reliability (.67 to .93) but a low degree of convergent and discriminant validity (median off-diagonal correlations indicated high correlations with items in the scales of other constructs).

Gaziel and Weiss (1990) studied the effects of bureaucratic structure on 529 Israeli teachers' work alienation and reported reliability coefficients of .78 and .80 for the formalisation subconstructs of job codification and rules observation respectively. Meyer (1992), Agarwal (1993) and Ramaswami, Agarwal and Bhargava (1993) provided further support for the reliability and validity of Aiken and Hage's (1966) centralisation and formalisation scales. Meyer (1992:256) assessed the cross-cultural applicability of Aiken and Hage's (1966) scales among top-level administrators ( $n=91$ ) in 16 Zambian agricultural planning and service delivery organisations and reported the constructs were "reliable and valid when used cross-culturally". For the participation, job codification and rule observation subconstructs, Meyer (1992:262) reported alpha reliability co-efficients of .89, .79 and .91 and validity evidence (mean

inter-item correlations) of .66, .56, and .71 respectively. Ramaswami, Agarwal and Bhargava (1993) used a four-item participation scale, as well as the measures proposed by Aiken and Hage (1966) for job codification (five items) and rule observation (two items) in their study of 1,159 U.S. marketing professionals and reported reliability coefficients of .85, .84, and .89 respectively.

In view of the low convergent and discriminant validity of Hage and Aiken's (1967) formalisation subconstructs (Dewar et al., 1980), a six-item formalisation measure was constructed based on Finlay et al's (1995) three-item standardisation of procedures measure ( $\alpha = .69$ ) and the seminal work of Pugh, Hickson, Hinings and Turner (1968). The scale was found to have only moderate reliability ( $\alpha = .59$ ) in an academic work setting (Winter et al., 2000:286).

To ensure centralisation items adequately reflected the academic work context, the university was added as the referent point for both participation and hierarchy of authority items and the word 'boss' replaced with 'supervisor' for hierarchy of authority items. In a study of the quality of work life of 189 Australian academics, Winter et al. (2000:286) reported strong reliabilities for hierarchy of authority ( $\alpha = .79$ ) and participation ( $\alpha = .85$ ) scales. Centralisation (participation in decision making, hierarchy of authority) and formalisation scale items are shown in Table 3.14.

Participation was measured on a five-point 'how often true' scale (1 = never true, 5 = always true). Hierarchy of authority and formalisation items were measured on a five-point 'disagree-agree' scale (1 = strongly disagree, 5 = strongly agree). Five participation items ( $\alpha = .84$ ,  $n=1,019$ ), five hierarchy of authority items ( $\alpha = .76$ ,  $n=1,001$ ) and three formalisation items ( $\alpha = .69$ ,  $n=1,020$ ) were averaged to produce scale scores.

**Table 3.14**  
**Organisation Structure Items**

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Participation in decision making ( $\alpha = .84$ )<sup>a</sup>

1. I participate in decisions that influence departmental policy.
2. I participate in decisions on the promotion of academic staff.
3. I participate in decisions to appoint new academic staff.
4. I participate in decisions on the adoption of new university policies.
5. I participate in decisions on the adoption of new course programs.

Hierarchy of authority ( $\alpha = .76$ )<sup>b</sup>

1. There can be little action taken in this university until someone in authority approves a decision.
2. In this university, I have to ask my supervisor before I do almost anything important.
3. In this university, even small matters have to be referred to someone higher up for a final answer.
4. An academic who wants to make his/her own decisions would be quickly discouraged in this university.
5. Any resource decision I make in this university has to have my supervisor's approval.

Formalisation ( $\alpha = .69$ )<sup>b</sup>

1. In this university, academic staff are expected to adhere to a large number of written rules and policies.
  2. This university stresses to academic staff the importance of following established educational rules and policies.
  3. The university often relies upon rules, procedures and memos to structure and coordinate academic work activities.
- 

<sup>a</sup> Respondents answered on five-point scales: 1 = never true, 2 = seldom true, 3 = sometimes true, 4 = often true, 5 = always true.

<sup>b</sup> Respondents answered on five-point scales: 1 = strongly disagree, 2 = disagree, 3 = neither disagree or agree, 4 = agree, 5 = strongly agree.

### 3.5.6 Sectoral Changes

Large-scale sectoral changes to Australian higher education were identified based on previous studies in higher education (Mahony, 1996; McInnis, 1996; Taylor et al., 1998) and expert comments made by policy analysts Simon Marginson (1997) and David Phillips (1997). Changes included the creation of a Unified National System (Meek, 1991), increased emphasis on quality assurance and academic accountability (CQAHE, 1995; McInnis, Powles & Anwyl, 1994; McInnis, 1996), the emergence of large multi-campus institutions (Mahony, 1996), managerialism in academe (Clarke, 1998; Crowley, 1998; DeBats & Ward, 1998), and the impact of information technology on academic work (Mazzarol & Hosie, 1997). Winter et al.'s (2000:286)

pilot study of these sectoral change items in a comprehensive Australian university ( $n=189$ ) revealed two change factors (System Changes, Academic Pressures) with adequate reliabilities ( $\alpha = .76, .69$  respectively). Table 3.15 shows sectoral changes items. Respondents answered on five-point 'size of the impact' scales (1 = very small impact to 5 = very large impact). Twelve items ( $\alpha = .85, n = 994$ ) were averaged to produce a scale score.

**Table 3.15**  
**Sectoral Characteristics Items<sup>a</sup>**

**Sectoral Changes ( $\alpha = .85$ )**

1. Increased emphasis on academic entrepreneurialism and fee-raising activities.
2. Decreased public funding and increased private funding of higher education.
3. Increased emphasis on academic accountability and institutional efficiency.
4. An expansion and diversification of the student population.
5. The creation of a unified national system through the merger of previously distinct sectors of universities and colleges of advanced education.
6. Increased pressure to use information technology to produce quality courseware.
7. Managerialism (i.e. business-related 'managerial' practices) replacing collegiality in the academic community.
8. Increased student and employer dissatisfaction with curricula.
9. Institutional pressures to increase productivity through quality assurance mechanisms, appraisal systems, and performance indicators.
10. The rise of consumerism and a 'user-pays' fees regime.
11. The emergence of very large, multi-campus institutions.
12. Increased competition between institutions for fee-paying student income.

<sup>a</sup> Respondents answered on five-point scales: 1 = very small impact, 2 = small impact, 3 = moderate impact, 4 = large impact, 5 = very large impact.

### 3.5.7 Job Involvement

According to Kanungo (1982a:342), job involvement is "a cognitive or belief state of psychological identification with a particular job". A state of involvement implies a positive state of engagement of core aspects of the self in the job, whereas a state of alienation (regarded by Kanungo as involvement's polar opposite) implies a loss of individuality and separation of the self from the work environment (Kanungo, 1982b). Focused on aspects of the job rather than work in general (more a belief about the centrality of work in one's life), job involvement "tends to be a function of how much the job can satisfy one's present [growth] needs" (Kanungo, 1982a:342).

Kanungo (1982a) developed separate measures of job and work involvement constructs using semantic differential, questionnaire, and graphical techniques based on data collected from a heterogeneous sample of 703 employees (57% male, 43% female; education levels = high school to advanced graduate degrees) in small, medium and large private/public sector organisations in Montreal, Canada. Kanungo's (1982a:344-345) results indicated the ten job involvement questionnaire items were reliable ( $\alpha = .87$ ; test-retest coefficient = .85,  $n=63$ ) and valid (factor loadings .44 to .77, median item-total correlation  $r = .68$  suggesting good construct validity;  $r = .80$  for graphic and questionnaire job involvement scales suggesting convergent validity).

Blau (1985) conducted two studies to validate Kanungo's (1982a) ten-item psychological identification measure of job involvement (items were based on a five-point disagree-agree scale where 1 = strongly disagree to 5 = strongly agree). In study one, a questionnaire was administered to 221 staff nurses (40% of the hospital population) and seven months later to 228 nurses (119 repeats, 109 newcomers) in a large hospital located in the U.S. mid-west. A principal components factor analysis with varimax rotation for the 119 repeat respondents (female = 98%, mean age = 31 years, 82 % full-time) showed that nine items in Kanungo's (1982a) measure "loaded sufficiently on the job-involvement factor" with factor loadings in the range of .40 to .75 in time 2 (Blau, 1985:23). One item, 'usually I feel detached from my job', did not load either on job involvement or intrinsic motivation factors. Blau (1987) reported the reliability of the scale over these two time periods to be satisfactory (time 1,  $\alpha = .78$ ,  $n=90$ ; time 2,  $\alpha = .84$ ,  $n=90$ ) and relatively strong approximately eleven months later (time 3,  $\alpha = .74$ ,  $n=90$ ).

In study two, Blau's (1985) samples consisted of 325 faculty (109 female, 216 male members of a mid-western U.S. university), 248 administrative personnel, 232 clerical employees, and 212 service employees from a U.S. university. Factor analysis results across all four samples indicated nine of Kanungo's (1982a) psychological identification items were unidimensional with factor loadings ranging from .49 to .72 (Blau, 1985:31). Again, the item 'usually I feel detached from my job' did not load on the psychological identification factor. Reliability results (Blau,

1985:32) indicated the job involvement measure showed strong internal consistency across different samples of employees (faculty = .85, administrators = .87, clerical = .83, and service = .86).

Brown (1996) conducted a meta-analysis and review of organisational research on job involvement (212 relevant studies, 249 independent samples, males = 57% of sample; mean age of participants = 36 years). Reviewing the meta-analyses of 51 job involvement relationships, Brown (1996:241) reported the weighted-mean reliability of Kanungo's (1982a) 10-item scale was .85. According to Brown (1996:236), Kanungo's (1982a) job involvement scale is based:

. . . on the clearest and most precise conceptualization of the construct. It clearly identifies the core meaning of the construct as a cognitive state of the individual, is not contaminated by items tapping concepts outside of this core meaning, and separates job involvement from antecedent and consequent constructs.

The cumulative results of Blau's (1985, 1987) studies and Brown's (1996) meta-analysis indicated Kanungo's (1982a) psychological identification measure of job involvement was both reliable and valid across different samples of respondents. Scale items for the ten-item measure are shown in Table 3.16. Items were measured on a five-point 'disagree-agree' scale (1 = strongly disagree to 5 = strongly agree). Ten items ( $\alpha = .87$ ,  $n=992$ ) were averaged to produce a scale score.

**Table 3.16**  
**Job Involvement Items<sup>a</sup>**

Job Involvement ( $\alpha = .87$ )

1. The most important things that happen to me involve my present job.
2. Most of my personal life goals are job-oriented.
3. To me, my job is only a small part of who I am.<sup>b</sup>
4. I am very much involved personally in my job.
5. I live, eat and breathe my job.
6. Most of my interests are centered around my job.
7. I consider my job to very central to my existence.
8. Usually I feel detached from my job.<sup>b</sup>
9. I have very strong ties with my present job which would be very difficult to break.
10. I like to be absorbed in my job most of the time.

<sup>a</sup> Respondents answered on five-point scales: 1 = strongly disagree, 2 = disagree, 3 = neither disagree or agree, 4 = agree, 5 = strongly agree.

<sup>b</sup> Reverse-scored items.



### 3.5.8 Organisation Commitment

Mowday, Steers, and Porter (1979) developed and validated a measure of employee commitment to work organisations based on studies among 2,563 employees in nine divergent organisations in the United States. Organisational commitment was defined "as the relative strength of an individual's identification with and involvement in a particular organization" and was characterised by three related factors:

1. A strong belief in and acceptance of the organisation's goals and values;
2. A willingness to exert considerable effort on behalf of the organisation;
3. A strong desire to maintain membership in the organisation. (Mowday et al, 1979:226).

To measure these related factors, Mowday et al. (1979) proposed a nine-item short version of the Organizational Commitment Questionnaire (OCQ). Factor analyses of the nine-item OCQ, based on samples of university employees ( $n=256$ ), hospital employees ( $n=376$ ), and scientists and engineers ( $n=119$ ), supported the assertion "that the items are measuring a single common underlying construct" of organisational commitment (Mowday, Porter, & Steers, 1982:223). Item analyses and reliabilities (alpha coefficients ranged from .82 to .93 with a median of .90) suggested the shorter form of the OCQ "may be an acceptable substitute for the longer scale in situations where questionnaire length is a consideration" (Mowday et al., 1979:244).

The OCQ instrument has demonstrated good psychometric properties and has been used widely in Australia (e.g., Zeffane, 1994), Singapore (e.g., Aryee & Heng, 1990) and the United States (Curry, Wakefield, Price & Mueller, 1986; Gaertner & Nollen, 1989). Mathieu and Zajac's (1990:172) study of the antecedents, correlates and consequences of organisational commitment (based on data drawn from 174 independent samples in 124 published studies) reported that attitudinal commitment is "most often measured with a scale developed by Porter and his colleagues". Thirteen of the ninety study samples reviewed had used the nine-item OCQ. The average scale reliability across nine samples ( $n=1,831$ ) was .86 ( $SD = .47$ ).

Curry, Wakefield, Price and Mueller (1986:850) collected commitment data using the nine-item OCQ from professional employees ( $n = 508$ ; primarily registered nurses, 67%) in general hospitals in the U.S. mid-west and reported alpha coefficients of .87 and .90 for two different time periods. Gaertner and Nollen (1989:982) also used the short version of the OCQ to measure psychological commitment for a random sample of employees ( $n=496$ ) employed in a U.S. manufacturing plant. They reported a Cronbach alpha coefficient of .90 for psychological commitment. Finally, Ramaswami, Agarwal, and Bhargava (1993:186) used the nine-item OCQ scale to examine the commitment of 1,159 marketing employees working in large U.S. organisations and reported a reliability coefficient of .90.

Seven OCQ items were included in the AWES. Scale items are shown in Table 3.17. Two items, 'I am extremely glad that I chose this university to work for over others I was considering at the time I joined', and 'I would accept almost any type of job assignment in order to keep working for this university', were excluded after results from the survey pilot indicated they had poor internal validity. Items ( $\alpha = .84$ ,  $n=988$ ) were measured on a five-point 'disagree-agree' scale (1 = strongly disagree to 5 = strongly agree).

**Table 3.17**  
**Organisation Commitment Items<sup>a</sup>**

Organisation Commitment ( $\alpha = .84$ )

1. I talk about this university to my friends as a great place to work.
2. I really care about the fate of this university.
3. I find that my values and the university's values are similar.
4. I am proud to tell others that I am part of this university.
5. For me, this is the best of all possible universities for which to work.
6. This university really inspires me in the way of job performance.
7. I am willing to put in a great deal of effort beyond that normally expected to help this university be successful.

<sup>a</sup> Respondents answered on five-point scales: 1 = strongly disagree, 2 = disagree, 3 = neither disagree or agree, 4 = agree, 5 = strongly agree.

## 3.6 Data Collection

The revised Academic Work Environment Survey (AWES) was administered to 2,988 academics in eight universities between 31 August and 8 September 1998. On 31 August 1998, 1,561 surveys were mailed to four independent samples of academics (UNE = 318, UNSW = 455, QUT = 396, FUSA = 382). One week later, on 7 September 1998, 1,427 surveys were mailed to another four independent samples of academics (SUT = 288, MU = 350, SYD = 485, JCU = 303).

Each mailing included a copy of the AWES (see Appendix A), a personally signed introductory letter (see Appendix D: Survey Cover Letter), and a reply-paid addressed envelope. Each reply-paid envelope was coded (institution/respondent number) to monitor rates of survey return. The AWES, letter, and envelope were folded and packed into a standard sized envelope to reduce postage costs. Academic addresses were printed on labels and affixed to envelopes.

### 3.6.1 Survey Returns

Survey returns began on 4 September 1998, four days after the initial mail-out. As each survey was returned, the survey was dated and the respondent's number cross-checked against a copy of address labels. Refusals were noted and dated and reasons for refusal recorded by e-mail and personal letter. After ten days, 386 surveys had been returned (effective return rate of 14 per cent), twenty days 739 (27 per cent), thirty days 821 (31 per cent), forty days 873 (33 per cent), fifty days 953 (36 per cent), and sixty days 995 returns (37 per cent). In total, 1,041 usable surveys were returned, an effective response rate of 40 per cent. Table 3.18 records the number of survey returns over time, the number of refusals, and the cumulative percentage of survey returns.

To improve response rates, e-mail reminders and a survey attachment were sent to non-respondents on 2 October 1998 (23 days after the first mailing, 18 days after the second), and the weeks beginning 5 October, 12 October, 19 October, and 26 October 1998. Current e-mail addresses were sourced and collated using each university's Web site address.

**Table 3.18**  
**Number of Returns and Cumulative Percentage of Survey Returns**

Number of days <sup>1</sup>	Number of returns	Cumulative number of returns	Number of refusals	Sample (excluding inactives, refusals)	Cumulative percentage returns
4	11	11			
5	76	87	2	1176	7.40
6	33	120			
7	70	190			
8	54	244			
9	55	299			
10	87	386	7	2743	14.07
11	34	420			
12	92	739			
13	52	525			
14	61	586			
15	61	647	22	2730	23.70
16	10	657			
17	21	678			
18	15	693	23		
19	15	708			
20	31	739	28	2725	27.12
25	47	786	29	2690	29.22
30	35	821	31	2682	30.61
35	29	850	32	2677	31.75
40	23	873	34	2675	32.63
45	52	925	37	2675	34.58
50	28	953	37	2671	35.68
55	16	969	37	2664	36.37
60	26	995	37	2663	37.36
65	18	1013	39	2659	38.10
70	12	1025	39	2659	38.55
75	5	1030	39	2648	38.90
80	3	1033	39	2639	39.14
80 +	8	1041	39	2609	39.90

<sup>1</sup> Days since the initial mail-out on 31 August 1998 to four universities (UNSW, UNE, FUSA, QUT). The second mail-out occurred seven days later to the four remaining universities (SYD, JCU, MU, SUT).

In this period of time, 1,677 e-mail reminders were despatched (UNE = 205; FUSA = 218; UNSW = 263; QUT = 248; MU = 213; SYD = 237; JCU = 181; SUT = 112), representing 64 per cent of the effective sample size. Non-respondents uncontactable by e-mail were sent a personally signed letter and a copy of the survey. A majority of the letters (n=78) were sent to non-respondents at Swinburne University of Technology. A final attempt at improving response rates was made the week beginning 16 November 1998, 55 days after the initial mail-out (50 days after the second). Final e-mail survey reminders were sent to 1,570 non-respondents in the eight universities between 17 and 25 November 1998 (UNE = 181; FUSA = 191;

UNSW = 239; QUT = 241; MU = 196; SYD = 215; JCU = 162; SUT = 145), representing 60 per cent of the effective sample size.

### 3.6.2 Response Bias

To check for possible response bias over time, surveys were divided into two groups:

1. Early (7 to 20 days after mail-out,  $n=80$ ), and
2. Late (25 days plus after mail-out,  $n=80$ ).

An Independent Samples  $T$ -test was conducted across the eight universities ( $n=20$ ) to see if any significant differences existed between the two groups on the basis of job involvement and organisation commitment mean scores. No significant differences in mean Involvement ( $M = 2.96$  cf.  $2.89$ ,  $t = .90$ ,  $p = .37$ ) or Commitment ( $M = 3.09$  cf.  $2.98$ ,  $t = .83$ ,  $p = .41$ ) scores were found between the two groups. Inspection of variances for the two attitude measures indicated little dispersion in Involvement scores ( $S^2 = .24$  cf.  $.25$ ) but some dispersion in Commitment scores ( $S^2 = .57$  cf.  $.76$ ). A Levene's test for Equality of Variances for Commitment scores was not significant ( $p > .05$ ) indicating the variances for each group were approximately equal. Tests of differences results indicated respondents gave a similar range of answers to questions irrespective of when they responded to the survey.

## 3.7 Data Preparation

To check the accuracy of the data input, systematic checks of the raw data file were completed by comparing surveys to data records sorted by personnel number (i.e., every 5th and 10th record checked). Frequency Distributions and Stem and Leaf Plots were computed for all variables to check for errors in data entry (Coakes & Steed, 1997:29-35). Out of range values were detected and replaced in the main data file with the correct values.

### 3.7.1 Normality Checks

To test for data normality, a prerequisite for inferential statistical analysis using interval data (Cooper & Emory, 1995:442), the data were explored graphically with Stem and Leaf, Normal Probability and Detrended Normal Plots, and statistically using Lilliefors, Skewness and Kurtosis statistics (Coakes & Steed, 1997:31-36).

The first item of each scale was selected to assess data normality and the shape of the distribution. Data normality was assumed when:

1. Data points fell within a narrow band along a straight (normal) or horizontal (detrenched) plot line,
2. The significance level of the Lilliefors's statistic was greater than .05, and
3. Values for skewness and kurtosis were close to zero (i.e.,  $\leq 1.00$ ).

Normal Probability and Detrenched Normal Plots indicated slight degrees of skewness and kurtosis in the distributions. Departures from normality were confirmed by inspecting the numbers of extreme scores (i.e., outliers) in frequency distributions for each variable. For each variable, the significance level of the Lilliefors's statistic was less than .05 indicating non-normality. Table 3.19 indicates the shape of the distributions of selected variables by presenting mean, standard deviation, skewness, and kurtosis statistics.

**Table 3.19**  
**Means, Standard Deviations, Skewness and Kurtosis Measures of Selected Variables**

Variable <sup>a</sup>	n	Mean	SD	Skewness	Kurtosis	Shape
REVRA1	1039	1.83	0.86	0.95	0.55	Slight positive skew / slight peak
RC1	1032	3.26	0.87	-.13	-.24	Near normal distribution
REVRO1	1034	3.38	1.14	-.32	-.78	Slight negative skew / slightly flat
AU1	1038	4.03	0.86	-.94	1.05	Slight negative skew / peaked
TI1	1038	3.78	0.85	-.48	0.09	Slight negative skew
FB1	1024	2.55	1.11	0.35	-.70	Slightly flat
JC1	1039	4.08	0.79	-.76	0.70	Slight negative skew / slight peak
CS1	1018	2.75	1.11	0.08	-.77	Slightly flat
HA1	1025	3.50	1.05	-.28	-.83	Slightly flat
PD1	1037	3.55	1.12	-.55	-.39	Slight negative skew
FO1	1029	3.58	0.98	-.34	-.52	Slightly flat
HC1	1035	3.77	1.03	-.57	-.24	Slight negative skew
OC1	1036	2.87	1.11	-.03	-.80	Slightly flat
JCI	1031	2.92	1.08	-.04	-.76	Slightly flat

<sup>a</sup> REVRA = Reverse role ambiguity; RC = Role conflict; REVRO = Reverse role overload; AU = Autonomy; TI = Task identity; FB = Feedback; JC = Job challenge; CS = Consideration; HA = Hierarchy of authority; PD = Participation in decision making; FO = Formalisation; HC = Higher education changes; OC = Organisation commitment; JI = Job involvement.

Only one variable (RC1) presented scores close to a normal distribution (see Table 3.19). All other variables indicated slight degrees of skewness and kurtosis but

generally within the set criterion of  $\leq 1.00$  from zero (the one exception being AU1). Given that variables rarely conform to a classic normal distribution and most often are skewed with varying degrees of kurtosis (see Coakes & Steed, 1997:37), it was decided the distribution of variable scores approximated normality and the departures from normality were not extreme enough to warrant variable transformation.

### 3.7.2 Missing Data

Listwise deletion, the default option in the SPSS statistical package (Coakes & Steed, 1997), was chosen as the technique to deal with missing data for descriptive analysis purposes (Roth, 1994). Listwise deletion eliminates all cases with any amount of missing data from a calculation (i.e., correlation matrix) or series of analyses (i.e., regression). Hence, listwise deletion eliminated all data from a respondent missing data on work environment predictor and work attitude criterion variables. Table 3.19 shows the valid n-values after listwise deletion. The range of missing respondent data sets varied from a high of eighteen (Consideration) to a low of two (Role Ambiguity, Job Challenge). Given the relatively large sample size ( $n=1,041$ ), this amount of data sacrifice was considered small and not sufficient to introduce bias in parameter estimation (Little & Rubin, 1987).

Missing data, for confirmatory factor analysis using AMOS version 4.0 (Arbuckle & Wothke, 1999), were treated differently. Because AMOS cannot calculate certain goodness of fit indices (GFI, AGFI, RMSR) with missing data, the EM missing values function of SPSS (10.0) was used to substitute estimated mean values for all missing data. This weighted regression method took into account all observed variables with missing data. The EM regression function is a recognised method for effective missing values analysis (Tabachnick & Fidell, 1996:64).

## 3.8 Data Analysis

Quantitative and qualitative data analysis techniques were employed to address the study's descriptive and inferential research questions (Creswell, 1994). Table 3.20 summarises the data analysis methods employed for each research question.

**Table 3.20**  
**Research Questions and Data Analysis Methods**

Research Questions	Data Analysis Methods
1. What are the work environment perceptions and work attitudes of academics across the sample?	Descriptive statistics (means, standard deviations). Qualitative analysis of respondents' comments.
2. Which demographic variables account for significant differences in the work environment and work attitude responses of academics?	Bivariate analysis. One-way ANOVA (F-statistics, chi-square), <i>t</i> -tests and Scheffé's post-hoc <i>S</i> test.
3. What is the underlying factor structure of survey measures? How well do observed indicator variables measure unobserved latent variables?	Confirmatory factory analysis using the maximum-likelihood estimation method of AMOS Version 4.0.
4. Which demographic variables and work environment characteristics represent significant work attitude predictors?	Hierarchical regression analysis (Beta, <i>t</i> , Adjusted $R^2$ , <i>F</i> statistics).
5. How do demographic variables and work environment characteristics relate to the work attitudes of academics? What is the strength and direction of this relationship?	Structural equation modeling to assess fit of specified demographic, work environment models (model fit indices, explained variance). To test hypotheses, standardised path co-efficients and correlations among and between factors.

The data analysis comprised three stages: (1) descriptive analysis, (2) bivariate analysis, and (3) inferential analysis. In *Stage One*, descriptive statistics (means, standard deviations) and qualitative comments were employed to describe the work environment perceptions and work attitudes of academics (Research Question 1).

In *Stage Two*, bivariate analysis tables compared respondents' work environment and work attitude mean scores by personal and professional type variables. One-way analyses of variance (F-statistics, chi-square values), *t*-test statistics, and Scheffé post-hoc tests indicated significant differences in overall mean scores at specified levels of significance (Research Question 2).



In *Stage Three*, a confirmatory factor analysis of survey items was conducted using the maximum-likelihood estimation method of AMOS Version 4.0 (Arbuckle & Wothke, 1999) to assess the validity of survey measures (Research Question 3). To identify significant work attitude predictors (Research Question 4), a series of multiple regression analyses were carried out (Tabachnick & Fidell, 1996:185-191). To examine demographic, work environment and work attitude variable relationships (Research Question 5), structural equation modeling techniques were employed (Anderson & Gerbing, 1988). A description of each stage of analysis now follows.

### **3.8.1 Descriptive Analysis**

Descriptive analysis began with a description of the sample using statistics offered by SPSS – a social science statistical analysis program (Coakes & Steed, 1997). Frequencies and percentages described demographic characteristics of the sample and compared those characteristics to those in the staff higher education population. Cross-tabulation tables summarised demographic variable differences across the sample.

#### **3.8.1.1 Quantitative Analysis**

Means and standard deviations were computed to describe the work environment perceptions and work attitudes of academics. A five-group classification was used to standardise and compare five-point scale responses across the survey:

1. strongly negative (mean under 2.50)
2. negative (mean 2.51 to 2.90)
3. neutral (mean 2.91 to 3.09)
4. positive (mean 3.10 to 3.50)
5. strongly positive (mean over 3.50).

#### **3.8.1.2 Qualitative Analysis**

Quality of work life comments (n=433, approximately 42 per cent of the sample) were organised according to grounded theory principles and analysed using appropriate category labels (see Turner, 1981). To capture context-based meanings and identify quality of work life characteristics, the analysis made use of keywords (e.g., stress, feedback) to label events, issues or concepts of significance to respondents. Hence, an inductive analysis of the data meant that work environment

characteristics were firmly based or grounded in the words of respondents (Martin & Turner, 1986; Taylor & Bogdan, 1984). Frequency counts of each keyword were then computed to highlight salient issues to respondents.

To examine the degree of support for hypothesised work environment-work attitude relationships (Research Question 5), qualitative data were 'triangulated' (Campbell & Fiske, 1959) with quantitative data.

### **3.8.2 Bivariate Analysis**

Two bivariate tests of difference, the Independent Groups *t*-test and One-Way Analysis of Variance (ANOVA) were employed to identify significant demographic differences in academic responses. Both tests are appropriate for five-point interval scaled measures and comparing differences for two (*t*-test) or three or more (one-way ANOVA) independent groups (Zikmund, 1994:516). Significant *t*-values ( $p < .05$ ) and *F*-statistics ( $p < .05$ ) indicated if observed differences in mean scores occurred by chance alone (Coakes & Steed, 1997:75-93). If the *t*-test or *F*-test statistics were significant, Scheffé's Post-Hoc Comparison Test was computed (Cooper & Emory, 1995:460-462). The Scheffé test, by comparing differences between group means, identified significant between-group differences ( $p < .05$ ) and hence where the source of the significance lied.

#### **3.8.2.1 Homogeneity of Variance**

To test for homogeneity of variance (i.e., groups come from populations with approximately equal variances), Levene's Test for Equality of Variances was computed using the SPSS program (Coakes & Steed, 1997:82). Population variances for each group were considered approximately equal when Levene's Statistic was not significant ( $p > .05$ ). If Levene's test for homogeneity of variances was violated ( $p < .05$ ), Mann-Whitney and Kruskal-Wallis nonparametric test statistics were computed (Zikmund, 1994:539-542). The Mann-Whitney (or ranked sum) and Kruskal-Wallis tests are equivalent to the independent groups *t*-test and one-way between-groups ANOVA respectively.

### 3.8.3 Confirmatory Factor Analysis

Confirmatory factor analysis (CFA) represented the first step in a two-step approach to structural equation modeling (Anderson & Gerbing, 1988). A two-step approach was chosen in order to assess the fit of the structural equation model among constructs (i.e., the structural model) independently of assessing the fit of the observed variables to constructs (i.e., the measurement model). According to Jöreskog & Sörbom (1993:113), the testing of the structural model (and posited theory) "may be meaningless unless it is first established that the measurement model holds". Hence, before structural relations between constructs were tested, a CFA specified the relations of the observed variables to their posited underlying constructs (Anderson & Gerbing, 1988:411).

To assess the dimensionality and goodness of fit of survey measures, a CFA using the maximum-likelihood (ML) estimation method of AMOS (4.0) was conducted. The CFA was based on a sample of 1,041 subjects using the EM missing values function of SPSS (10.0) to substitute estimated mean values for all missing data.

#### 3.8.3.1 Model Specification

Measurement models were graphically specified using the AMOS (4.0) software (Byrne, 2001:8). By convention, circles represented unobserved latent variables, rectangles represented observed variables, ovals represented observed and unobserved variable error, single-headed arrows represented the impact of one variable on another, and double-headed arrows represented covariances between pairs of variables. Each observed variable, with its corresponding measurement error ( $1 - \alpha$ ), was specified to load on a latent variable.

#### 3.8.3.2 Dimensionality of Measures

Achieving unidimensional measurement is a crucial stage in theory testing and development (Anderson & Gerbing, 1988:414). If meaning is to be assigned to hypothesised constructs or factors, then alternate indicators (measures) of that construct must be unidimensional and have one underlying trait or construct in common.

To assess the dimensionality of survey measures, factor loadings (regression co-efficients), factor scores, and squared multiple correlations were computed. Factor co-efficients ( $\geq .40$ ,  $p < .001$ ) twice their standard errors, and factor scores loading on their respective factors (and poorly on others) indicated the extent to which observed variables measured underlying constructs. Residuals (standard error terms) indicated the amount of measurement error associated with each observed variable. Squared multiple correlations indicated the extent to which observed variables accounted for (explained) variance in constructs. CFA dimensionality results were also supported by validity evidence from previous studies.

### 3.8.3.3 Goodness of Fit of Measures

Model fit indices were utilised to examine the degree to which specified measurement models fit the sample data (Schumacker & Lomax, 1996:120-126). Four model fit criteria were employed to assess differences between observed sample and estimated population covariance matrices: (1) chi-square ( $\chi^2$ ), (2) goodness-of-fit index (GFI), (3) adjusted goodness-of-fit index (AGFI), and (4) root-mean-square residual (RMSR). All indices were utilised to compare the fit of a proposed model (correlated variables, unitary constructs) with an independence or null model (uncorrelated variables, independent constructs). Goodness of fit indices above .90 (Bentler & Bonett, 1980:600) and an RMSR of  $\leq .05$  (Jöreskog & Sörbom, 1989) indicated good and acceptable fit to the data.

### 3.8.4 Multiple Regression Analysis

Multiple regression analysis was employed to identify significant predictors of academics' work attitudes. As a multivariate analysis technique, multiple regression is specifically suited to simultaneously analysing the effect of several independent variables on a single interval-scaled dependent variable (Tabachnick & Fidell, 1996:127-129).

The aim of the regression analysis was to arrive at a set of regression co-efficients (beta values) for the work environment independent variables (X) that achieved two goals: (1) optimised the correlation between the predicted and obtained dependent variable (Y) values for the data set, and (2) minimised deviations between predicted

and obtained Y values. Adjusted squared multiple correlation (adjusted  $R^2$ ) and squared multiple correlation ( $R^2$ ) statistics were computed to achieve both goals. The squared multiple correlation ( $R^2$ ) statistic indicated the proportion of variation in the dependent variable (Y) that was predictable from the best linear combination of the independent variables (X). The adjusted squared multiple correlation (adjusted  $R^2$ ) statistic also indicated the proportion of Y variance attributable to the X's whilst adjusting  $R^2$  to fit the model to the population. To indicate deviations between predicted (regression model) and obtained (data set) Y values after adding X's, changes to adjusted  $R^2$  and changes to F statistics were computed.

#### 3.8.4.1 Order of Variable Entry

Hierarchical regression analysis was the chosen procedure for selecting and entering variables into the regression equation. In hierarchical (sequential) regression, the order of entry is chosen prior to analysis of the data and is based on some logical or theoretical consideration (Cohen & Cohen, 1983). The rationale for entry in this case was a combination of two principles: (1) Research relevance, and (2) Research design.

Demographic variables were entered first into the equation since these variables have been associated with only small variations in job involvement (Brown, 1996) and organisational commitment (Matlieu & Zajac, 1990). Hence, these so-called 'nuisance' variables were given higher priority for entry and were entered first (Tabachnick & Fidell, 1996:149). Work attitude, role, job, supervisor, structural, and sectoral independent variables were then entered reflecting the order of the theoretical models and hypotheses presented in the Literature Review (see Chapter 2). On this basis, demographic variables were entered in the first (personal) and second (professional) stages, work attitudes in the third stage, role stress factors in the fourth stage, job characteristics in the fifth stage, supervisory style in the sixth stage, organisation structure in the seventh stage, and sectoral changes in the eighth stage.

#### 3.8.4.2 Stages of Analysis

Nominal control variables (qualifications, position, function, discipline, university type) were first dummy coded to represent dichotomous variables since regression can only be used with continuous and/or dichotomous variables (Tabachnick & Fidell, 1996). Factor scores (regression co-efficients) for each work environment and work attitude variable were saved in SPSS and used for the regression analyses. SPSS syntax was then executed that specified a dependent work attitude variable, entered demographic and work environment predictor variables into the regression equation, and checked for independence of residual error terms by calculating the Durbin-Watson statistic (Tabachnick & Fidell, 1996:139). Values close to 2 indicated the residuals were not correlated with each other and so were independent of error. The residual statistics PRED and RESID computed using the SPSS REGRESSION program were also examined for independence of residuals (mean values close to 0 indicated independence of error).

To assess how well the regression model fits the data, model summary ( $R^2$ , adjusted  $R^2$ ) and ANOVA statistics were examined at each stage of analysis. To identify which variables showed a strong linear association with the work attitude dependent variable, significant  $t$ -values ( $p < .05$ ) in the equation were highlighted. Variables showing high and low increments in  $R^2$  were identified by their BetaIn values (i.e., standardised regression co-efficients that would result if the variables were entered into the equation at the next step). Decisions to retain or eliminate variables from the equation were made based on  $t$ -values at the .05 significance level ( $< .05$  retain,  $> .05$  eliminate), increments in  $R^2$  (as expressed by BetaIn values), and changes to adjusted  $R^2$  after each regression.

To identify significant work environment predictors, ANOVA (F-test, significance levels) statistics were examined at each stage of the hierarchical regression (Tabachnick & Fidell, 1996:159). The F ratio (mean square regression over mean square residual) tested the significance of multiple R and hence the relative contribution of predictor variables in the regression equation.

### 3.8.5 Structural Equation Modeling

Structural equation modeling (SEM) techniques were employed to examine the relationships among demographic (personal, professional), independent (work environment), and dependent (work attitude) variables. Each structural equation model incorporated a measurement model specifying how the latent (unobserved) variables were measured in terms of observed variables. The structural model specified graphically the prediction of the dependent (attitude) latent variables by the independent (work environment) latent variables. Hence, by describing the amount of explained and unexplained variance, structural equation models tested independent-dependent variable relationships as posited by theory and research hypotheses (see Chapter 2).

Hypothesised structural models were estimated using covariance matrices and the maximum-likelihood (ML) method of AMOS Version 4 (Arbuckle & Wothke, 1999). Covariance matrices, using estimated mean values for all missing data, were computed based on a sample of 1,041 academics. The goal of this analysis was to minimise the difference between the observed sample and estimated population covariance matrices (Tabachnick & Fidell, 1996:746-748). Model fit indices, based on differences between observed sample and estimated population covariance matrices, were then computed using AMOS (4.0) to assess the goodness of fit of specified and estimated models.

Structural models were specified and tested in two stages of analysis: (1) Model specification, and (2) Model fit. Each stage will now be examined.

#### 3.8.5.1 Model Specification

To express measurement and structural relations in each model, standard accepted graphing techniques and prefixes (see Bentler, 1992; Schumacher & Lomax, 1996:68-73) were adopted in which:

- rectangles represented observed variables (V),
- ellipses (ovals) represented observed variable error (E) and structural disturbances (D),
- circles identified independent latent variables (X) and dependent latent variables (Y),

- single-headed arrows indicated the impact of one variable on another, and
- double-headed arrows represented covariance between independent latent (X) variables.

For each model, observed exogenous variables (i.e., role, job, supervisory, structural, sectoral variables), observed endogenous variables (i.e., organisational commitment, job involvement), and unobserved exogenous variables (i.e., error) were drawn, labelled and specified. For example, a work environment exogenous latent variable (e.g., role ambiguity) was connected to a work attitude endogenous variable (job involvement) with a single-headed arrow to represent the hypothesised direct relationship between the two variables (the arrow pointing to it is the dependent variable). Lines with arrows at both ends were drawn between independent variables to indicate covariance with no implied direction of effect.

Each observed variable, with its corresponding measurement error, was specified to load on a latent variable. This relationship represented the measurement model (see Chapter Seven). Because there are an infinite number of solutions to the model specification problem, constraints were imposed on the model and the data to obtain unique estimates for each of the parameters in the model (Schumacker & Lomax, 1996:99). Hence, variable-error parameters were either fixed to values obtained in the confirmatory factor analysis or set to one. Structural relationships between latent variables were left as free parameters.

### 3.8.5.2 Model Fit

The relationship between the original and reproduced covariance matrices for each model was tested for significance by calculating various absolute, incremental, and parsimony goodness of fit measures (Mulaik, James, Alstine, Bennett, Lind & Stilwell, 1989).

The chi-square ( $\chi^2$ ) statistic relative to the degrees of freedom indicated the degree to which the observed and sample covariance matrices differed (i.e., the lower the  $\chi^2$ , and the higher the probability associated with it, the better the degree of model fit). A nonsignificant  $\chi^2$  value (at the .05 level of significance) indicated the two matrices



were not statistically significant. To measure the amount of variance in the observed matrix predicted by the reproduced matrix, the Goodness of Fit Index (GFI) was computed. A value of .90 or greater was deemed acceptable model fit (Bentler & Bonett, 1980). To diagnose whether model fit had been achieved by 'overfitting' the data with too many co-efficients, the Adjusted Goodness of Fit Index (AGFI) was interpreted in conjunction with the  $\chi^2$  statistic. An AGFI value of .90 or greater indicated the model had sufficient fit (Bollen, 1989). To estimate an average of the residuals between observed and estimated covariance input matrices, the Root Mean Square Residual Index (RMSR) was estimated (the RMSR is the square root of the mean of the squared residuals). According to Jöreskog and Sörbom's (1989) criteria, an RMSR of  $\leq .05$  was considered acceptable fit.

In view of the role chi-square has in model fit of latent variable models (i.e., as sample size increases,  $\chi^2$  has a tendency to indicate a significant probability level), various model comparison indices were utilised to compare a specified model with a null model (where variables are uncorrelated with one another). Hence, the Tucker-Lewis (1973) and Normed Fit (Bentler & Bonett, 1980) Indices offered by AMOS (4.0) were examined. A major advantage of these indices is that they are not affected by sample size or the degrees of freedom for the model. Again, values of .90 or greater indicated the model had sufficient fit (Schumacher & Lomax, 1996:121).

Model parsimony refers to the number of estimated co-efficients required to achieve a specified level of fit. Two parsimony measures were examined: (1) Normed chi-square ( $\chi^2/df$ ) and (2) Parsimony ratio. The Normed chi-square adjusts  $\chi^2$  by the degrees of freedom to evaluate model fit based on considerations other than the statistical significance of the chi-square statistic (Hoetler, 1983). An index between 1 and 5 was considered acceptable fit. The Parsimony Ratio was used to compare models with different degrees of freedom. A ratio of less than 2.0 was considered indicative of excellent model fit (Bentler, 1980).

### 3.8.5.3 Variable Relationships

To examine the strength of predicted variable relationships in the structural model, standardised path estimates (regression co-efficients) were computed at specified

levels of significance. Standardised co-efficients were computed because of their suitability in comparing relative contributions to explained variance (Bagozzi, 1980).

Hypotheses were supported or rejected on the basis of the strength and sign of the correlation and regression co-efficients in the Correlation Matrix (see Chapter 7) and Structural Model (see Chapter Nine) respectively. A co-efficient greater than or equal to .40 ( $p < .01$ ) was inferred a strong relationship, between .20 and .39 ( $p < .01$ ) a moderate relationship, and below .20 ( $p < .01$ ) a weak relationship (Stevens, 1996:371).

### 3.9 Methodological Limitations

The study's cross-sectional research design imposed a number of limitations.

First, the survey is limited by time. Descriptions of the academic work environment, and academics' attitudes and behaviours, related from July to December 1998 and not to other time periods.

Second, survey findings were limited to eight universities in the states of Queensland, NSW, Victoria and South Australia. These eight target universities were not geographically representative of all Australian states and territories. However, they were representative of the unified higher education sector.

Third, findings were based solely on the self-reports of academics, a problem known as common methods variance (Campbell & Fiske, 1959). Because work environment and work attitude data came from the same person at the same time, it was difficult to identify "the potential causes of artifactual covariance between self-report measures of what are presumed to be two distinctly different variances" (Podsakoff & Organ, 1986:534). Hence, variance may be attributable to measurement method, not the variables of interest, limiting the statistical conclusion and validity of findings (Cook & Campbell, 1976). Although methods variance may be fairly high in this study, the biasing effect of this variance on estimated correlations among theoretical constructs may not be that great. Doty and Glick (1998:374), assessing the

level of common methods bias in all multitrait-multimethod correlation matrices over a twelve-year period, estimated that common methods variance resulted in a 26 per cent bias in the observed relationships among constructs. Doty and Glick (1998:398) concluded that:

Although the level of methods variance in organisational research appears to be fairly high, the effect of common methods bias may not be as great as feared. In 30% of the 316 trait-trait combinations, the magnitude of detected common methods bias was .05 or less . . . Thus, many of the criticisms of research streams that rely predominantly on a single data collection procedure are probably overstated.

Fourth, findings cannot prove work environment-work attitude (i.e., cause-effect) relationships since no additional samples were used for cross-validation purpose. At best, the study can infer causality and make predictions based on the validity of hypothesised theoretical relationships.

### 3.10 Summary

In this chapter, the research design, research methods, sampling methodology, and survey development process of the study were described. The conceptual framework of the study was first outlined. Next, the sample survey research design and research methods were described with emphasis on the process of selecting primary sampling units (universities) and secondary sampling units (academics).

A survey development section described the process of scale development, survey design, survey development and validation. Survey development included findings from semi-structured interviews (pre-test) and an exploratory principal-components factor analysis (pilot). The pre-test interviews assessed the relevance of survey questions in academe and the pilot survey examined scale reliability and validity in a comprehensive Australian university (n=189). Next, survey measures were defined, reports of their previous usage described (included reported reliability and validity evidence) and individual items presented in summary tables.

Data collection began with a report of survey returns and the checks made for possible response bias. Data preparation included data screening, normality checks and procedures for handling missing data. Quantitative and qualitative data analysis methods that addressed the study's research questions were then presented. A description of each data analysis procedure then followed. The chapter concluded with a statement of methodological limitations.

## CHAPTER FOUR

### SAMPLE CHARACTERISTICS

#### 4.1 Introduction

This chapter describes the personal and professional characteristics of sample respondents. Sample characteristics are compared to the 1998 academic staff higher education population (DETYA, 1998a). Cross-tabulation tables illustrate demographic variable differences across the sample.

#### 4.2 Sample Profile

##### 4.2.1 Personal Characteristics

Table 4.1 presents the personal characteristics of the 1,041 sample respondents compared to the 1998 academic staff higher education population.

**Table 4.1**  
**Personal Characteristics of Sample and DETYA Higher Education Population**

Category	Sample		Population <sup>a</sup>	
	f	%	f	%
<b>Gender</b>				
Male	681	65.4	21200	64.9
Female	333	32.0	11463	35.1
Valid Total	1014	97.4		
No Response	27	2.6		
TOTAL	1041	100.0	32663	100.0
<b>Age</b>				
Less than 30	18	1.7	2085	6.4
30 – 39	224	21.5	8228	25.2
40 – 49	364	35.0	11460	35.1
50 – 59	357	34.3	9176	28.1
60 +	73	7.0	1714	5.2
Valid Total	1036	99.5		
No Response	5	.5		
TOTAL	1041	100.0	32663	100.0

<sup>a</sup> Department of Education, Training and Youth Affairs (DETYA) Selected Higher Education Staff Statistics 1998:44. Full-time and fractional full-time university academic staff as at 31 March 1998.

As shown in Table 4.1, most respondents were male (65 per cent) and aged between 40 and 59 years of age (69 per cent). No statistical differences were found between the final sample and national higher education population in terms of gender ( $\chi^2 = 2.64$ ,  $df = 1$ ,  $p > .05$ ). By age groups, the sample was under-representative of staff less than 30 years of age and over-representative of staff 50 to 59 years of age.

#### 4.2.2 Professional Characteristics

Table 4.2 presents professional characteristics of the sample compared to the 1998 higher education academic staff population. The majority of respondents were full-time (91 per cent), tenured/ongoing (68 per cent), held a doctorate or equivalent degree (65 per cent), were employed at the lecturer and senior lecturer levels (30 per cent and 33 per cent respectively), and were engaged primarily in teaching and research roles (75 per cent). A majority of respondents indicated they had seven or more employment years at their current university (65 per cent) and in higher education (73 per cent).

By contract hours, the sample was representative of full-time academic staff in the higher education population ( $\chi^2 = 0.98$ ,  $df = 1$ ,  $p > .05$ ) but under-representative of fractional full-time staff. In terms of academic position, the sample included 8 per cent more senior lecturer and 12 per cent less associate lecturer positions compared to the national higher education population. Professorial positions were representative of the national population ( $\chi^2 = 3.47$ ,  $df = 1$ ,  $p > .05$ ). By primary work role, the sample included 40 per cent more academics in teaching and research roles compared to the national population.

Most respondents (31 per cent) indicated the humanities as their affiliated discipline area. Science (including mathematics, computing) and health sciences disciplines were evenly represented across the sample (21 per cent respectively). Business and engineering/architecture disciplines attracted fewer numbers (16 and 10 per cent respectively).

**Table 4.2**  
**Professional Characteristics of Sample and DETYA Higher Education Population**

Category	Sample		DETYA <sup>a</sup>	
	f	%	f	%
<b>Current Position</b>				
Associate Lecturer	79	7.6	6663	20.4
Lecturer	316	30.4	11464	35.1
Senior Lecturer	343	32.9	8047	24.6
Associate Professor/Reader	151	14.5	3245 <sup>b</sup>	10.0
Professor	123	11.8	3244 <sup>b</sup>	9.9
Valid Total	1012	97.2		
No Response	29	2.8		
TOTAL	1041	100.0	32663	100.0
<b>Contract Basis</b>				
Tenured/Ongoing	706	67.8	19924 <sup>c</sup>	61.0
Fixed-Term	220	21.1	12739 <sup>c</sup>	39.0
Valid Total	926	89.0		
No Response	115	11.0		
TOTAL	1041	100.0	32663	100.0
<b>Contract Hours</b>				
Full-Time	946	90.9	28743 <sup>d</sup>	88.0
Fractional Full-Time	80	7.7	3920 <sup>d</sup>	12.0
Valid Total	1026	98.6		
No Response	15	1.4		
TOTAL	1041	100.0	32663	100.0
<b>Highest Degree Attained</b>				
Doctorate or equivalent	677	65.0		
Masters <sup>e</sup>	225	21.6		
Graduate Certificate/Dip.	51	5.0		
Bachelors/Honours	67	6.4		
Other	15	1.4		
Valid Total	1035	99.4		
No Response	6	.6		
TOTAL	1041	100.0		

<sup>a</sup> Department of Education, Training and Youth Affairs (DETYA) Selected Higher Education Staff Statistics 1998:13-15, 22-23, 28-29.

<sup>b</sup> DETYA Above Senior Lecturer classification has been equally divided.

<sup>c</sup> Academic staff in same proportions as total FTE for full-time and fractional full-time staff by current duties term, 1997 figures.

<sup>d</sup> Academic staff in same proportions as total FTE for full-time and fractional full-time staff by work contract, 1998 figures.

<sup>e</sup> Masters degree by research or coursework.

**Table 4.2 (continued)**  
**Professional Characteristics of Sample and DETYA Higher Education Population**

Category	Sample		DETYA <sup>a</sup>	
	f	%	f	%
<b>Primary Work Role</b>				
Teaching and Research	780	74.9	11106 <sup>f</sup>	34.0
Teaching Only	99	9.5	653 <sup>f</sup>	2.0
Research Only	17	1.6	3593 <sup>f</sup>	11.0
Administration/Other	138	13.3	17311 <sup>f</sup>	53.0
Valid Total	1034	99.3		
No Response	7	.7		
TOTAL	1041	100.0	32663	100.0
<b>Employment Years in University</b>				
10 years +	454	43.6		
7 - 10 years	218	20.9		
3 - 6 years	214	20.6		
Less than 3 years	146	14.0		
Valid Total	1032	99.1		
No Response	9	.9		
TOTAL	1041	100.0		
<b>Employment Years in Higher Education</b>				
10 years +	619	59.5		
7 - 10 years	137	13.2		
3 - 6 years	138	13.3		
Less than 3 years	58	5.6		
Valid Total	952	91.5		
No Response	89	8.5		
TOTAL	1041	100.0		
<b>Academic Department</b>				
Education/Humanities/Arts	326	31.3	8112 <sup>b</sup>	34.0
Science/Maths/Computing	222	21.3	5097 <sup>b</sup>	21.0
Health Sciences	222	21.3	2844 <sup>b</sup>	12.0
Business/Economics/Law	163	15.7	4368 <sup>b</sup>	18.0
Engineering/Arch./Agric.	105	10.1	2983 <sup>b</sup>	12.0
Other	1	.1	662 <sup>b</sup>	3.0
Valid Total	1039	99.8		
No Response	2	.2		
TOTAL	1041	100.0	24066	100.0

<sup>f</sup> Academic staff in same proportions as total FTE for full-time and fractional full-time staff by function, 1997 figures.

<sup>b</sup> Academic staff are FTE for full-time and fractional full-time staff in an academic organisational unit group 1998, excluding staff with 'research only' or 'other' function.



**Table 4.2 (continued)**  
**Professional Characteristics of Sample and DETYA Higher Education Population**

Category	Sample		DETYA <sup>a</sup>	
	f	%	f	%
<b>University Type</b>				
Sandstone/Research	317	30.5	9572 <sup>h</sup>	39.8
Metropolitan	269	25.8	6649 <sup>h</sup>	27.6
University of Technology	230	22.1	4111 <sup>h</sup>	17.1
Regional	223	21.4	3734 <sup>h</sup>	15.5
Valid Total	1039	99.8		
No Response	2	.2		
TOTAL	1041	100.0	24066	100.0

<sup>h</sup> Academic staff are FTE for full-time and fractional full-time staff in an academic institution 1998, excluding staff with 'research only' or 'other' function.

The sample was representative of humanities and science DETYA discipline groups ( $\chi^2 = 2.25$ ,  $df = 1$ ,  $p > .05$ ) but over-representative of staff from health sciences (the sample included 9 per cent more staff from this discipline).

Most respondents indicated their university type as a sandstone/research institution (31 per cent). Metropolitan universities, universities of technology, and regional institutions were fairly evenly represented throughout the sample (26 per cent, 22 per cent, and 21 per cent respectively). By university type, the sample was skewed more towards universities of technology and regional universities than staff distributions across the national population (see Table 4.2). However, the degree of under-representation of research universities is open to question given DETYA national population figures are based solely on teaching and research, and teaching only staff roles.

### 4.3 Cross-Sample Characteristics

The following tables present cross-tabulations of sample characteristics.

#### 4.3.1 Gender by Contract Hours

Table 4.3 shows the relationship between gender and contract hours ( $n=1003$ ).

**Table 4.3**  
**Cross-Tabulation of Gender by Contract Hours**

Contract Hours	Male		Female		TOTAL	
	f	%	f	%	f	%
Full-time	636	94.5	289	87.6	925	92.2
Fractional full-time	37	5.5	41	12.4	78	7.8
TOTAL	673	100.0	330	100.0	1003	100.0

$$\chi^2 = 14.81, df = 1, p < .001$$

Of the 925 total full-time sample, 69 per cent were males and 31 per cent females. By gender, a higher proportion of males (95 per cent) compared to females (88 per cent) reported full-time employment. Approximately 6 per cent more female than male staff reported fractional full-time employment. A significant chi-square statistic indicated contract hours is related to respondent's gender ( $\chi^2 = 14.81, df = 1, p < .001$ ).

#### 4.3.2 Gender by Contract Basis

Table 4.4 shows the relationship between gender and contract basis (n=909). Of the 694 (76 per cent) total tenured staff, 72 per cent were males and 28 per cent females.

**Table 4.4**  
**Cross-Tabulation of Gender by Contract Basis**

Contract Basis	Male		Female		TOTAL	
	f	%	f	%	f	%
Tenured/ongoing	498	82.6	196	64.1	694	76.3
Fixed-term	105	17.4	110	35.9	215	23.7
TOTAL	603	100.0	306	100.0	909	100.0

$$\chi^2 = 38.62, df = 1, p < .001$$

By gender, a higher proportion of males (83 per cent) than females (64 per cent) reported employment on a tenured/ongoing basis and a higher proportion of females (36 per cent) than males (17 per cent) were employed on a fixed-term basis. These

differences were statistically significant indicating contract basis is related to respondent's gender ( $\chi^2 = 38.62$ ,  $df = 1$ ,  $p < .001$ ).

#### 4.3.3 Age Groups by Current Position

Table 4.5 presents cross-tabulations of academic age groups by current academic position ( $n=1009$ ).

**Table 4.5**  
**Cross-Tabulation of Age Groups by Current Position**

Age Groups <sup>a</sup>												
Current Position	1		2		3		4		5		TOTAL	
	f	%	f	%	f	%	f	%	f	%	f	%
A/Lecturer	10	58.8	34	15.7	26	7.3	8	2.3	1	1.4	79	7.8
Lecturer	6	35.3	118	54.6	111	31.3	71	20.4	9	12.3	315	31.2
S/Lecturer	1	5.9	53	24.5	131	36.9	128	36.8	30	41.1	343	34.0
A/Professor	-	-	7	3.2	53	14.9	80	23.0	11	15.1	151	15.0
Professor	-	-	4	2.0	34	9.6	61	17.5	22	30.1	121	12.0
TOTAL	17	100.0	216	100.0	355	100.0	348	100.0	73	100.0	1009	100.0

<sup>a</sup> 1 = Less than 30, 2 = 30 to 39, 3 = 40 to 49, 4 = 50 to 59, 5 = 60 plus years.

$\chi^2 = 251.70$ ,  $df = 16$ ,  $p < .001$

As might be expected, a greater proportion of staff less than 30 years of age (Group 1) held associate lecturer (59 per cent) rather than senior lecturer (6 per cent) and professorial (0 per cent) positions. Conversely, staff 60 or more years of age (Group 5) held senior lecturer (41 per cent) and professor (30 per cent) positions rather than associate lecturer (1 per cent) positions. Only 5 per cent of professorial staff across the sample was less than 39 years of age. A significant chi-square statistic indicated current academic position is not independent of respondent's age group ( $\chi^2 = 251.70$ ,  $df = 16$ ,  $p < .001$ ).

#### 4.3.4 Discipline Areas by Current Position

The relationship between discipline areas and academic position is shown in Table 4.6 ( $n=1011$ ).

**Table 4.6**  
**Cross-Tabulation of Discipline Areas by Current Position**

Discipline Areas <sup>a</sup>												
Current Position	1		2		3		4		5		TOTAL	
	f	%	f	%	f	%	f	%	f	%	f	%
A/Lecturer	23	7.3	20	9.1	18	8.3	12	7.7	6	5.8	79	7.8
Lecturer	112	35.7	69	31.5	52	24.0	53	33.5	30	29.1	316	31.3
S/Lecturer	103	32.8	72	32.9	75	34.6	50	31.6	43	41.7	343	33.9
A/Professor	37	11.8	36	16.4	35	16.0	24	15.2	19	18.4	151	14.9
Professor	39	12.4	22	10.1	37	17.1	19	12.0	5	5.0	122	12.1
TOTAL	314	100.0	219	100.0	217	100.0	158	100.0	103	100.0	1011	100.0

<sup>a</sup> 1 = Arts, Education, Humanities; 2 = Science, Mathematics, Computing; 3 = Health Sciences;

4 = Business, Economics; 5 = Engineering, Architecture, Agriculture.

$\chi^2 = 22.72$ ,  $df = 16$ ,  $p > .05$

As can be seen, the majority of academics (65 per cent) held lecturer ( $n=316$ ) and senior lecturer ( $n=343$ ) positions across all discipline areas. A smaller proportion of professors were represented in engineering/architecture (5 per cent) compared to professors from health sciences (17 per cent), arts (12 per cent) and business (12 per cent) discipline areas. However, this difference was not statistically significant ( $\chi^2 = 22.72$ ,  $df = 16$ ,  $p > .05$ ).

#### 4.3.5 Primary Work Role by University Type

Table 4.7 shows the relationship between primary work role and university type ( $n=1032$ ). The majority of academics (75 per cent) indicated teaching and research as their primary work roles. Administrative roles were reported by 13 per cent of total academic staff. By university type, more staff from sandstone institutions (30 per cent) indicated teaching and research as their primary role than staff from universities of technology (20 per cent) and regional (23 per cent) institutions. In addition, more staff from sandstone universities (38 per cent) indicated administration as their primary role than staff from other university types (18 to 25 per cent). A higher proportion of staff from universities of technology indicated teaching only roles. A significant chi-square statistic indicated university type is related to respondent's primary work role ( $\chi^2 = 60.44$ ,  $df = 9$ ,  $p < .001$ ).

**Table 4.7**  
**Cross-Tabulation of Primary Work Role by University Type**

University Type	Primary Work Role <sup>a</sup>								TOTAL	
	1		2		3		4		f	%
	f	%	f	%	f	%	f	%		
Sandstone/research	21	21.2	236	30.3	6	35.3	52	37.7	315	30.5
Metropolitan	13	13.1	209	26.9	10	58.8	34	24.6	266	25.8
Uni.Technology	48	48.5	154	19.8	-	-	27	19.6	229	22.2
Regional	17	17.2	179	23.0	1	5.9	25	18.1	222	21.5
TOTAL	99	100.0	778	100.0	17	100.0	138	100.0	1032	100.0

<sup>a</sup> 1 = Teaching only; 2 = Teaching and Research; 3 = Research only; 4 = Administration/Other.  
 $\chi^2 = 60.44$ ,  $df = 9$ ,  $p < .001$

#### 4.4 Summary

This chapter presented a profile of the survey sample in terms of personal (age, gender) and professional (position, contract, qualifications, primary work role, employment years, discipline area, university type) demographic characteristics. Chi-square tests indicated the sample was representative of the national higher education population in terms of gender, contract hours and some discipline groups. Cross-tabulation tables and chi-square tests indicated there were more males than females in full-time employment, more tenured males than tenured females, more older staff than younger staff in professorial positions, and more staff from research institutions in teaching and research and administrative roles compared to staff from universities of technology and regional institutions.

## CHAPTER FIVE

### DESCRIPTIVE FINDINGS

#### 5.1 Introduction

This chapter utilises quantitative and qualitative data to describe the work environment perceptions and work attitudes of academics (Research Question One). Descriptive statistics (means, standard deviations) summarise the strength and variability of responses to structured work environment and work attitude survey questions. Qualitative responses to open-ended work environment questions reflect salient issues to respondents and reveal the values, attitudes and frames of reference of academics.

#### 5.2 Work Environment Characteristics

Table 5.1 presents the means and standard deviations for academic work environment variables. To compare positive and negative work environment characteristics across the sample, quantitative mean scores were organised into five groups:

1. strongly negative (mean under 2.50)
2. negative (mean 2.51 to 2.90)
3. neutral (2.91 to 3.09)
4. positive (mean 3.10 to 3.50)
5. strongly positive (mean over 3.50).

This five-group classification related to the five-point Likert scales used throughout the Academic Work Environment Survey (i.e., 1 = strongly disagree to 5 = strongly agree). As can be seen from Table 5.1, role ambiguity represents the lowest mean score ( $M=2.10$ ) and task identity the highest mean score ( $M=4.58$ ).

Qualitative comments were organised and analysed according to grounded theory principles and coded using appropriate category labels (see Turner, 1981). Table 5.2 presents relative frequencies for keywords labelled as positive and negative work environment characteristics. The relative frequency of the role overload keyword indicates stress was the most salient issue to respondents.

**Table 5.1**  
**Means<sup>a</sup> and Standard Deviations for Work**  
**Environment Characteristics**

Measure	Items	Mean	SD	Valid N
<b>Role Stress</b>				
Role Ambiguity	5	2.10	1.39	1041
Role Conflict	3	3.13	1.52	1039
Role Overload	3	3.81	1.48	1041
<b>Job Characteristics</b>				
Autonomy	5	4.37	1.10	1041
Task Identity	3	4.58	.89	1041
Feedback	3	2.52	1.59	1038
Job Challenge	4	4.33	1.10	1041
<b>Supervisory Style</b>				
Consideration	14	3.30	1.56	1033
<b>Organisation Structure</b>				
Hierarchy of Authority	5	3.02	1.57	1038
Participation in decision making	5	2.89	1.70	1040
Formalisation	5	3.90	1.27	1038
<b>Sectoral Changes</b>				
Higher Education Changes	12	3.90	1.31	1036

<sup>a</sup> Mean responses grouped as 1 = strongly negative (mean under 2.50); 2 = negative (2.50 to 2.90); 3 = neutral (2.91 to 3.09); 4 = positive (3.10 to 3.50); 5 = strongly positive (mean over 3.50).

**Table 5.2**  
**Relative Frequencies for Keywords<sup>a</sup> Labelled as Positive and Negative Work**  
**Environment Characteristics**

Positive Environment	f	Negative Environment	f
Supervisor, supervision	79	Role overload, stress	142
Job characteristics	69	Value conflict	126
Collegial relations	35	Funding, economic rationalism	95
Positive benefits	11	Managerialism	62
		Recognition, rewards	45
		Administrivia	45
		Students, standards, services	39
		Quality assurance, performance	18
		Entrepreneurialism	13

<sup>a</sup> Number of times particular issue mentioned by respondent relative to other issues.

### 5.2.1 Positive Work Environment Characteristics

Academics reported positive (motivating) work environment characteristics in the form of task identity ( $M=4.58$ ,  $SD=.89$ ), autonomy ( $M=4.37$ ,  $SD=1.10$ ), job challenge ( $M=4.33$ ,  $SD=1.10$ ), and supervisory consideration ( $M=3.30$ ,  $SD=1.56$ ) mean scores. Respondents were clear about the nature of their roles and responsibilities as indicated by strongly negative responses to role ambiguity ( $M=2.10$ ,  $SD=1.39$ ) items. Respondents rated formalisation ( $M=3.90$ ,  $SD=1.27$ ) strongly positive indicating the presence of rules, procedures and rules to guide and control academic work activities. Respondents also indicated strong positive opinions to sectoral changes such as the rise of managerialism in academe, decreased public funding, academic entrepreneurialism and fee-raising activities ( $M=3.90$ ,  $SD=1.31$ ).

Written comments from lecturers supported job challenge, autonomy, supervisory consideration, and collegial relations with colleagues as motivating work environment characteristics:

It is a positive job environment in terms of challenge and opportunities in teaching and research in my topic area. (Lecturer/UOT)

I have the opportunity to develop and extend myself, to explore new areas, develop new subjects and innovate in teaching (if I am prepared to struggle with inadequate innovation management systems). I can research in any area I like as long as I keep up a stipulated research output. I can consult and work with corporate clients, where I can really innovate. Excellent environment to work in - except for lack of academic promotion and recognition. (Senior Lecturer/Metropolitan)

My immediate colleagues (in my school) are a fine group to work with. Students are stimulating and good to work with too. (Lecturer/Sandstone)

Quite positive, I have a fair amount of autonomy and responsibility and have taken on extra administrative/university service because of my personal interests. My achievements are recognised, and my opinions are (usually) listened to. (Lecturer/Regional)

I enjoy the work/environment. People are generally friendly. The work is challenging and I receive positive feedback about my performance. This increases my job satisfaction. (Lecturer/Regional)



Fantastic! Better than any other university I have worked at. I am supported, encouraged, and given relevant work to do that has a significant impact on our programs, etc. I am not discriminated against for being female or being much younger than most others. We work in teams and it is a very collegial environment in which I feel free to question things, use initiative and make changes. But there is not enough time to do it all! (Lecturer/Regional)

### 5.2.2 Negative Work Environment Characteristics

Academics expressed negative (demotivating) work environment characteristics in the form of role overload ( $M=3.81$ ,  $SD=1.48$ ), role conflict ( $M=3.13$ ,  $SD=1.52$ ), low job feedback ( $M=2.52$ ,  $SD=1.59$ ), and moderate levels of participation in university decision making ( $M=2.89$ ,  $SD=1.70$ ). The relative frequency of the value conflict, economic rationalism and managerialism keywords indicate many academics felt traditional academic values (i.e., collegiality, professional autonomy, scholarship) were being compromised by the demands of funding cuts and corporate reforms:

It is a tragedy frankly - the application of business principle(s) to higher education has been a disaster in terms of intellectual freedom, creativity and research innovation. 'Competition' has no place in public institutions in my opinion - other mechanisms to assure quality and service are much more appropriate. It has caused conflict and division within this university as cash starved Schools and Faculty fight over the inadequate carcass of funding provided by the government. (Lecturer/Regional)

Most colleagues are very stressed, and struggling to keep up with all their responsibilities inside and outside the university. Consequently, the feeling of friendly shared endeavour has evaporated over the past few years. Staff increasingly do their own thing. Opportunities for informal sharing of information such as the occasional working lunch are now rare. The school/faculty/university is driven by dollars and administration. This has had a counter-productive effect on productivity due to deterioration in trust and mutual respect. I don't enjoy my work as much as I did. I prefer to collaborate as a team rather than work with competitive individualism (although I am naturally competitive). (Senior Lecturer/UOT)

I accept it - but I don't necessarily like it. The large change in ethos of the institution to a point where students and staff are increasingly ranked lower in importance than dollars and statistical data saddens me greatly. I survive, and I find meaningful and worthwhile things to do for teachers and students - but with decreasing support and recognition from the institution. (Associate Professor/ UOT)

A very poor working environment - virtually no support, very competitive, highly political, inadequate support for research projects, inadequate time for one person to do all that's expected well. Furthermore the environment is under constant change due to funding cuts and increased pressures with associated staff cuts and more undergraduate students. (Senior Lecturer/Sandstone)

It is a high-pressure environment with unreasonable amounts of work to do in terms of student numbers and student contact hours. The possibility of thinking through ideas and engaging in research seems a distant memory so all the joy and meaning of being an academic has been taken away and replaced by the idea that you are a process worker by which I mean a processor of students. Upper level management are stressed and harassed and pass those feelings down the line so the work environment is cloaked in anxiety and suspicion. No one knows what will happen next and the talk about the need to do this, that or the other to keep jobs, save the department, orient ourselves to contemporary realities and so forth is endless. (Lecturer/UOT)

### 5.2.3 Role Stress

Table 5.1 shows that academics reported low role ambiguity, moderate role conflict, and high role overload. Role overload has been reported in a number of Australian academic studies as a pervasive feature of academic work (Currie, 1996; Taylor et al., 1998; Sarros, Gmelch, & Tanewski, 1997b, 1998; Winter, Taylor, & Sarros, 2000).

#### 5.2.3.1 Role Ambiguity

Respondents reported strongly that role ambiguity was not a characteristic of their work environments. Academics reported strong role clarity in terms of "knowing what [their] responsibilities are" ( $M=4.53$ ,  $SD=1.07$ ), being "certain about how much authority [they] have in [their] jobs" ( $M=3.91$ ,  $SD=1.48$ ) and "knowing exactly what is expected of [them]" ( $M=3.73$ ,  $SD=1.52$ ). Both male (72 per cent,  $n=491$ ) and female (67 per cent,  $n=222$ ) academics reported role clarity. A high percentage of academics aged 60 or more years reported role clarity (86 per cent,  $n=63$ ). Role clarity is a motivating characteristic for various occupational groups since it indicates the organisation has in place structural mechanisms to guide employee behaviour (Glendon & Durick, 1983; O'Driscoll & Beehr, 1994).

### 5.2.3.2 Role Conflict

Role conflict, the degree of incongruity between an academic's role expectations and the university's role demands, was rated moderately positive by academics. Academics responded they had to "do things at work that should be done differently" ( $M=3.43$ ,  $SD=1.46$ ) and they received a "task assignment without adequate resources to execute it" ( $M=3.21$ ,  $SD=1.62$ ). But academics did not agree that they "worked on unnecessary things" ( $M=2.82$ ,  $SD=1.56$ ). An equal number of staff classified by gender, work role and contract hours expressed high and low levels of role conflict. Role conflict indicated some incongruence between university role demands and the orientations or values of academics themselves (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964):

I abhor the commercialisation and commodification of higher education and the way education technologies are being seen as a means of providing factory style education instead of using them to make learning more interesting and challenging. I feel that the so-called postmodern uni is not a place for me and I am reviewing my options. (Senior Lecturer/Sandstone)

(In relation to the item 'Increased competition between institutions for fee-paying student income') - I am no longer a scholar, I am a saleswoman. This is a travesty of everything education should stand for. (Senior Lecturer/Sandstone)

### 5.2.3.3 Role Overload

Most respondents rated role overload, a stress characteristic indicated by excessive work/time pressures, as a characteristic of their current work environments. Academics in the 40 to 49 (74 per cent,  $n=268$ ), 50 to 59 (66 per cent,  $n=235$ ) and 30 to 39 (64 per cent,  $n=143$ ) age groups reported high levels of role overload. A majority of both male (65 per cent,  $n=441$ ) and female academics (70 per cent,  $n=232$ ) indicated role overload at work. By academic position, 518 (51 per cent) of total staff ( $n=1012$ ) reported very high levels of role overload. Professors ( $n=69$ ) and senior lecturers ( $n=188$ ) reported the highest levels of overload.

Academics rated "too much work for one person to do" ( $M=4.34$ ,  $SD=1.23$ ) and the reverse-scored item "I am given enough time to do what is expected of me in my job" ( $M=2.47$ ,  $SD=1.66$ ) as their most stressful overload characteristics. Unrealistic performance expectations were rated as the least stressful role overload characteristic

( $M=3.11$ ,  $SD=1.62$ ). Respondents' comments reveal the nature and extent of role overload:

Challenging, frenetic, under resourced, goal posts continually shifting. Universities are changing their role in society but seem uncertain of their new directions so we live in a state of perpetual change weighed down with endless form filling and meetings that distract and divert us from our primary roles of teaching and research. I have 3 PhD students, 5 Hons. students, I am responsible for a whole degree programme. I teach in topics with 100-150 students. I am on university and government committees. I work no less than 60 hrs/week and I have no secretarial or administrative help and share 1/2 a technician for my research. I am a person of great energy but I am becoming exhausted by the demands of the system. I no longer have any personal time! I would hate to be a young academic with a family in the current university climate. (Associate Professor/Metropolitan)

Generally negative. Work pressures are increasing. Quality time for research and teaching preparation diminishing. Quality time with family decreasing. Little time for relaxation and pursuing one's own non-work interests. (Associate Professor/Regional)

Massive teaching and admin responsibilities threaten to overtake my research. Although the students are very bright and mostly highly motivated, the teaching hours (10-12 hrs p.w. of seminars intervals plus 2 hrs lectures p.w. plus PhD and Masters supervision) plus crunching marking demands and enormous admin responsibilities, make life difficult. (Associate Lecturer/Sandstone)

Although I have a degree of autonomy and supportive supervisors (2 departmental heads, the Dean), the sheer amount of work involved in major curriculum revision is daunting. The waters are often uncharted! I also participate at Academic Board level as a Chair of a major committee, a substantial workload that is not particularly well resourced or supported. The job has taken over my life! Although I look forward to spending time after retirement on other things that are important/interesting to me. I am now sufficiently senior to have some "say" in what goes on, but the pressures to perform are very high; along with my colleagues I am working well over two normal 35 hour working weeks (It is fair to say that some pressures are self-generated - I like to get things done well!). (Professor/Sandstone)

Mostly, there are too many pressures. I work about 60 hours per week during semester and I am trying to complete a PhD. The expectations are too high. On one hand I am told to reduce my workload so that I can complete the PhD, on the other, I am then given additional work and greater role responsibility!! It's exhausting! (Lecturer/Regional)

### 5.2.4 Job Characteristics

Academics reported high levels of task identity ( $M=4.58$ ,  $SD=.89$ ), autonomy ( $M=4.37$ ,  $SD=1.10$ ) and job challenge ( $M=4.33$ ,  $SD=1.10$ ) but low levels of feedback ( $M=2.52$ ,  $SD=1.59$ ) at work. Positive, motivating job characteristics satisfy many academics' needs for engaging, stimulating and meaningful work activities:

Job is excellent - interesting, varied, challenging, high commitment, good level of control over what I am doing. (Lecturer/Metropolitan)

The work itself is as challenging as I make it and leads to a good deal of personal satisfaction. (Senior Lecturer/Regional)

Full on. Pressured toward continual learning. Challenging. Offering variety and opportunities. (Associate Professor/Metropolitan)

Challenged - my work is exciting, stimulating, rewarding and absorbing (when I am not too frustrated to appreciate this). (Lecturer/Sandstone)

I realise as I fill out this form that I am very satisfied with some aspects i.e. the degree of autonomy I have in my work, and the challenging nature of the work...(Senior Lecturer/Metropolitan)

However, some job tasks were regarded as imposed 'administrivia' (Currie, 1996), make-work activities which decreased personal effectiveness at work:

I'm afraid that the life of an academic is one where 'the buck stops here'! As universities scrimp and save, the resources to assist academics are whittled away to almost nil leaving a highly trained professional in their discipline to cope with all the trivia of typing, preparing Web pages, entering and calculating marks, booking the buses etc. This results in staff that are too flat out to concentrate and their core business - students - thereby suffers. (Senior Lecturer/Regional)

... Problems in my job environment seem to be outside the immediate control of my colleagues and supervisor. We are frequently asked to do more with less as to fulfil bureaucratic tasks of dubious merit. (Lecturer/UOT)

Academic life is becoming increasingly dominated by mundane administrative tasks which have little to do with the primary objectives of teaching, research and services to the profession. (Professor/Sandstone)

I find my current job environment very challenging yet very frustrating. In particular the lack of resources and general staff makes the job increasingly difficult. I devote considerable amounts of time to menial tasks such as typing overheads and photocopying and these detract from the time I am able to give to my research projects. (Senior Lecturer/Metropolitan)

Limited resources for research and teaching and admin support means the individual academic is overworked, over-stretched and often preoccupied with trivia. Limited time exists for selection and adequate pursuit of higher education goals. (Senior Lecturer/UOT)

Lack of acknowledgment or respect for any staff doing research (eg. I have large ARC) but must be a "closet" researcher otherwise they will give me more teaching and admin and petty work. Ridiculous work situation where senior academics answer petty phone calls and do practice teaching admin for hundreds of hours per year. (Senior Lecturer/Metropolitan)

#### 5.2.4.1 Task Identity

Academics reported they often saw "projects or jobs through to completion" ( $M=4.53$ ,  $SD=1.00$ ) and handled work from beginning to end ( $M=4.33$ ,  $SD=1.16$ ). Over 70 per cent of male ( $n=681$ ) and female ( $n=333$ ) staff reported high levels of task identity. High levels of task identity across positions, work roles and discipline areas suggest academics do experience intrinsically motivating work by performing entire tasks or projects that have a recognisable beginning and end (Hackman & Oldham, 1976).

#### 5.2.4.2 Autonomy

Academics reported they were "left on [their] own to do [their] own work" ( $M=4.68$ ,  $SD=0.87$ ), their jobs provided "the opportunity for independent thought and action" ( $M=4.48$ ,  $SD=1.11$ ) and they could act independently of their supervisors in performing their jobs ( $M=4.40$ ,  $SD=1.18$ ). Respondents indicated high levels of autonomy:

I have a lot of autonomy and that suits me. I also get the opportunity to participate in decision making of various sorts and that suits me too. (Senior Lecturer/UOT)

The main things I enjoy are autonomy, independence and flexibility. (Lecturer/Metropolitan)

I continue to enjoy independence in my work, particularly on a day-to-day basis of activities. My involvement with course administration and hospital/research foundation administration keeps me busy and involved with nearly all decisions made as a consequence of committees/working parties. Several of these committees I chair or play a major role in their function/decision making processes. (Senior Lecturer/Metropolitan)

I work pretty much on my own and manage my own projects. I have enough experience and knowledge to manage independently. (Senior Lecturer/UOT)

Male ( $n=463$ , 68 per cent) and female ( $n=210$ , 63 per cent) staff reported very high levels of autonomy ( $n=1014$ ). A majority of staff (greater than 60 per cent) across all age groups, academic positions, work roles and discipline areas reported very high levels of autonomy. High levels of autonomy signify academics experience responsibility for work outcomes, a critical psychological state associated with high intrinsic work motivation and high-quality work performance (Hackman & Oldham, 1976, 1980).

Academics reported less autonomy in terms of exerting "control over the pace of (their) work" ( $M=3.13$ ,  $SD=1.62$ ). This characteristic suggests that external (e.g., faculty, administration) and technological (e.g., on-line teaching) forces may be exerting more control over the academic labour process (Taylor, Gough, Bundrock, & Winter, 1998).

#### 5.2.4.3 Job Challenge

Respondents indicated they felt tasks at work were challenging ( $M=4.54$ ,  $SD=1.00$ ), important ( $M=4.13$ ,  $SD=1.27$ ) and brought out the best in them ( $M=3.74$ ,  $SD=1.35$ ). High levels of job challenge suggest academics are engaged in tasks and projects that make full use of their abilities, skills and knowledge.

Academics across all age groups reported high levels of job challenge at work. Over 60 per cent of male ( $n=681$ ) and female ( $n=333$ ) staff, and 70 per cent of professors ( $n=123$ ) and associate professors ( $n=151$ ) reported very high levels of job challenge. According to work climate researchers (Amabile, 1988; Amabile, Conti, Coon, Lazenby, & Herron, 1996; James & Sells, 1981), job challenge is a key source of intrinsic work motivation and creativity at work.

#### 5.2.4.4 Feedback

Respondents rated feedback on job performance negatively, with 40 per cent of all staff (n=426) across all academic positions indicating very low levels of job feedback. Approximately 21 per cent (n=210) of staff reported very high levels of job feedback. Professors (n=123) reported high levels of job feedback.

Academics reported they did not receive feedback from their supervisors on how well they were doing their jobs ( $M=2.38$ ,  $SD=1.62$ ) and could not find out (as they were working) how well they were doing their jobs ( $M=2.76$ ,  $SD=1.59$ ):

The main thing I dislike would be lack of feedback on my performance, and less positive recognition than I would possibly receive elsewhere (due to the fact that I work largely independently). (Lecturer/Metropolitan)

Little supervision or feedback. One needs to enjoy working independently, which I do. (Lecturer/Metropolitan)

The job I am doing is immensely challenging, I would like more advice and mentoring about my performance, but any supervisor has neither the time nor the expertise to provide either. (Senior Lecturer/Metropolitan)

I am new to my current position and whilst I am enjoying the job itself and the challenges it presents I do feel that there is minimal support from my supervisor. I am really left to get on with my job with little supervision or feedback. (Associate Lecturer/Metropolitan)

Findings indicate academics do not receive timely job feedback from supervisors and/or from university performance appraisal systems. This is a demotivating work characteristic since academics do not know when and how to change their work performance to increase desired outcomes (Hackman & Oldham, 1976).

#### 5.2.5 Supervisory Style

Respondents across the sample rated their immediate supervisor as exhibiting a considerate and supportive leadership style ( $M=3.30$ ,  $SD=1.56$ ,  $n=1033$ ). The majority of male and female staff (60 per cent) rated their supervisor's consideration style positively. High levels of consideration were reported across all positions and discipline areas. Supervisory consideration indicated a positive work environment characteristic. Considerate supervisors are known to help others solve work related problems, facilitate skill development and encourage creative achievements (Deci &



Ryan, 1987; Oldham & Cummings, 1996). Respondents' comments reveal the positive effects supervisory consideration has on academics' work attitudes and task performance (Ashour, 1982; Seltzer & Numerof, 1988):

My supervisor likes to be in touch and informed about the goings on in the department and can be approached when problems arise. I am happy in this environment and get on with my fellow workers. (Associate Professor/Sandstone)

I have a very supportive supervisor. One of his main concerns is the personal well-being and professional development of this staff. (Lecturer/UOT)

I am fortunate to have an approachable and supportive HOS (immediate supervisor), who is willing to listen and act on suggestions, and who provides encouragement - feedback on my performance. (Senior Lecturer/Sandstone)

Despite having worked in my current position for 25+ years, I still gain a lot of satisfaction, due mainly to a dedicated and humane supervisor. (Senior Lecturer/Metropolitan)

Academics reported their supervisor was friendly and approachable ( $M=3.99$ ,  $SD=1.47$ ) and willing to make changes ( $M=3.75$ ,  $SD=1.43$ ). Considerate supervisors also gave "advance notice of changes that affect academics' work" ( $M=3.40$ ,  $SD=1.59$ ), put "suggestions made by the group into operation" ( $M=3.39$ ,  $SD=1.48$ ), and encouraged "group members to speak up when they disagreed with a decision" ( $M=3.28$ ,  $SD=1.65$ ). Reverse-scored items also indicated supervisory consideration. Respondents indicated strongly negative responses to the statements "my supervisor refuses to explain his or her actions" ( $M=2.06$ ,  $SD=1.51$ ) and "my supervisor keeps to himself or herself" ( $M=2.54$ ,  $SD=1.64$ ).

On a socio-emotional level, respondents intimated their supervisors did not show much concern for group maintenance functions. Academics reported negative responses to the statements "my supervisor does little things to make it pleasant to be a member of the group" ( $M=2.65$ ,  $SD=1.57$ ) and "my supervisor keeps informed about how group members think and feel about things" ( $M=2.87$ ,  $SD=1.64$ ). This finding and the following comments suggest supervisors may not have the time and/or the social skills to create the conditions for a teamworking environment:

The current supervisor is totally focused on his own advancement and the supervisor above him is unable (from a personality perspective) to give positive feedback to anyone regardless of how much he would like to (he sees it as too emotional - likely to cause jealousies) - hence the negative comments re the supervisor. (Senior Lecturer/UOT)

Supervisor incapable of listening to or taking rational advice. Supervisor favours some areas and not others. Supervisor favours some individuals and not others. Supervisor's steam-roller approach militates against an effective and efficient team environment. (Professor/Regional)

I would feel much happier if my supervisor did not try to force everyone into the same mould, but recognised individual strengths/weaknesses in his staff, and used this as a basis for development of team-based work activities. (Senior Lecturer/Sandstone)

### 5.2.6 Organisation Structure

Academics overall indicated moderate levels of centralisation and high levels of formalisation in their universities. Academics were neutral in respect to hierarchy of authority items ( $M=3.02$ ,  $SD=1.57$ ) and rated participation in decision making slightly negative ( $M=2.89$ ,  $SD=1.70$ ). Academics reported they adhered to a large number of written rules, procedures and policies ( $M=3.90$ ,  $SD=1.27$ ).

#### 5.2.6.1 Hierarchy of Authority

An equal number of male ( $n=679$ ) and female ( $n=332$ ) staff reported low and high levels of hierarchy of authority. Classified by academic position, 60 per cent of associate professors and professors indicated low levels of hierarchy compared to 35 per cent of associate lecturers and lecturers ( $n=1,009$ ).

Academics indicated a hierarchy of authority in terms of two dimensions: resource decisions and decision making authority. Academics indicated a strongly positive response to the statement "any resource decision I make in this university has to have my supervisor's approval" ( $M=3.91$ ,  $SD=1.61$ ) and a positive response to the statement "there can be little action taken in this university until someone in authority approves a decision" ( $M=3.15$ ,  $SD=1.48$ ).

Academics indicated strongly negative responses to the statements "even small matters have to be referred to someone higher up for a final answer" ( $M=2.42$ ,

SD=1.65) and "I have to ask my supervisor before I do almost anything important" (M=2.42, SD=1.69). Academics also indicated a negative response to the statement that "academics making their own decisions would be quickly discouraged" (M=2.64, SD=1.61). Findings suggest many academics have decision making authority with respect to discharging their job responsibilities but have limited authority over resource and policy decisions:

I have a lot of discretion within my own management area, but decisions taken above my level profoundly affect my ability to achieve my objectives, yet I have little influence or even prior knowledge of these decisions. This is profoundly frustrating. (Associate Professor/UOT)

We decide things as a team in our dept (of 9) within a school (or 100 or so) where my vote is of equal weight. But I feel very powerless in the face of an uninterested/hostile central management. Also in face of market realities (can we attract enough students to maintain staff levels?). (Senior Lecturer/Metropolitan)

Main problems arise from university hierarchy. e.g. decisions are made by senior executive (Vice-Chancellor) without consultation, which have significant implications for my work. There appears to be no means to influence this process. (Lecturer/Sandstone)

#### 5.2.6.2 Participation in Decision Making

Across the sample (n=1013), 52 per cent of staff reported low participation in decision making, 42 per cent high participation and 6 per cent expressed a neutral opinion. More females (40 per cent) than males (32 per cent) indicated very low levels of participation in university decision making. More than 70 per cent of professors indicated very high levels of participation compared to 10 per cent of both lecturer and associate lecturer positions.

Academics indicated strongly negative responses to participating in decisions on "new university policies" (M=2.20, SD=1.58), decisions that "influence departmental policy" (M=2.35, SD=1.67) and decisions "on the promotion of academic staff" (M=2.39, SD=1.74). Academics indicated strongly positive responses to participating in decisions "on the adoption of new course programs" (M=4.04, SD=1.43).

### 5.2.6.3 Formalisation

Across the sample ( $n=1011$ ), 20 per cent of staff indicated low formalisation in their universities, 70 per cent high formalisation and 10 per cent expressed a neutral response.

Academics reported formalisation in their universities in terms of being "expected to adhere to a large number of written rules and policies" ( $M=3.84$ ,  $SD=1.48$ ), the presence of "rules, procedures and memos to structure and coordinate academic work activities" ( $M=3.63$ ,  $SD=1.52$ ) and the "importance of following established educational rules and policies" ( $M=3.44$ ,  $SD=1.53$ ). High ratings to these items suggest formal systems and procedures provide needed guidance and role clarification to academics (Finlay, Martin, Roman, & Blum, 1995).

### 5.2.7 Sectoral Changes

The sample overall expressed strong positive responses to items indicative of large-scale change to the Australian higher education sector ( $M=3.90$ ,  $SD=1.31$ ). Respondents strongly agreed that "decreased public funding", "managerialism replacing collegiality in the academic community", and "entrepreneurialism and fee-raising activities" had exerted a very large impact on their current jobs and workplaces. Across all age groups ( $n=1031$ ), 71 per cent of academic staff indicated strong responses to such sectoral changes, 18 per cent weak responses and 11 per cent a neutral response. Academic staff from all positions and types of institution indicated strong positive opinions. Staff in the health sciences ( $n=220$ ) rated sectoral changes more weakly compared to staff in other discipline areas.

#### 5.2.7.1 Government Funding and Economic Rationalism

Academics strongly agreed that "decreased public funding and increased private funding of higher education" ( $M=4.44$ ,  $SD=1.16$ ) and "the rise of consumerism and a 'user-pays' fee regime" ( $M=3.83$ ,  $SD=1.51$ ) were changes exerting a very large impact on their current jobs. Economic rationalism and its impact on university life was a major issue for respondents:

Angry at the destruction of an important institution by half-baked policies of economic rationalism. Angry at the deteriorating quality of education available to students, due to changes in Govt. support for higher education. Angry at the impediments to research imposed by so-called "competition" in higher education. Disappointed that what was once a fulfilling career is now the preserve of hacks and flunkys. (Lecturer/Regional)

I think that the whole concept of higher education as we've understood it until now is being completely subverted by the demands of corporatisation and economic rationalism. We are starting to turn out graduates who are reasonably **well qualified** in a narrow subject area, but are **poorly educated**. Now, this might be OK - if we want universities to train people for the workforce, then we're heading in the right direction - but it won't give us a "clever country". Degrees are narrowing in focus in response to "market demand" - I would argue for broader UG degrees rather than narrower (I'm against the trend, as usual). Many of our graduates are setting themselves up for miserable working lives because they lack diversity in their knowledge - and this is largely "our" fault. I am pretty pessimistic about the future. (Associate Lecturer/Metropolitan)

Economic irrationalism has a lot to answer for in destroying security, lifestyles, mutual respect and all those intangibles that make for a good society. Applied to Universities it is having disastrous consequences and destroying values of intellectual pursuit. (Senior Lecturer/Sandstone)

As there is little employer support to 'pay' for student education in education faculties, the rise of private funding in this area is minimal with increased enrolment to meet decreases in public funding. This policy is unacceptable on educational grounds - and staff health grounds (I am recovering from a stroke which must be attributed to increased work pressures). The economic rationalism model is irrationally being applied to education as many variables operative in the domain are omitted in these models. The 'equalisation' basis for economic decisions (what most economic theory is based on) is outdated - science moved on to 'dynamics' years ago- and then to relativism - it is time a conductive theory caught up! (Senior Lecturer/Regional)

The so-called unified national system has proved, in my and my colleagues' experience, a complete and fragmented disaster. The air resounds with cries of economic rationalism. Ho!; accountability forever!, managerialism rules, O.K!; and everywhere the small voices of students and staff grow quieter and quieter. (Professor/Metropolitan)

#### 5.2.7.2 Managerialism in Academe

Academics indicated strong positive responses to the statements "managerialism (i.e. business-related 'managerial' practices) replacing collegiality in the academic community" ( $M=4.09$ ,  $SD=1.39$ ) and "increased emphasis on academic accountability and institutional efficiency" ( $M=4.04$ ,  $SD=1.35$ ). Written comments

indicated negative effects on collegiality, scholarship, and creativity associated with this cultural change:

The tide of managerialism is the sickest of all the changes being forced upon us. The principles of managerialism are entirely inconsistent with scholarship. Universities are a community of schools, not a herd of academics under the control of half-witted, poorly educated mean spirited managers, who have no concept of what free thought is. Managerialism acts as a significant open-clipping constraint on creativity and the development of collegiality. (Lecturer/Science, UOT)

I am quite positive towards my school and immediate colleagues. However financial and administrative pressure on and within the university as a whole is turning Schools and Faculties against one another in an attempt to survive. This is destroying old collegiality and also broad-based education. Managerialism by the upper echelons has now destroyed the old idea of a University. (Senior Lecturer/Sandstone)

It is a bad time to be an academic. The university has become a degree factory, administered by incompetent "managers" - without formal management training - who see only the budget bottom line and who exaggerate the relevance of new technology. Students are resented; teaching is downgraded; research is hindered by grants policies which prize the practical above pure research. Finally there is little civility left. There is no morale among academic staff and the community of scholars is now a supermarket (a badly-run one at that!). No one I know wants to stay! Bring back Newman. (Associate Professor/Metropolitan)

I'm bemused by the culture change in universities with the emphasis on accountability and producing a corporate product. It seems to stifle curiosity in students and individuality among staff. Am looking forward to the next zeitgeist. (Senior Lecturer/UOT)

Respondents indicated managerial policies and practices were exerting a negative effect on their health, morale and productivity:

Managerial practices have alienated us from the workplace to a considerable degree. This has not reduced my passionate commitment to my research and teaching but it often saps all my energy so I literally waste moments agonising over the latest humiliating treatment. I am struggling to learn to ignore the environment I work in so that I can put my energy into my work. There is a huge human cost of this on me, my health and on the others I work with. (Professor/Regional)

Managerialism pervades everything. Many of its features actually reduce productivity due to staff alienation eg. resentment, reduced cooperation/communication, feelings of being exploited. The informal side of productivity has been squeezed out. It seems that staff and student morale are not seen as important, yet ought to be, "belief" in the university sinks. Staff loyalty has reduced, as staff openly state their belief that they are "fodder". (Senior Lecturer/UOT)

The environment is becoming increasingly overmanaged, less sensitive to educative rather than economic ends less supportive of staff who have to work with students rather than with "administrators" and hence less attractive as a location in which to follow one's vocation. All in all, this place is the merest shadow of what it was just 10 years ago, a sad reflection of federal government fiscal policy, and of the lack of vision of both vice chancellors and their underlings in Australia. (Lecturer/Metropolitan)

The current environment is debilitating. There is an increasing mood of anxiety and insecurity about continuing employment which has encouraged a defensive attitude among staff. This has heightened staff emphasis on their careers rather than the job. The result is an uncoordinated pursuit of individual agendas at the cost of collegial, collective objectives for the university. There is an increasing belief that university "managers" do things to staff rather than for staff. (Senior Lecturer/UOT)

### 5.2.7.3 Students and Standards

Comments highlighted pressures to pass students in a climate of 'user-pays', market competition and declining educational standards:

Whilst I am highly dedicated it seems that EFTSU money is more important than student performance and students who I deem at risk and who should fail are given repeated opportunities to continue on. Student complaints carry much weight and I think this is alarming. (Associate Lecturer/UOT)

We seem to be in the grip of a market orientated philosophy which pays long lip service to the needs of students. The only thing that seems to matter to the university is attracting as many students as possible and failing as few as possible. It has been suggested to me by senior staff that it is 'not desirable' that overseas fee-paying students should fail any subject on the grounds that if they do - they might go elsewhere. (Senior Lecturer/Sandstone)

Changing nature of universities including - falling of standards; pressures to pass students, no matter that their work may be poor; increasing interference/oversight in assessment to make sure its not too hard rather than too easy; poorer standards of preparation, scholarship in academic work. (Lecturer/UOT)

I feel quality of unit teaching and ideas covered suffer at the expense of developing courses which will attract the most students. Relatedly, I feel standards are dropping as a result of having to get students through so as to keep them on the books. That is, students who should fail are passed through. (Lecturer/Regional)

#### 5.2.7.4 Quality Assurance and Performance

Academics indicated "institutional pressures to increase productivity through quality assurance mechanisms, appraisal systems, and performance indicators" ( $M=3.85$ ,  $SD=1.47$ ) were changes exerting a large impact on their jobs. A number of academics regarded quality assurance and performance indicators as not justifiable in times of time and cost:

Quality assurance mechanisms and practice have become "ends" unto themselves. Quality is just sacred talk that people feel they must adhere to (i.e. documentation driven quality, documentation drives efficiency etc). Also resources are wasted on bureaucratic process of planning (i.e. corporate planning divisions creating reports after report - but really what changes have they made to the quality of the students produced? Very little I would argue). (Professor/UOT)

Policies such as quality assurance etc. "look" as though they would improve the system but in fact they are the cosmetics that do nothing to nurture the body, only to hide the blemishes and the rot underneath. I try to alleviate the negative effects of these policies whenever and wherever I can, but a whole concerted effort by all conscientious teachers (from primary to tertiary) and parents and students, is needed to stop all this destruction. (Lecturer/UOT)

"Quality assurance" programs, while good in principle (we do need to be properly accountable!) are mostly a giant waste of time in terms of the output compared with input work load. (Professor/Metropolitan)

Increased time spent on quality assurance mechanisms and performance indicators are a terrible waste of time and does not have the desired effect. Only appointing the right personnel in the first place, and sufficient funding does. (Senior Lecturer/Sandstone)

#### 5.2.7.5 Entrepreneurialism

Respondents indicated an "increased emphasis on academic entrepreneurialism and fee-raising activities" as a change exerting a very large impact on their jobs ( $M=4.04$ ,  $SD=1.38$ ). Comments indicated some value conflict vis-à-vis the pressures to raise internal revenues and the professional role to educate and facilitate learning:



The central problem seems to be that the new emphasis on management efficiency, [and] competition is at the expense of academic standards, integrity and scholarship. (Lecturer/UOT)

The need for universities to be more entrepreneurial in seeking funding greatly erodes not only job satisfaction, but seriously undermines a quality education system. Mostly this is in the form of content - the eradication of critical analysis in favour of courses designed to appeal to the untutored demands of business and the misguided perceptions of 'consumers'. The alignment of 'business' and 'economic' (as if the two were synonymous) in your faculty title (sic), is an example of these insidious practices. (Associate Lecturer/ Metropolitan)

At present, the pressure to raise funds and push increasing numbers of students through our courses means that developing imaginative teaching programs and engaging in research is almost impossible. I spend most of my time marking essays and consulting with students who lack the requisite skills to pass, and who expect unprecedented levels of support. (Lecturer/UOT)

#### 5.2.7.6 Positive Change Benefits

Not all academics commented on the negative effects of corporate reforms to higher education. The following comments highlight the benefits of strategic planning and the focus on academic accountability:

I feel that the changes have been beneficial, if not painless. Academics can no longer teach the same course year in, year out and expect students to keep enrolling. Our courses should involve both students and the community they service. Previously, many decisions, financial and managerial, were made in our department with little consideration [as] to how they fitted in [to] the big picture and many inequitable situations arose. (Senior Lecturer/Metropolitan)

These changes have been helpful in forcing academics to consider in a fundamental way, what they are doing and how they might survive. Some kind of accountability is important in any link of intellectual exercise. Whether these advantages will outweigh disadvantages in the long term remains to be seen. Doubtful. (Professor/Regional)

I think accountability for money spent is an important principle. The problem lies not so much in accountability but how priority areas are decided. Nor am I totally at odds with an emphasis on management. The effective management of staff - the fair allocation of workloads, the ability to address underlying problems in workplace structure are really important. (Associate Lecturer/Metropolitan)

### 5.3 Work Attitudes

Across the sample, academics reported moderately positive levels of job involvement ( $M=3.32$ ,  $SD=1.51$ ) and organisation commitment ( $M=3.23$ ,  $SD=1.57$ ). Respondents indicated strongly they were very much involved personally in their jobs, did not feel detached (alienated) from their jobs and liked to be absorbed in their jobs most of the time. Respondents expressed commitment to their universities by indicating strongly they were willing to exert a great deal to help their universities be successful ( $M=4.04$ ,  $SD=1.43$ ). However, a large number of academics expressed value conflict with respect to business-related principles and practices compromising the primary goals of teaching, learning and scholarship:

Education as a business enterprise is killing the concept of a university, and I doubt if this will ever be reversed. I still love my job however! (Lecturer/UOT)

School-Faculty relationship often seems strained especially in terms of dollars. Universities have really lost sight of their "essence" and real 'value'. I hate the idea of becoming a "learning manager" or "learning packager" and hate even more that our Professors, Assoc. Profs are referred to as SENIOR MANAGEMENT!! If universities were corporations in a real world they'd be complete failures - it's the WRONG MODEL!! (Associate Lecturer/UOT)

The university system is being cynically attacked. Although there are inefficiencies and some poor performers, mechanisms used to redress these problems are inappropriate. Education is mis-specified as 'a commodity' or 'product'. Research cannot be measured best by publication counting. Students are not customers and do not always know best; universities are not an 'industry'. I feel like what I value about university education is not valued by university administrators and policy makers. (Lecturer/Sandstone)

The changing nature of universities, qua "institutions" from the primary task of educating! (educate, "to lend from") with roles of teachers/learners, to corporate activities aiming at the commodification of knowledge with roles of provider/customers leads to a changed "reality" of university experience. The focus on numbers of paying enrollees distracts from the **profession** of teaching/learning and diminishes the qualitative value of the experience. Political activity and reduced academic freedom are entailed by this change. (Lecturer/UOT)

#### 5.3.1 Job Involvement

Academics reported moderate levels of engagement with their jobs. Across the sample ( $n=1012$ ), 40 per cent of staff expressed low job involvement, 55 per cent

high involvement and 5 per cent a neutral response. At least 50 per cent of staff, across all types of university, reported high levels of job involvement ( $n=1037$ ). Slightly more males (33 per cent) than females (28 per cent) reported very high levels of job involvement. Approximately 50 per cent of associate lecturers ( $n=79$ ) and lecturers ( $n=315$ ) expressed low levels of involvement compared to 25 per cent of associate professors ( $n=151$ ) and 28 per cent of professors ( $n=123$ ).

Respondents strongly agreed they were "very much involved personally" in their jobs ( $M=4.62$ ,  $SD=1.03$ ), liked "to be absorbed in [their] jobs most of the time" ( $M=3.63$ ,  $SD=1.58$ ) and did not "feel detached from [their] jobs" ( $M=1.65$ ,  $SD=1.24$ ). Comments indicated many academics were intrinsically motivated by the core tasks of teaching and research:

I have a strong attachment to the job of teacher-researcher in my discipline area, which is Dance. I have been able to initiate and foster an entirely new discipline area in my university which is challenging and exciting for me as a member of the Dance community. (Senior Lecturer/Sandstone)

I thoroughly enjoy my work as a full time researcher supervising a team and doing extra myself. (Associate Professor/Metropolitan)

The major motivations in my work are internal - external factors do not weight heavily on my job satisfaction and approach. (Lecturer/Metropolitan)

The work itself is challenging and fascinating - not only the research but also the teaching. (Lecturer/Sandstone)

I enjoy teaching more than anything, in the field of maths curriculum and maths enrichment for teachers. If I could just do that as my main (only) task, I would be most fulfilled and happy! (Lecturer/Regional)

Academics expressed limits to their job involvement reporting negative opinions to the statements "I live, eat and breathe my job" ( $M=2.26$ ,  $SD=1.66$ ) and "most of my interests are centered around my job" ( $M=2.79$ ,  $SD=1.73$ ).

### 5.3.2 Organisation Commitment

Respondents expressed moderately positive levels of commitment to their universities across all age groups. Across the sample ( $n=1012$ ), 40 per cent of staff expressed low commitment, 50 per cent high commitment and 10 per cent a neutral

response. More male (33 per cent) than female (27 per cent) staff reported very high commitment ( $n=1,012$ ). Over 40 per cent of professors and associate professors expressed very high commitment compared to 20 per cent of lecturers ( $n=1010$ ).

Academics expressed strong organisation commitment in terms of "really caring about the fate of this university" ( $M=4.22$ ,  $SD=1.39$ ), "being willing to put in a great deal of effort beyond that normally expected to help this university be successful" ( $M=4.04$ ,  $SD=1.43$ ) and being "proud to tell others that I am part of this university" ( $M=3.78$ ,  $SD=1.50$ ). Positive responses represent core dimensions of the attitudinal commitment measure (Mowday, Porter, & Steers, 1982:27).

Academics responded negatively to the statements that their university "inspires the very best in the way of job performance" ( $M=2.46$ ,  $SD=1.55$ ), "is the best of all possible universities for which to work" ( $M=2.50$ ,  $SD=1.50$ ) and "expresses similar values to my own" ( $M=2.55$ ,  $SD=1.55$ ). Negative responses indicated a perceived imbalance in the 'psychological contract' between academics and their institutions (Rousseau, 1995; Tipples & Krivokapic-Skoko, 1996). Comments suggested a perceived effort-rewards imbalance in terms of academic effort and loyalty not being matched by university recognition and rewards:

My job is an enjoyable one and I feel I put in far more hours than I am paid for. I don't necessarily have a problem with working extra hours, however it is the lack of acknowledged recognition by the university which I see as the problem. (Lecturer/Regional)

My experience has been that I receive much greater recognition for my teaching and research efforts from my lay colleagues in the profession of optometry. I find they are willing to spend quite a bit of money attending my courses arranged independently of the university. This seems to reinforce the notion that the problem lies with the university administration rather than the quality of my efforts. (Senior Lecturer/Sandstone)

I am unhappy in my current work environment. I feel that I receive little support or encouragement and that my own skills are not recognised (i.e. because teaching is seen as secondary to research). I find the competing demands of this position (i.e. teaching, administration and research) to be particularly stressful, and I resent the way in which this position takes over my entire life. (Associate Lecturer/Metropolitan)

Despite producing high quality work I feel devalued. I have experienced intense stress due to work overload. I intend to pursue a career outside academia and leave as soon as it is feasible. (Lecturer/UOT)

Education was why I became an academic - not to become a pan-handler. This is part of my now rather intense dissatisfaction with my job - which I now see merely as a job, whereas 10 years ago it was almost like I thought of it as a "vocation". I am no longer willing to make sacrifices for my Uni since my Uni no longer gives a damn about me as an individual. (Unknown/UOT)

## **5.4 Summary of Key Descriptive Findings**

### **5.4.1 Positive Work Environment Characteristics**

#### **5.4.1.1 Role Clarity**

Academics across the sample reported low levels of role ambiguity. Academics reported that clear, planned goals and objectives exist for their jobs and they were quite certain about their job responsibilities.

#### **5.4.1.2 Job Challenge, Autonomy and Task Identity**

Respondents perceived high levels of job challenge, autonomy and task identity in their current jobs. Academics indicated strongly they felt challenged by the work they were currently doing, were left on their own to do their own work, and often worked on projects or jobs through to completion.

#### **5.4.1.3 Supervisory Consideration**

Respondents rated their immediate supervisor as exhibiting a considerate and supportive leadership style. Most respondents indicated their supervisor was friendly and approachable and willing to make changes. Supervisors did not always exhibit consideration in terms of helping others solve work related problems, or by doing things to make group membership more pleasant.

#### **5.4.1.4 Collegial Relations**

Comments indicated many academics were motivated by the friendly and collegiate relationships with colleagues in their departments.

#### **5.4.1.5 Strategic Planning and Academic Accountability**

A number of academics commented on the positive benefits of strategic planning and academic accountability in terms of institutional efficiency and responding proactively to student needs.

### **5.4.2 Negative Work Environment Characteristics**

#### **5.4.2.1 Role Overload**

Respondents rated role overload, a stress characteristic indicated by excessive work/time pressures, as a demotivating characteristic of their current work environments. Academics indicated they often have too much work for one person to do and not enough time to complete work to their own personal standards.

#### **5.4.2.2 Economic Rationalism and Corporate Reforms**

A large number of academics expressed value conflict with respect to funding cuts, the tenets and principles of economic rationalism and corporate reforms to universities. Academics regarded market behaviour and business-related principles as inappropriate to higher education and largely responsible for compromising the primary educational goals of teaching, learning and scholarship.

#### **5.4.2.3 Managerialism in Academe**

Academics indicated managerialism had replaced collegiality in the academic community and managerial practices in universities were exerting a negative effect on academic morale, commitment and productivity. Respondents commented on the unsuitability of the corporate model to universities (e.g., quality assurance practices, entrepreneurialism) and the loss of traditional university values (e.g., collegiality, community, civility) accompanying this cultural change.

#### **5.4.2.4 Job Feedback, Recognition and Rewards**

Respondents overall reported low levels of job feedback. Academics indicated they did not receive job feedback from supervisors and could not find out, as they were working, how well they were doing their jobs. Comments indicated many academics were dissatisfied with the lack of university recognition and rewards for personal

effort and good performance. Poor promotion opportunities (e.g., research favoured over teaching) were also cited as a negative work environment characteristic.

#### **5.4.2.5 Administrivia**

Academics expressed frustration and dissatisfaction in having to do trivial administrative tasks (e.g., photocopying, reports, DETYA requests). These tasks distracted academics from their core work activities, namely teaching and research.

#### **5.4.2.6 Declining Educational Standards**

Academics expressed dismay over pressures to pass students in a climate of 'user-pays' and declining educational standards.

### **5.4.3 Positive Work Attitudes**

#### **5.4.3.1 Job Involvement**

At least 50 per cent of staff, across all types of university, reported high levels of job involvement. Academics indicated they were much involved personally in their jobs and did not feel detached from their jobs. Respondents indicated the core tasks of research and teaching were strong job motivators.

#### **5.4.3.2 Organisation Commitment**

Respondents expressed moderately positive levels of commitment to their universities across all age groups. Across the sample, 50 per cent of staff expressed high commitment. Over 40 per cent of professors and associate professors expressed very high levels of commitment. Academics indicated they really cared about the fate of their universities and were willing to exert a great deal of effort beyond that normally expected to help their universities be successful.

### **5.4.4 Negative Work Attitudes**

#### **5.4.4.1 Job Involvement**

Across the sample, 40 per cent of staff expressed low job involvement. Approximately 50 per cent of associate lecturers and lecturers expressed low levels of involvement. Academics indicated low levels of job involvement in terms of two

involvement items: (1) living, eating and breathing their jobs, and (2) having most interests centered around their jobs. Negative responses indicate academics have personal and engaging interests outside their jobs that are not being fulfilled.

#### 5.4.4.2 Organisation Commitment

Across the sample, 40 per cent of staff expressed low organisation commitment. Only 20 per cent of lecturers expressed very high commitment levels. Respondents did not agree with the statements: (1) the university inspires the best in the way of job performance, (2) the university is the best of all universities for which to work, and (3) my values and the university's values are similar. Negative commitment comments highlight an imbalance in the 'psychological contract' between academics and their institutions (Rousseau, 1995). Academics felt their effort and loyalty was not always matched by university recognition and rewards.

### 5.5 Summary

This chapter has described work environment perceptions and work attitudes of academics across the survey sample. Work environment perceptions were grouped into positive (i.e., job challenge, autonomy, task identity, role clarity, supervisory consideration, collegial relations) and negative (i.e., role overload, low job feedback, lack of recognition and rewards, administrivia, reduced government and resource funding, managerialism in academe, administrivia, declining educational standards) work environment categories.

Value conflict responses indicated an imbalance in the psychological contract between academics and their institutions. The relative frequency of the value conflict, economic rationalism and managerialism keywords indicated many academics felt traditional academic values (i.e., collegiality, autonomy) and professional goals (i.e., teaching, learning, scholarship) were being compromised by the demands of economic rationalism and corporate reforms to universities.

Work attitude data indicated 50 per cent of academics expressed positive work attitudes (high job involvement, high organisation commitment) and 40 per cent



negative work attitudes (low involvement, low organisation commitment). Positive involvement responses centered on the core tasks of teaching and research. Negative organisation commitment responses indicated academics felt their effort and loyalty was not always matched by university recognition and rewards.

## CHAPTER SIX

### BIVARIATE ANALYSIS

#### 6.1 Introduction

This chapter identifies significant demographic variable differences in the work environment and work attitude responses of academics (Research Question Two). Bivariate analysis tables compare respondents' work environment and work attitude mean scores by personal (age, gender) and professional (position, function, contract hours, contract basis, qualifications, university service, higher education service, discipline areas and university type) type variables. Mean scores range from strongly negative (mean under 2.50) to strongly positive (mean over 3.50). One-way analyses of variance (F- statistics, chi-square values) and t-test statistics indicate differences in mean scores at specified levels of significance. Scheffé's post-hoc S test identifies statistically significant between-group differences at the .05 level of significance (Cooper & Emory, 1995:460-462).

#### 6.2 Work Environment Characteristics: Significant Personal Variable Differences

##### 6.2.1 Age

Table 6.1 presents role stress, supervisory consideration and organisation structure (i.e., hierarchy of authority, participation) mean scores categorised by age. Academics aged 60 or more years (n=73) reported the lowest levels of role stress of all age groups, whereas academics aged less than 30 years (n=18) reported the highest levels of consideration and the lowest levels of participation in university decision making.

Analyses of variance identified significant differences in role ambiguity mean scores by age ( $p < .001$ ). Academics aged 60 or more years (n=72) indicated significantly lower levels of role ambiguity compared to academics aged between 30 and 39

(n=224) and 40 to 49 years of age (n=363), and lower levels of role conflict compared to academics 40 to 49 years of age.

**Table 6.1**  
**One-Way Analysis of Variance for Mean Scores on Role Stress, Consideration, Hierarchy of Authority and Participation of Respondents Classified by Age**

Variable	1 (n=18)	2 (n=224)	3 (n=363)	4 (n=357)	5 (n=72)	F	Sig. Groups <sup>b</sup>
Role Ambiguity	1.94	2.26	2.24	1.97	1.56	26.21 <sup>**a</sup>	2-5, 3-5
Role Conflict	2.78	3.15	3.23	3.14	2.57	3.11 <sup>*</sup>	3-5
Role Overload	3.28	3.76	4.05	3.79	3.10	26.68 <sup>**a</sup>	2-5, 3-5, 4-5
Consideration	4.33	3.36	3.25	3.24	3.47	11.17 <sup>*a</sup>	None
Hierarchy	3.11	3.17	3.27	3.12	2.58	3.31 <sup>*</sup>	3-5
Participation	1.61	1.81	2.33	2.66	2.77	45.07 <sup>**a</sup>	2-3, 2-4, 2-5

1 = < 30, 2 = 30 - 39, 3 = 40 - 49, 4 = 50 - 59, 5 = 60 +

<sup>\*</sup>p < .05; <sup>\*\*</sup>p < .001

<sup>a</sup>Levene's Test for homogeneity of variances violated (p<.05) so Kruskal-Wallis test conducted, a test equivalent to the one-way between-groups ANOVA. Chi-square values are shown.

<sup>b</sup>Scheffé test indicates significant between-group differences at the .05 level of significance.

Academics aged 60 or more years also reported significantly lower levels of role overload compared to all other age groups except those less than 30 years of age. A review of the literature indicated role stress tends to decline with age (Fisher & Gitelson, 1983; Gmelch, Wilke, & Lovrich, 1986). Fisher and Gitelson (1983:325) reported a negative association between role ambiguity and age across 42 studies ( $r = -.17$ ,  $p < .05$ ,  $n=1127$ ) suggesting role perceptions in academe may become clearer with greater experiences on the job, or in the higher education sector as a whole. Gmelch et al.'s (1986:280) study of faculty stress ( $n=1920$ ) in the U.S. found faculty stress declined with age for the stress factors 'time constraints' and 'professional identity' (i.e., scholarly reputation). This finding suggests academics establish their scholarly reputation early on in their careers (i.e., increased role overload) and over time learn how to better manage time constraints (i.e., reduced role overload).

Academics 40 to 49 years of age reported significantly more hierarchy of authority compared to academics more than 60 years of age. Academics aged 30 to 39 reported significantly less participation compared to academics in older age groups. Reported levels of hierarchy and participation reflect the pattern of association

between age groups and current duties classification (DETYA, 1998a:44). At higher academic positions (i.e., above senior lecturer) a greater proportion of academics (13 per cent) are 60 or more years of age compared to positions below senior lecturer (2 per cent).

### 6.2.2 Gender

Table 6.2 shows participation in decision making and formalisation mean scores categorised by gender. Female academics (n=332) reported significantly lower levels of participation and formalisation compared to their male (n=681) counterparts ( $p < .01$ ,  $p < .05$  respectively). Because women occupy less senior academic positions than men, there are fewer opportunities for women to exercise leadership and participate in university decision making. In 1998, male staff accounted for 86 per cent of full-time equivalent (FTE) staff at a level above senior lecturer (versus 14 per cent for female staff) and 73 per cent of FTE staff at a senior lecturer level (versus 26 per cent for female staff) (DETYA, 1998a:5).

**Table 6.2**  
**T-tests for Mean Scores on Participation and Formalisation of Respondents**  
**Classified by Gender**

Variable	Males (n=681)		Females (n=332)		t-value
	Mean	SD	Mean	SD	
Participation	2.44	1.69	2.12	1.62	3.23 <sup>**a</sup>
Formalisation	3.81	1.39	3.60	1.45	2.29 <sup>*</sup>

<sup>\*</sup>  $p < .05$ ; <sup>\*\*</sup>  $p < .01$

<sup>a</sup> Levene's Test for homogeneity of variances violated ( $p < .05$ ) so Mann-Whitney U Test conducted, a test equivalent to the independent groups t-test. Z score is shown.

## 6.3 Work Environment Characteristics: Significant Professional Variable Differences

### 6.3.1 Qualifications

Table 6.3 presents participation in decision making and sectoral changes mean scores categorised by qualifications (i.e., highest degree attained).

**Table 6.3**  
**One-Way Analysis of Variance for Mean Scores on Participation and Sectoral**  
**Changes of Respondents Classified by Qualifications**

Variable	1 (n=673)	2 (n=225)	3 (n=50)	4 (n=67)	5 (n=15)	F	Sig. Groups <sup>b</sup>
Participation	2.58	1.92	1.78	2.04	2.00	38.38 <sup>a</sup>	1-2, 1-3
Sectoral Changes	3.93	3.70	3.42	3.61	2.40	20.93 <sup>a</sup>	1-5, 2-5

1 = Doctorate or equivalent, 2 = Masters degree by research or coursework, 3 = Graduate Certificate or Diploma, 4 = Bachelors or Honours degree, 5 = Other degree.

<sup>a</sup>p < .001

<sup>a</sup>Levene's Test for homogeneity of variances violated (p<.05) so Kruskal-Wallis test conducted, a test equivalent to the one-way between-groups ANOVA. Chi-square values are shown.

<sup>b</sup>Scheffé test indicates significant between-group differences at the .05 level of significance.

A significant chi-square value of 38.38 (df=4, p<.001) indicated significant differences in participation scores by qualifications. Academics with doctorate or equivalent higher degrees (n=673) reported significantly more participation compared to those academics holding master's degrees (n=225) and graduate certificate or diploma (n=50) qualifications. This result is not surprising given participation tends to increase as academics gain further qualifications and promotion to senior academic positions.

### 6.3.2 Position

Table 6.4 presents role stress, job challenge, consideration, hierarchy and participation mean scores categorised by position. Lecturers (n=316) reported the lowest levels of job challenge and participation and associate lecturers (n=79) the lowest levels of role overload compared to all academic positions (n=1012).

Similar differences in job challenge, participation, and hierarchy mean scores by academic position have been reported within a comprehensive university in Australia (Winter, Taylor, & Sarros, 2000). In a 1997 survey of 189 full-time academic staff stratified by level (five positions), Winter et al. (2000:289) reported professors indicated significantly higher levels of job challenge and participation compared to lecturers (M=3.98, 3.94, compared with 3.54, 2.50, F=2.59, 35.87, p<.05 respectively). Similarly, associate lecturers, lecturers, and senior lecturers (M = 3.13, 3.17, 3.20 respectively) reported significantly higher levels of hierarchy of authority

**Table 6.4**  
**One-Way Analysis of Variance for Mean Scores on Role Stress, Job Challenge, Consideration, Hierarchy and Participation of Respondents Classified by Current Position**

Variable	1 (n=79)	2 (n=316)	3 (n=343)	4 (n=151)	5 (n=123)	F	Sig. Groups <sup>b</sup>
Role Ambiguity	2.16	2.30	2.03	1.95	1.81	17.46 <sup>***a</sup>	2-5
Role Conflict	2.40	3.17	3.18	3.03	3.28	5.17 <sup>***</sup>	1-2, 1-3, 1-5
Role Overload	3.40	3.66	4.00	3.81	3.83	11.46 <sup>*a</sup>	1-3
Job Challenge	4.38	4.12	4.38	4.51	4.58	28.18 <sup>****a</sup>	2-1, 2-3, 2-4, 2-5
Consideration	3.72	3.15	3.33	3.21	3.51	11.63 <sup>*a</sup>	None
Hierarchy	3.40	3.48	3.13	2.69	2.52	14.36 <sup>***</sup>	1-4, 1-5, 2-3, 2-4, 2-5, 3-4, 3-5
Participation	1.52	1.48	2.24	3.45	4.18	310.36 <sup>****a</sup>	1-5, 2-5, 3-5, 4-5, 1-4, 2-4, 3-4, 1-3, 2-3

1 = Associate Lecturer, 2 = Lecturer, 3 = Senior Lecturer, 4 = Associate Professor/Reader, 5 = Professor.

\*p<.05; \*\*p<.01; \*\*\*p<.001, \*\*\*\*p<.0001

<sup>a</sup> Levene's Test for homogeneity of variances violated (p<.05) so Kruskal-Wallis test conducted, a test equivalent to the one-way between-groups ANOVA. Chi-square values are shown.

<sup>b</sup> Scheffé test indicates significant between-group differences at the .05 level of significance.

compared to professors and associate professors (M=2.37, 2.68 respectively) (F[4,182] = 5.29, p<.05).

Survey findings indicated a positive/negative association between job motivators (i.e., job challenge, participation) and senior/junior positions (above/below senior lecturer) respectively. From a university perspective, professorial positions possess strong job motivators and lecturing positions weak job motivators (Hackman & Oldham, 1980).

### 6.3.2.1 Associate Lecturers

Associate lecturers indicated the highest levels of supervisory consideration and significantly lower levels of role conflict compared to academics in lecturer, senior lecturer and professor positions. At an early stage in their careers, academics can benefit from supervisory support and encouragement. They are also likely to be less stressed and overworked compared to mid-career academics at higher levels (DETYA, 1999c:10). Associate lecturers reported significantly lower levels of

participation ( $M=1.52$ ) compared to academics in senior positions ( $M=2.20$  to  $4.18$ ,  $p<.05$ ).

#### **6.3.2.2 Lecturers**

Lecturers indicated significantly lower levels of participation (and higher levels of hierarchy) compared to academics in senior positions. At the lecturer level, centralisation is relatively high since hierarchies dominate the organising structure of universities (Becher & Kogan, 1992:71-74; Cassidy, 1998) and collegial governance is in decline in Australian universities (see Marginson & Considine, 2000; Winter et al., 2000). Lecturers also reported significantly lower levels of job challenge ( $M=4.12$ ) compared to academics in all other positions ( $M=4.38$  to  $4.58$ ,  $p<.05$ ).

#### **6.3.2.3 Senior Lecturers**

Senior lecturers indicated the highest levels of role overload of all academic positions. In a study of 2,609 academics in 15 Australian universities, mid-career academics were found more likely to be stressed and overworked than early and late-career academics (DETYA, 1999c:10).

#### **6.3.2.4 Associate Professors**

Associate professors reported significantly lower levels of participation compared to professors, but significantly more participation than all other positions.

#### **6.3.2.5 Professors**

Professors reported the lowest level of role ambiguity of all academic positions. This finding suggests professors have sufficient power and authority to clarify role expectations. Professors may also be able to substitute self-supplied role expectations for possibly ambiguous expectations communicated to role incumbents at lower ranks (Fisher & Gitelson, 1983:326; Sarros, Gmelch, & Tanewski, 1997a:20).

### 6.3.3 Contract Hours

Table 6.5 shows the mean scores of role conflict, role overload, participation in decision making and sectoral changes for respondents categorised by contract hours (i.e., full-time and fractional full-time).

**Table 6.5**  
**T-tests for Mean Scores on Role Conflict, Role Overload, Participation and Sectoral Changes of Respondents Classified by Contract Hours**

Variable	Full-time (n=946)		Fractional (n=80)		t-value
	Mean	SD	Mean	SD	
Role Conflict	3.17	1.50	2.65	1.54	2.95*
Role Overload	3.88	1.45	3.12	1.61	4.32** <sup>a</sup>
Participation	2.42	1.69	1.65	1.29	4.11*** <sup>a</sup>
Sectoral Changes	3.84	1.40	3.46	1.44	2.30*

\*  $p < .05$ ; \*\*  $p < .001$ , \*\*\*  $p < .0001$

<sup>a</sup> Levene's Test for homogeneity of variances violated ( $p < .05$ ) so Mann-Whitney U Test conducted, a test equivalent to the independent groups t-test. Z scores are shown.

The mean scores for full-time academics (n=946) are consistently higher than the means for fractional full-time academics (n=80) across all variables. Full-time staff reported significantly more role overload and participation and expressed stronger sectoral change opinions compared to fractional full-time staff.

### 6.3.4 Contract Status

Table 6.6 presents the mean scores of role conflict, role overload, participation and sectoral changes for respondents categorised by contract status (i.e., tenured or fixed-term).

The mean scores of tenured/ongoing academics (n=706) are consistently higher across all variables compared to fixed-term contract staff (n=220). Tenured staff reported significantly more role conflict, role overload and participation and expressed stronger sectoral change opinions compared to staff employed on fixed-term contracts.



**Table 6.6**  
**T-tests for Mean Scores on Role Conflict, Role Overload, Participation and**  
**Sectoral Changes of Respondents Classified by Contract Status**

Variable	Tenured (n=706)		Fixed-term (n=220)		t-value
	Mean	SD	Mean	SD	
Role Conflict	3.18	1.49	2.90	1.56	2.37**
Role Overload	3.90	1.42	3.50	1.62	3.14** <sup>a</sup>
Participation	2.54	1.71	1.72	1.38	6.73*** <sup>a</sup>
Sectoral Changes	3.87	1.40	3.58	1.46	2.68* <sup>a</sup>

\*p < .05; \*\*p < .001, \*\*\*p < .0001

<sup>a</sup> Levene's Test for homogeneity of variances violated (p < .05) so Mann-Whitney U Test conducted, a test equivalent to the independent groups t-test. Z scores are shown.

Winter et al. (2000:288-289) reported similar differences in contract status in their academic work environment study. Tenured academics in one Australian university indicated greater role overload (M=3.52 cf. 3.19,  $t = 2.55$ ,  $p < .05$ ) and higher levels of participation than non-tenured academics (M=2.98 cf. 2.29,  $t = 4.97$ ,  $p < .05$ ). Contract status differences suggest a career-based explanation. That is, as academics move through career stages they gain a relative degree of contract security and commensurate with the position, take on extra work roles and responsibilities. Hence, tenured academics in the mid to late stages of their careers express higher levels of role stress and participation compared to non-tenured academics in the early stages of their careers (DETYA, 1999c:16).

### 6.3.5 University and Higher Education Service

Tables 6.7 and 6.8 present the mean scores of participation and role ambiguity for respondents by years of university service and higher education service respectively. The tables show that participation mean scores increase as years of service increase. Academics with more than ten years of university and higher education service (n=453, n=618 respectively) reported significantly more participation compared to those academics with fewer years of university service (n=578, n=333 respectively).

**Table 6.7**  
**One-Way Analysis of Variance for Mean Scores on Participation for**  
**Respondents Classified by University Service**

Variable	1 (n=146)	2 (n=214)	3 (n=218)	4 (n=453)	F	Sig.Groups <sup>b</sup>
Participation	1.95	1.96	2.17	2.76	50.77 <sup>a</sup>	4-1, 4-2, 4-3

1 = Less than 3 years, 2 = 3 to 6 years, 3 = 7 to 10 years, 4 = 10 years +

<sup>a</sup> p<.0001

<sup>a</sup> Levene's Test for homogeneity of variances violated (p<.05) so Kruskal-Wallis test conducted, a test equivalent to the one-way between-groups ANOVA. Chi-square value is shown.

<sup>b</sup> Scheffé test indicates significant between-group differences at the .05 level of significance.

**Table 6.8**  
**One-Way Analysis of Variance for Mean Scores on Role Ambiguity and**  
**Participation for Respondents Classified by Higher Education Service**

Variable	1 (n=58)	2 (n=138)	3 (n=137)	4 (n=618)	F	Sig.Groups <sup>b</sup>
Role Ambiguity	2.24	2.21	2.37	1.99	3.58 <sup>*</sup>	4-3
Participation	1.55	1.67	1.96	2.70	72.91 <sup>**a</sup>	4-1, 4-2, 4-3

1 = Less than 3 years, 2 = 3 to 6 years, 3 = 7 to 10 years, 4 = 10 years +

<sup>\*</sup> p<.05, <sup>\*\*</sup> p<.0001

<sup>a</sup> Levene's Test for homogeneity of variances violated (p<.05) so Kruskal-Wallis test conducted, a test equivalent to the one-way between-groups ANOVA. Chi-square value is shown.

<sup>b</sup> Scheffé test indicates significant between-group differences at the .05 level of significance.

### 6.3.6 Function

Table 6.9 presents the mean scores of role overload, feedback, job challenge, participation and sectoral changes for respondents classified by function. Academics in teaching only roles (n=99) reported significantly lower levels of job feedback, job challenge and participation compared to academics indicating teaching and research (n=780) as their primary work role. Academics in teaching only roles also reported significantly lower levels of role overload compared to academics in teaching and research roles.

**Table 6.9**  
**One-Way Analysis of Variance for Mean Scores on Role Overload, Feedback, Job Challenge, Participation and Sectoral Changes for Respondents Classified by Function**

Variable	1 (n=99)	2 (n=780)	3 (n=17)	4 (n=138)	F	Sig. Groups <sup>b</sup>
Role Overload	3.30	3.90	3.35	3.75	15.76 <sup>***a</sup>	1-2
Feedback	2.13	2.59	2.59	2.67	2.96 <sup>*</sup>	1-2
Job Challenge	3.87	4.33	4.18	4.65	29.38 <sup>***a</sup>	1-2, 1-4, 2-4
Participation	1.74	2.34	2.41	2.83	23.99 <sup>***a</sup>	1-2, 1-4, 2-4
Sectoral Changes	3.64	3.93	2.71	3.42	26.93 <sup>***a</sup>	2-3, 2-4

1 = Teaching only, 2 = Teaching and research, 3 = Research only, 4 = Administration/Other.

\*p<.05, \*\*p<.01, \*\*\*p<.001

<sup>a</sup>Levene's Test for homogeneity of variances violated (p<.05) so Kruskal-Wallis test conducted, a test equivalent to the one-way between-groups ANOVA. Chi-square values are shown.

<sup>b</sup>Scheffé test indicates significant between-group differences at the .05 level of significance.

### 6.3.7 Discipline Areas

Table 6.10 presents the mean scores of role conflict, role overload, task identity, job challenge, hierarchy, formalisation and sectoral changes for respondents classified by discipline areas.

**Table 6.10**  
**One-Way Analysis of Variance for Mean Scores on Role Conflict, Role Overload, Task Identity, Job Challenge, Hierarchy, Formalisation and Sectoral Changes for Respondents Classified by Discipline Areas**

Variable	1 (n=326)	2 (n=222)	3 (n=222)	4 (n=163)	5 (n=105)	F	Sig. Groups <sup>b</sup>
Role Conflict	3.24	3.05	2.85	3.20	3.40	3.40 <sup>**</sup>	None
Role Overload	3.92	4.01	3.62	3.55	3.90	17.55 <sup>*a</sup>	None
Task Identity	4.33	4.33	4.54	4.47	4.16	10.80 <sup>*a</sup>	3-5
Job Challenge	4.32	4.33	4.57	4.10	4.15	24.08 <sup>***a</sup>	3-4, 3-5
Hierarchy	3.31	3.02	2.94	3.25	3.21	2.73 <sup>*</sup>	None
Formalisation	3.83	3.83	3.49	3.79	3.76	2.42 <sup>*</sup>	None
Sectoral Changes	4.11	4.03	3.25	3.75	3.69	55.04 <sup>***a</sup>	3-1, 3-2, 3-4

1 = Education, Humanities, Social Studies; 2 = Science, Maths, Computing; 3 = Health Sciences;

4 = Business, Economics, Law; 5 = Engineering, Architecture, Renewable Resources.

\*p<.05; \*\*p<.01; \*\*\*p<.001

<sup>a</sup>Levene's Test for Homogeneity of variances violated (p<.05) so Kruskal-Wallis test conducted, a test equivalent to the one-way between-groups ANOVA. Chi-square values are shown.

<sup>b</sup>Scheffé test indicates significant between-group differences at the .05 level of significance.

Academics from health sciences disciplines ( $n=222$ ) reported the highest levels of task identity and job challenge compared to academics from other discipline groups ( $n=817$ ). Academics from the health sciences also reported lower levels of hierarchy and formalisation in their institutions compared to academics from humanities ( $n=326$ ), science ( $n=222$ ), business ( $n=163$ ) and engineering ( $n=105$ ) discipline groups. Health science academics may report higher levels of job characteristics due to their dual roles as practitioners (i.e., clinicians, optometrists, surgeons) and teaching professionals. As such, much of their time is spent outside of the university in private/public practice and hence they perceive lower levels of university structure.

### 6.3.8 University Type

Table 6.11 shows the mean scores of role ambiguity, role conflict, feedback, job challenge, consideration, hierarchy, participation, formalisation and sectoral changes for respondents categorised by university type.

Academics employed in universities of technology reported the highest levels of role stress and the lowest levels of job feedback, job challenge and supervisory consideration of all university types. A 1998 survey of 2,553 staff at Queensland University of Technology (a university included in this study) indicated staff felt a key area the university was performing poorly was in recognition for doing a good job (Illing, 1999). Survey findings indicate management in universities of technology may not give sufficient consideration to 'people issues' unlike sandstone and metropolitan universities.

#### 6.3.8.1 Universities of Technology

Academics in universities of technology ( $n=229$ ) reported significantly more role ambiguity and formalisation, and lower levels of supervisory consideration and participation compared to academics in other university types. University of technology academics also reported significantly more role conflict and hierarchy of authority, and lower levels of feedback and job challenge compared to academics in sandstone ( $n=317$ ) and metropolitan ( $n=269$ ) universities.

Table 6.11

**One-Way Analysis of Variance for Mean Scores on Role Ambiguity, Role Conflict, Feedback, Job Challenge, Consideration, Hierarchy, Participation, Formalisation and Sectoral Changes for Respondents Classified by University Type**

Variable	1 (n=317)	2 (n=269)	3 (n=229)	4 (n=222)	F	Sig.Groups <sup>b</sup>
Role Ambiguity	1.98	2.04	2.45	1.98	13.04 <sup>a</sup>	3-1, 3-2, 3-4
Role Conflict	3.01	3.03	3.38	3.14	3.29 <sup>*</sup>	3-1, 3-2
Feedback	2.71	2.80	2.27	2.39	9.66 <sup>***a</sup>	3-1, 3-2, 2-4
Job Challenge	4.42	4.49	4.03	4.30	17.05 <sup>***a</sup>	3-1, 3-2
Consideration	3.46	3.46	2.89	3.33	21.18 <sup>***a</sup>	3-1, 3-2, 3-4
Hierarchy	2.97	3.00	3.51	3.19	7.03 <sup>***a</sup>	3-1, 3-2
Participation	2.50	2.31	1.92	2.64	29.09 <sup>****a</sup>	3-1, 3-2, 3-4
Formalisation	3.60	3.66	4.09	3.66	18.17 <sup>***a</sup>	3-1, 3-2, 3-4
Sectoral Changes	3.58	3.64	4.12	4.03	35.84 <sup>****a</sup>	1-3, 1-4, 2-3, 2-4

1 = Sandstone/research, 2 = Metropolitan, 3 = University of Technology, 4 = Regional.

<sup>\*</sup>p<.05, <sup>\*\*</sup>p<.01, <sup>\*\*\*</sup>p<.001, <sup>\*\*\*\*</sup>p<.0001

<sup>a</sup>Levene's Test for Homogeneity of variances violated (p<.05) so Kruskal-Wallis test conducted, a test equivalent to the one-way between-groups ANOVA. Chi-square values are shown.

<sup>b</sup>Scheffé test indicates significant between-group differences at the .05 level of significance.

### 6.3.8.2 Metropolitan Universities

Academics in metropolitan universities reported the highest levels of job challenge and feedback (significantly higher levels of job feedback compared to academics in regional universities). Metropolitan staff also expressed significantly weaker opinions to large-scale sectoral changes compared to academics employed in regional universities and universities of technology.

### 6.3.8.3 Sandstone Universities

Academics in sandstone institutions reported lower levels of role stress, higher levels of supervisory consideration, and significantly weaker opinions to sectoral changes compared to academics from regional universities and universities of technology.

#### **6.4 Work Environment Characteristics: Summary of Significant Demographic Variable Differences**

Appendix K presents a summary of significant demographic variable differences in the work environment responses of academics.

##### **6.4.1 Role Stress**

The role stress mean scores of respondents differed significantly when classified by age, position, contract hours, contract status, higher education service, function, discipline and university type. Academics 40 to 49 years of age, full-time, tenured, at the senior lecturer level, engaged in teaching and research, and employed in a university of technology reported significantly higher levels of role stress compared to academics of similar demographic groups.

##### **6.4.2 Job Characteristics**

The job characteristics mean scores of respondents differed significantly when classified by position, function, discipline and university type. Academics at the lecturer level expressed significantly lower levels of job challenge compared to academics in other positions. Teaching only academics reported significantly lower levels of job feedback and job challenge compared to teaching and research staff.

##### **6.4.3 Supervisory Consideration**

Supervisory consideration mean scores of respondents differed significantly when classified by university type. Academics in universities of technology reported significantly lower levels of consideration compared to academics from other university types.

##### **6.4.4 Organisation Structure**

Centralisation mean scores (i.e., hierarchy, participation) of respondents differed significantly when classified by age and gender. Female academics aged 30 to 39 reported significantly lower levels of participation compared to older male academics. Participation also differed significantly by qualifications, position, function, contract hours, contract status, university and higher education service. Full-time academics holding doctorate degrees, at the professorial level, in administrative positions, and with ten or more years university and higher education

service, reported significantly higher levels of participation in university decision making compared to academics of similar demographic groups. Academics in universities of technology reported significantly more hierarchy of authority and formalisation compared to staff in sandstone and metropolitan universities.

#### **6.4.5 Sectoral Changes**

The mean scores on sectoral changes for respondents differed significantly when classified by qualifications, function, contract hours, contract status, discipline and university type. Tenured full-time academics holding doctorate degrees, working in the humanities discipline area and employed in a university of technology, expressed significantly stronger sectoral change opinions compared to academics of similar demographic groups.

## 6.5 Work Attitudes: Significant Professional Variable Differences

Significant differences in work attitudes were recorded by qualifications, position, contract hours, function, discipline areas and university type variables.

### 6.5.1 Qualifications

Table 6.12 presents job involvement mean scores of respondents classified by qualifications.

**Table 6.12**  
**One-Way Analysis of Variance for Mean Scores on Job Involvement for**  
**Respondents Classified by Qualifications**

Variable	1 (n=676)	2 (n=225)	3 (n=50)	4 (n=67)	5 (n=15)	F	Sig. Groups <sup>a</sup>
Job Involvement	3.48	2.93	3.26	3.12	3.07	6.30*	1-2

1 = Doctorate or equivalent, 2 = Masters degree by research or coursework, 3 = Graduate Certificate or Diploma, 4 = Bachelors or Honours degree, 5 = Other degree.

\*p<.001

<sup>a</sup> Scheffé test indicates significant between-group differences at the .05 level of significance.

Academics holding doctorate degrees (n=676) reported significantly more job involvement compared to academics holding masters degrees (n=225).

### 6.5.2 Position

Table 6.13 presents the job involvement and organisation commitment mean scores of respondents categorised by current academic position.

Associate professors reported the highest levels of job involvement (associate lecturers the lowest) and professors the highest levels of organisation commitment (lecturers the lowest). Work attitude mean scores have been shown to correlate with seniority. A 1996 survey of the academic profession in Australia, consisting of 1,420 full-time equivalent academic respondents from eight 'research' and twelve 'other' groupings, reported Level A academics (associate lecturers; 64 per cent female)



**Table 6.13**  
**One-Way Analysis of Variance for Mean Scores on Job Involvement and**  
**Organisation Commitment for Respondents Classified by Position**

Variable	1 (n=79)	2 (n=315)	3 (n=342)	4 (n=151)	5 (n=123)	F	Sig. Groups <sup>b</sup>
Job Involvement	2.99	3.03	3.26	3.87	3.80	49.81 <sup>***a</sup>	1-4, 1-5, 2-4, 2-5, 3-4, 3-5
Commitment	3.03	2.55	2.66	3.05	3.15	21.59 <sup>a</sup>	2-4, 2-5, 3-5

1 = Associate Lecturer, 2 = Lecturer, 3 = Senior Lecturer, 4 = Associate Professor/Reader,  
 5 = Professor.

\* p<.01, \*\* p<.0001

<sup>a</sup> Levene's Test for homogeneity of variances violated (p<.05) so Kruskal-Wallis test conducted, a test equivalent to the one-way between-groups ANOVA. Chi-square values are shown.

<sup>b</sup> Scheffé test indicates significant between-group differences at the .05 level of significance.

indicated less satisfaction with their jobs compared to their highest ranking Level E (professors) counterparts (DEETYA, 1996b:7).

#### 6.5.2.1 Associate Lecturers

Associate lecturers (n=79) reported significantly lower levels of job involvement compared to associate professors (n=151) and professors (n=123).

#### 6.5.2.2 Lecturers

Lecturers (n=315) reported significantly lower levels of job involvement and organisation commitment compared to associate professors (n=151) and professors (n=123).

#### 6.5.2.3 Senior Lecturers

Senior lecturers (n=342) expressed significantly lower levels of job involvement compared to associate professors (n=151) and professors (n=123) and lower levels of commitment compared to professors.

### 6.5.3 Contract Hours

Table 6.14 shows the job involvement and organisation commitment mean scores of respondents categorised by contract hours (i.e., full-time, fractional full-time).

**Table 6.14**  
**T-tests for Mean Scores on Job Involvement and Organisation Commitment for Respondents Classified by Contract Hours**

Variable	Full-time (n=946)		Fractional (n=80)		t-value
	Mean	SD	Mean	SD	
Job Involvement	3.35	1.51	2.85	1.41	2.88**
Commitment	2.73	1.51	3.16	1.49	2.45*

\*p<.05; \*\*p<.01

As indicated by the significant *t* values, full-time academics (n=946) reported significantly more job involvement but significantly less organisation commitment compared to fractional full-time staff (n=80).

#### 6.5.4 Function

Table 6.15 presents the job involvement and organisation commitment mean scores of respondents classified by function. Academics in teaching only roles (n=99), and academics in teaching and research roles (n=778), reported the lowest levels of job involvement and organisation commitment respectively.

**Table 6.15**  
**One-Way Analysis of Variance for Mean Scores on Job Involvement and Organisation Commitment for Respondents Classified by Function**

Variable	1	2	3	4	F	Sig.Groups <sup>a</sup>
	(n=99)	(n=778)	(n=17)	(n=138)		
Job Involvement	2.57	3.36	4.06	3.51	10.85*	1-2, 1-3, 1-4
Commitment	2.72	2.65	3.41	3.38	10.45*	1-4, 2-4

1 = Teaching only, 2 = Teaching and research, 3 = Research only, 4 = Administration/Other.

\*p<.05

<sup>a</sup> Scheffé test indicates significant between-group differences at the .05 level of significance.

At lower levels (Levels A and B), academics engage in more teaching and fewer administrative tasks compared to their higher ranking counterparts (Levels D and E). Hence, a more defined teaching role may provide fewer opportunities to influence university decision making (a positive source of job involvement) and derive recognition by the university (a positive source of organisation commitment).

#### 6.5.4.1 Teaching Only

Academics in teaching only roles (n=99) reported significantly less job involvement compared to academics in other work roles (n=933) and significantly lower levels of organisation commitment compared to academics in administrative roles (n=138).

#### 6.5.4.2 Teaching and Research

Academics in teaching and research roles (n=778) expressed significantly lower levels of organisation commitment compared to academics in administrative roles (n=138).

### 6.5.5 Discipline Areas

Table 6.16 presents the organisation commitment mean scores of respondents classified by discipline areas. Academics from health sciences discipline areas (n=221) expressed the highest levels of commitment to their universities and engineering, architecture and renewable resources discipline academics (n=105) expressed the lowest levels of organisation commitment.

**Table 6.16**  
**One-Way Analysis of Variance for Mean Scores on Organisation Commitment**  
**for Respondents Classified by Discipline Areas**

Variable	1 (n=325)	2 (n=222)	3 (n=221)	4 (n=163)	5 (n=105)	F	Sig. Groups <sup>a</sup>
Commitment	2.60	2.75	3.25	2.60	2.55	7.81*	1-3, 2-3, 3-4, 3-5

1 = Education, Humanities, Social Studies; 2 = Science, Maths, Computing; 3 = Health Sciences;  
4 = Business, Economics, Law; 5 = Engineering, Architecture, Renewable Resources.

\* p<.001

<sup>a</sup> Scheffé test indicates significant between-group differences at the .05 level of significance.

#### 6.5.5.1 Health Sciences

Academics from the health sciences (n=221) indicated significantly more organisation commitment compared to academics from all other discipline areas (n=815). Health science academics tend to occupy external roles as practitioners in private/public health institutions. Thus, the relative freedom to pursue outside

professional work may explain why health science academics are more committed to their universities than academics from other discipline areas.

### 6.5.6 University Type

Table 6.17 shows the organisation commitment mean scores of respondents categorised by university type. Academics from sandstone institutions expressed the highest levels of commitment to their universities and staff from universities of technology expressed the lowest levels of organisation commitment.

**Table 6.17**  
**One-Way Analysis of Variance for Mean Scores on Organisation Commitment for Respondents Classified by University Type**

Variable	1 (n=315)	2 (n=269)	3 (n=230)	4 (n=223)	F	Sig.Groups <sup>a</sup>
Commitment	3.05	2.97	2.42	2.48	12.30*	1-3, 1-4, 2-3 2-4

1 = Sandstone/research, 2 = Metropolitan, 3 = University of Technology, 4 = Regional.

\*  $p < .001$

<sup>a</sup> Scheffé test indicates significant between-group differences at the .05 level of significance.

Post-hoc Scheffé tests revealed that staff from sandstone ( $n=315$ ) and metropolitan ( $n=269$ ) universities reported significantly more organisation commitment compared to staff from universities of technology ( $n=230$ ) and regional ( $n=223$ ) universities ( $p < .05$ ).

Differences in academic responses by university type may reflect resource, positional status and cultural differences across the Australian higher education system (Marginson, 1997; Marginson & Considine, 2000:188-202). Sandstone and metropolitan institutions have superior economic resources compared to regional universities and universities of technology. Because of their strong research base and competitive positions, they attract leading academics and foster a strong scholarly image in the community (Marginson & Considine, 2000:193). Resource advantages and strong disciplinary identities cushion these institutions to some degree from cuts in public funding and the adverse effects of managerialism. By contrast, universities of technology are more corporate in their management structures (Symes, 1996) and entrepreneurial activity can conflict with academic cultures (McKenna, 2000:50).

For resource, positional status and management style reasons, sandstone and metropolitan institutions tend to have healthy academic cultures and hence staff express higher levels of commitment to their universities.

## **6.6 Work Attitudes: Summary of Significant Demographic Variable Differences**

Appendix L presents a summary of significant demographic variables differences in the work attitudes of academics.

### **6.6.1 Job Involvement**

Job involvement scores differed significantly for respondents classified by qualifications, position, contract hours and function ( $p < .05$ ). Academics holding doctorates reported more job involvement than academics holding masters degrees. Associate professors and professors reported significantly more job involvement compared to academics at lower levels of seniority. Full-time staff reported more job involvement than fractional full-time staff. Teaching only staff expressed significantly less job involvement compared to staff in other work roles.

### **6.6.2 Organisation Commitment**

Organisation commitment scores differed significantly for respondents classified by position, contract hours, function, discipline and university type ( $p < .05$ ). Lecturers and senior lecturers expressed significantly lower levels of commitment compared to professors. Full-time staff reported less commitment than fractional full-time staff. Staff in teaching only and teaching and research roles expressed significantly less commitment compared to staff in administrative roles. Academics from the health sciences expressed significantly more commitment than staff from humanities, business and engineering discipline areas. Staff employed in sandstone and metropolitan universities reported significantly more commitment to their universities compared to staff employed in universities of technology and regional institutions.

## 6.7 Summary

This chapter has presented a bivariate analysis of the work environment and work attitude responses of academics. Analysis of variance tables identified differences in mean scores for respondents classified by personal and professional demographic variables. Scheffé tests identified significant between-group differences ( $p < .05$ ). Reasons for differences were discussed with reference to previous studies of academic work.

Role stress and centralisation mean scores differed significantly when classified by age of respondent, and participation and formalisation scores differed by gender. No differences in work attitudes by age or gender were recorded. Work environment and work attitude responses differed significantly by: (1) qualifications, (2) position, (3) contract hours, (4) contract status, (5) function, (6) discipline areas, and (7) university type.

Academics 30 to 39 years of age reported significantly lower levels of participation in decision making compared to academics in older age groups. Female academics reported significantly lower levels of participation and formalisation compared to their male counterparts. Academics holding doctorate degrees reported significantly more participation and job involvement compared to those academics holding masters degrees. Associate lecturers, lecturers and senior lecturers indicated significantly higher levels of hierarchy of authority and lower levels of participation and job involvement compared to academics in professorial positions. Associate lecturers reported significantly lower levels of role conflict compared to lecturers, senior lecturers and professors and lecturers reported significantly lower levels of job challenge compared to academics in all other positions.

Full-time and tenured staff reported significantly more participation and role stress compared to fractional full-time staff and staff employed on fixed-term contracts. Full-time staff reported significantly more job involvement but significantly less organisation commitment compared to fractional full-time staff. Academics in teaching only roles reported significantly lower levels of role overload, job feedback,

job challenge, job involvement and participation compared to academics in teaching and research roles.

Academics from the health sciences disciplines reported significantly more organisation commitment compared to academics from all other discipline areas. Academics in universities of technology reported significantly more role ambiguity and formalisation, and lower levels of job feedback and supervisory consideration compared to staff in sandstone, metropolitan and regional institutions. Staff from sandstone and metropolitan universities also reported significantly more organisation commitment compared to staff from universities of technology and regional universities.

## **CHAPTER SEVEN**

### **CONFIRMATORY FACTOR ANALYSIS**

#### **7.1 Introduction**

The primary aim of this chapter is to assess the convergent and discriminant validity of survey measures (Research Question Three). The chapter focuses on confirmatory factor analyses and specifically the relationships among measured (observed) variables underlying the latent variables in the measurement model. To make this assessment, confirmatory factor analyses are reported separately for each discrete measuring scale to demonstrate: (1) the unidimensionality of survey measures, and (2) the goodness of fit of measures.

A confirmatory factor analysis of survey items was conducted using the maximum-likelihood (ML) estimation method of AMOS Version 4.0 (Arbuckle & Wothke, 1999). This common method of analysis estimates population parameters with the goal of minimising the difference between the observed sample and estimated population covariance matrices (Tabachnik & Fidell, 1996:746-748). To assess the goodness of fit of specified and estimated models, model fit indices were utilised (Schumacker & Lomax, 1996:120-135). These indices were based on differences between observed sample and estimated population covariance matrices.

A secondary aim of the chapter is to examine relationships among and between work environment and work attitude factors. To illustrate factor variable relationships, a correlation matrix is presented. On the basis of correlation co-efficients between work environment and work attitude factors, research hypotheses are supported (and not supported).

#### **7.2 Work Environment Factors**

##### **7.2.1 Role Stress**

Previous role stress research has concentrated on the constructs of role conflict, role ambiguity and role overload (Fisher & Gitelson, 1983; Jackson & Schuler, 1985;



Kahn & Byosiére, 1992; Kahn, Wolfe, Quinn, Snoek & Rosenthal, 1964; King & King, 1990; Smith, Tisak, & Schmieder, 1993). Rizzo, House and Lirtzman's (1970) role conflict and role ambiguity scales and Beehr, Walsh, and Taber's (1976) role overload scale have been prominent in management, psychological, and social science research literature. Meta-analytic reviews (Fisher & Gitelson, 1983; Jackson & Schuler, 1985) and psychometric studies (Kelloway & Barling, 1990; Netemeyer, Johnston, & Burton, 1990; Smith, Tisak, & Schmieder, 1993) generally support the convergent and discriminant validity of the three scales.

According to Kahn et al.'s (1964) role episode model, incongruent expectations between perceived and designated roles are psychologically uncomfortable for employees since they induce negative emotional reactions (i.e., feelings of frustration, tension, lowered self-confidence). Responding to objective, verifiable conditions in the work environment and the demands of significant role senders, employees can express ambiguity (i.e., unclear task demands), conflict (i.e., incongruent role expectations) and overload (i.e., unrealistic performance demands) when they perceive diminished effectiveness on the job (Kahn & Byosiére, 1992; Schaubroek, Cotton, & Jennings, 1989).

Kelloway and Barling (1990) used confirmatory factor analysis to assess Rizzo et al.'s (1970) role ambiguity (six-item,  $\alpha = .80$ ) and role conflict (eight-item,  $\alpha = .82$ ) scales, and Beehr, Walsh, and Taber's (1976) role overload (three-item,  $\alpha = .49$ ) scale based on a sample of hospital employees ( $n=767$ ; 85 per cent women, 76 per cent full-time employees). Kelloway and Barling (1990:739) tested a single factor role stress model that treated role stress (i.e., conflict, ambiguity and overload) as a unitary construct. Three competing models were also specified. A three-factor model, representing conflict, ambiguity and overload as independent constructs, was tested. Kelloway and Barling (1990:740) reported the three-factor model was associated with lower chi-square ( $\chi^2$ ), lower chi-square degree of freedom ( $\chi^2/df$ ) values and higher goodness of fit index (GFI) and adjusted GFI (AGFI) values than any of the four models considered.

An abbreviated version of Rizzo et al.'s (1970) six-item role ambiguity (five items) and eight-item role conflict (three items) measures, and Beehr, Walsh and Taber's

(1976) three-item role overload measure, were subjected to a confirmatory factor analysis using the maximum-likelihood (ML) estimation method. Using this method of analysis, a three-factor role stress model and an independence model (where all correlations among variables are zero) were compared to assess the best fit to the data. The three-factor model provided good fit to the data yielding the following results:  $\chi^2$  (41,  $n=1041$ ) = 263.56,  $p<.001$ , GFI=.95, AGFI=.92, RMSR=.05. Since goodness of fit indices were above .90 (Bentler & Bonett, 1980:600) and the RMSR equalled .05 (Jöreskog & Sörbom, 1989), the three-factor model provided a good and acceptable fit to the data. By comparison, the independence model provided a poor fit to the data producing the following results:  $\chi^2$  (66,  $n=1041$ ) = 3,459.54,  $p<.001$ , GFI=.49, AGFI=.39, RMSR=.29.

Table 7.1 presents confirmatory factor analysis results for the three-factor role stress model based on data from the present study of academics. All squared multiple correlations ( $R^2$ ) for role stress variables were above .30 ( $p<.001$ ) indicating observed variables loaded adequately on each factor. All standardised factor co-efficients were significant (greater than twice their standard errors) and loaded strongly on their respective dimensions as confirmed by previous role stress studies (Kelloway & Barling, 1990; Sarros, Gmelch, & Tanewski, 1997a; Smith, Tisak, & Schmieder, 1993). Strong associations between the three factors were evident in significant positive correlations between role overload and role conflict ( $r=.70$ ,  $p<.001$ ), role ambiguity and role conflict ( $r=.54$ ,  $p<.001$ ), and role overload and role ambiguity ( $r=.39$ ,  $p<.001$ ).

**Table 7.1**  
**Confirmatory Factor Analysis (AMOS Maximum-Likelihood) for the Three-Factor Role Stress Measurement Model<sup>a</sup>**

Construct	Factor Loading	Standard Error	Residual <sup>*</sup>	R <sup>2</sup> <sup>**</sup>
<b>Role Ambiguity</b>				
26a. I know exactly what is expected of me. <sup>b</sup> (RA2)	.78	.03	.40	.60
36a. In my job, there is clear explanation of what has to be done. <sup>b</sup> (RA4)	.74	.03	.46	.54
37a. Clear, planned goals and objectives exist for my job. <sup>b</sup> (RA5)	.70	.03	.52	.48
28a. I feel certain about how much authority I have in my job. <sup>b</sup> (RA3)	.67	.03	.55	.45
4a. I know what my responsibilities are. <sup>b</sup> (RA1)	.67	.03	.55	.45
<b>Role Overload</b>				
8a. I am given enough time to do what is expected of me in my job. <sup>b</sup> (RO1)	.77	.04	.40	.60
21a. It often seems like I have too much work for one person to do. (RO2)	.67	.03	.55	.45
29a. The performance expectations for my job are too high. (RO3)	.59	.04	.66	.34
<b>Role Conflict</b>				
42a. I receive a task assignment without adequate resources and materials to execute it. (RC3)	.62	.04	.62	.38
6a. I have to do things at work that should be done differently. (RC1)	.57	.03	.67	.33
15a. I work on unnecessary things. (RC2)	.56	.03	.69	.31

<sup>a</sup> Role Stress ( $\chi^2 = 263.56$ ,  $df = 41$ ,  $p < .001$ ,  $GFI = .95$ ,  $AGFI = .92$ ,  $RMSR = .05$ ).

<sup>b</sup> Reverse-scored item.

<sup>\*</sup> Standardised weights (error terms) for each observed variable.

<sup>\*\*</sup> Squared multiple correlations.

### 7.2.1.1 Role Ambiguity

The role ambiguity factor consists of five reverse-scored items that reflect uncertainty regarding expected role behaviours. Specifically, role ambiguity results from a "lack of information concerning the proper definition of the job, its goals and the permissible means for implementing them" (Kahn et al., 1964:94). Role ambiguity is reduced by the existence of environmental guidelines that clearly explain each job holder's responsibilities (RA1), what is expected of the job-holder (RA2), how much authority each job-holder has (RA3), what has to be done to achieve an appropriate level of task performance (RA4), and the goals and objectives of the job (RA5).

These five items (see Table 7.1) accounted for 36 per cent of the total variance in role ambiguity.

#### **7.2.1.2 Role Overload**

Role overload is a central component of role stress (Kahn et al., 1964). The three items in this role overload factor measure the incompatibility between work demands and the time available to fulfil those demands (Beehr et al., 1976:42). Time-based incompatibilities, a key dimension of role overload (Newton & Keenan, 1987), is measured by "I am [not] given enough time to do what is expected of me in my job" (RO1), "It often seems like I have too much work for one person to do" (RO2) and "The performance expectations for my job are too high" (RO3). These three items accounted for 27.4 per cent of the total variance in role overload.

#### **7.2.1.3 Role Conflict**

Kahn et al. (1964:19-20) defined person-role conflict as "the extent to which role expectations are incongruent with the orientations or values of the role occupant". Three items in this factor measure person-role conflict. Two related items, "I have to do things at work that should be done differently" (RC1) and "I work on unnecessary things" (RC2) measure person-role conflict in terms of the incompatibility of organisational demands and a role occupant's own values. This facet of role conflict has received strong support in the academic role stress literature (Copur, 1990; Rabinowitz & Stumpf, 1987; Nixon, 1996). A third item, "I receive a task assignment without adequate resources and materials to execute it" (RC3), measures person-role conflict in the form of personal resource allocation (Rizzo et al., 1970). The stress created by the discrepancy between organisational demands and available resources is a strong feature of academic role stress studies (Currie, 1996; Gmelch, Wilke, & Lovrich, 1986; Thorsen, 1996). Three items explained 16 per cent of the total variance in role conflict.

### 7.2.2 Job Characteristics

According to Hackman and Oldham's (1980) Job Diagnostic Model, jobs characterised by high levels of autonomy, task identity and feedback are 'enriched' jobs in that they provide challenging (motivating) work opportunities. The model posits that these core job dimensions are more rewarding when individuals experience three psychological states to job design. The job characteristic of autonomy influences the employee's experienced responsibility of work outcomes. Task identity influences an employee's experienced meaningfulness of work. Feedback provides the employee with knowledge of actual results. If all three critical psychological states are present, and an employee desires personal growth at work (i.e., growth-need strength), then the proposed impact of these job characteristics is high work motivation, high work performance, and low absenteeism and turnover (Hackman & Oldham, 1976:256). A meta-analysis of over 75 empirical studies of the Hackman and Oldham (1980) model generally supports these proposed linkages (Fried & Ferris, 1987).

Sims, Szilagyi and Keller (1976) developed their Job Characteristics Inventory (JCI) in an attempt to improve on the construct validity of Hackman and Oldham's (1975) Job Diagnostic Survey (JDS). Studies have confirmed the unidimensionality of the JCI autonomy, task identity and feedback scales (Brief & Aldag, 1978; Ferratt, Dunham, & Pierce, 1981; Griffin, Moorhead, Johnson, & Chonko, 1980; Hunt, Chonko, & Wood, 1985; Pierce & Dunham, 1978a). On the basis of four diverse samples in the U.S. (n=589), Griffin et al. (1980:776-777) reported strong factor congruency co-efficients (of 96 co-efficients calculated, 82 exceeded .90 and all others exceeded .80) indicating "task dimensionality as measured by the JCI is consistent and reproducible across different settings". In Australia, Winter, Sarros, and Tanewski (1998b:4) reported moderate to high correlation co-efficients for the autonomy (.56 to .77), task identity (.74 to .81) and feedback (.74 to .77) items based on a sample of university academics (n=189). Pierce and Dunham (1978a:127) reported "adequate convergent validity" citing strong inter-correlations between the Job Diagnostic Survey and JCI autonomy ( $r=.68$ ), task identity ( $r=.74$ ) and feedback ( $r=.65$ ) scales.

Sims et al. (1976:423), validating job characteristics dimensions across two diverse U.S. samples (female medical staff,  $n=1,161$  and male manufacturing personnel,  $n=192$ ), reported the JCI met three criteria tests to assess discriminant validity: (1) convergent validity co-efficients were greater than the correlations between measures for which both variables are different, a criterion met at the .001 level of significance for autonomy and feedback, (2) convergent validity co-efficients were reported as greater ( $p<.001$ ) than correlations between different variables using the same rating method for all three factors, and (3) the same pattern of relationships between factors using different measurement methods (co-efficient of concordance  $\approx .25$ ,  $p<.01$ ). Using the same criteria, Brief and Aldag (1978:663-664) found the JCI only met test two (satisfied for 56 of 60 comparisons) casting "doubt on the discriminant validity of the JCI". Ferratt et al. (1981:780) also provided contrary evidence to the discriminant validity of JCI scales reporting job satisfaction could not be adequately distinguished from JCI job design measures.

Amabile, Conti, Coon, Lazenby, and Herron (1996:1165-1167) assessed the psychometric characteristics of their challenging work measure as part of the development and validation of their KEYS: Assessing the Climate for Creativity Instrument. The challenging work scale, described as a "sense of having to work hard on challenging tasks and important projects", included five challenge items. These five items showed acceptable internal scale reliabilities ( $\alpha=.79$ ,  $n=>12,100$ ; test-retest  $\alpha=.82$ ,  $n=40$ ) and loaded significantly onto the work challenge scale ( $p<.001$ ) when subjected to a confirmatory factor analysis based on data from 26 companies ( $n=3,708$ ). Highly significant across-company differences ( $p<.001$ ) showed that work challenge, as part of the KEYS instrument, discriminated between different work environments (Amabile et al., 1996:1165-1169).

Sims, Szilagyi, and Keller's (1976) autonomy, task identity, and feedback job characteristics measures, and four items from Amabile and Gryskiewicz's (1989) five-item work challenge measure, were subjected to a confirmatory factor analysis (CFA). Table 7.2 presents results for the four-factor job characteristics model.

**Table 7.2**  
**Confirmatory Factor Analysis (AMOS Maximum-Likelihood) for the Four-Factor Job Characteristics Measurement Model<sup>a</sup>**

Construct	Factor Loading	Standard Error	Residual <sup>*</sup>	R <sup>2</sup> <sup>**</sup>
<b>Job Challenge</b>				
24a. I feel that I am working on important tasks and projects. (JC2)	.79	.02	.38	.62
44a. I feel challenged by the work I am currently doing. (JC3)	.78	.02	.40	.60
11a. The tasks in my work are challenging. (JC1)	.76	.02	.43	.57
34a. The tasks in my work bring out the best in me. (JC4)	.66	.02	.57	.43
<b>Task Identity</b>				
32a. I see projects or jobs through to completion. (TI3)	.69	.03	.54	.46
1a. In my job, there is the opportunity for me to complete work that I start. (TI1)	.55	.03	.64	.36
<b>Autonomy</b>				
9a. My job provides the opportunity for independent thought and action. (AU1)	.74	.03	.45	.55
18a. I have the freedom to do pretty much what I want in my job. (AU3)	.67	.03	.56	.44
31a. I can act independently of my supervisor in performing my job function. (AU4)	.58	.03	.67	.33
23a. I am able to exert control over the pace of my work. (AU2)	.52	.03	.72	.28
40a. I am left on my own to do my own work. (AU5)	.51	.02	.74	.26
<b>Feedback</b>				
3a. I receive feedback from my supervisor on how well I'm doing my job. (FB1)	.72	.04	.47	.53
16a. Information about how my job performance will be evaluated has been directly communicated to me. (FB2)	.66	.04	.56	.44
38a. As I'm working, I am able to find out how well I'm doing my job. (FB3)	.62	.03	.61	.39

<sup>a</sup> Job Characteristics ( $\chi^2 = 470.50$ ,  $df = 71$ ,  $p < .001$ ,  $GFI = .93$ ,  $AGFI = .90$ ,  $RMSR = .05$ ).

<sup>\*</sup> Standardised weights (error terms) for each observed variable.

<sup>\*\*</sup> Squared multiple correlations.

As can be seen in Table 7.2, the four-factor job characteristics model provided good fit to the data yielding the following results:  $\chi^2$  (84,  $n=1041$ ) = 470.50,  $p < .001$ ,  $GFI = .93$ ,  $AGFI = .90$ ,  $RMSR = .05$ . The Tucker-Lewis (1973) and Comparative Fit (Bentler, 1990) indices equalled .89 and .91 respectively indicating acceptable fit to

the data on the basis of sample size and number of parameters estimated (Gerbing & Anderson, 1992; Medsker, Williams, & Holahan, 1994). By comparison, the independence model provided a very poor fit to the data producing the following results:  $\chi^2(91, n=1041) = 4,638.55, p < .001, GFI = .44, AGFI = .36, RMSR = .24$ .

CFA results generally supported the unidimensionality of each factor (high factor loadings and squared multiple correlations, largest residual = .96). Correlations between the scales were strong with task identity and autonomy ( $r = .79, p < .001$ ), task identity and job challenge ( $r = .52, p < .001$ ) and job challenge and autonomy ( $r = .69, p < .001$ ) showing strong positive associations.

#### 7.2.2.1 Job Challenge

Job challenge is the degree to which employees "experience a sense of having to work hard on challenging tasks and projects" (Amabile & Gryskiewicz, 1989:236). Jobs high in job challenge are regarded as enriched jobs in they provide opportunities to make full use of a person's abilities, skills and knowledge. A key dimension is the extent to which employees feel challenged by the work they are currently doing (JC3). Several researchers have concluded that job challenge is a key source of intrinsic motivation (Brown, 1996; Deci & Ryan, 1985) and creativity at work (Amabile, Hill, Hennessey, & Tighe, 1994; Oldham & Cummings, 1996). Table 7.2 shows the four items included in this factor. These four items accounted for 50.1 per cent of the total variance in job challenge.

#### 7.2.2.2 Task Identity

Task identity refers to "the extent to which employees do an entire or whole piece of work and can clearly identify the results of their efforts" (Sims et al., 1976:197). An employee with high task identity generally carries out a total job or project from beginning to end (e.g., "I see projects or jobs through to completion", TI3). Job enlargement, a form of job enrichment, increases task identity by blending several narrow jobs into one larger, expanded job. By combining interrelated task activities into a natural work activity, task ownership and identity increases thus contributing to the meaningfulness (motivation) of work (Hackman & Oldham, 1980). Two items accounted for 30.7 per cent of the total variance in task identity.



### 7.2.2.3 Autonomy

Autonomy is a core job characteristic (Hackman & Lawler, 1971). Autonomy refers to the extent to which employees have the freedom to plan and execute work tasks. Two items "My job provides the opportunity for independent thought and action" (AU1) and "I have the freedom to do pretty much what I want in my job" (AU3) measured this sense of job freedom strongly (Table 7.2 indicates factor loadings of .74 and .67 respectively). Autonomy has shown strong positive correlations with a range of work attitudes including job involvement (Brown, 1996; Spector, 1986) and organisational commitment (Hunt, Chonko, & Wood, 1985; Mathieu & Zajac, 1990) supporting the proposition that enriched jobs stimulate intrinsic motivation and organisational commitment at work (Hackman & Oldham, 1975). Five items explained 23.5 per cent of the total variance in autonomy.

### 7.2.2.4 Feedback

Feedback refers to "the degree to which employees receive information as they are working which reveals how well they are performing on the job" (Sims et al., 1976:197). Information employees receive can be transmitted in a number of ways. Thus, the feedback factor (see Table 7.2) indicates feedback from the job itself ("As I'm working, I am able to find out how well I'm doing my job", FB3), feedback from supervisors ("I receive feedback from my supervisor on how well I'm doing my job", FB1) and feedback from performance management systems ("Information about how my job performance will be evaluated has been directly communicated to me", FB2). Effective feedback occurs when individuals learn about their performance as they perform their job responsibilities. Feedback in this instance can result in intrinsic motivation and high-quality work performance since individuals have opportunities to alter their behaviours to acquire valued work outcomes (Hackman & Oldham, 1980). Three items explained 22.7 per cent of the total variance in the feedback factor.

## 7.2.3 Supervisory Consideration

Supervisory consideration is a type of leader behaviour. Consideration describes the extent to which the leader is sensitive to others, respects their ideas and feelings, and establishes mutual trust. Considerate supervisors are friendly and approachable, help

others solve work related problems, provide open communication, and encourage others to develop new skills (Bass, 1981; Stogdill, 1963). A considerate supervisory style is a major contributor to subordinate experiences and performance at work (e.g., Ashour, 1982; O'Driscoll & Beehr, 1994; Seltzer & Numerof, 1988; Tjosvold, 1984).

Previous studies of supervisory behaviours, including the seminal work at Ohio State University (Schriesheim & Bird, 1979), indicated subordinates perceive their leader's behaviour in terms of the 'consideration' style dimension (Bass, 1981; Fleishman & Harris, 1962; Frost, 1983; Stogdill, 1974). Supervisory consideration is incorporated into a sub-scale of the Leadership Behavior Description Questionnaire - Form XII (LBDQ; Stogdill, 1963). The LBDQ has been extensively used by researchers and shown to have adequate reliability and validity (Cook, Hepworth, Wall, & Warr, 1981; Schriesheim & Kerr, 1974; Stogdill, 1969; Szilagyi & Keller, 1976). According to Cook et al. (1981:227), the LBDQ "is intended for use with any leader in any type of organisation, provided the followers have the opportunity to observe his or her behaviour as a leader of their own group."

Stogdill's (1963) fourteen supervisory consideration items (LBDQ - Form XII) were specified as three independent factors (reflecting the dimensions of group welfare, considerate behaviour, and a lack of consideration) and subjected to a confirmatory factor analysis. Table 7.3 presents results for the three-factor supervisory consideration model. The three-factor consideration model revealed adequate fit to the data yielding the following results:  $\chi^2$  (74, n=1041) = 430.99,  $p < .001$ , GFI=.94, AGFI=.91, RMSR=.04. The Tucker-Lewis (.94) and Comparative Fit (.95) indices provided further model fit evidence. By comparison, the independence consideration model provided poor fit to the data:  $\chi^2$  (91, n=1041) = 7,635.64,  $p < .001$ , GFI=.25, AGFI=.13, RMSR=.53.

**Table 7.3**  
**Confirmatory Factor Analysis (AMOS Maximum-Likelihood) for the Three-Factor Supervisory Consideration Measurement Model<sup>a</sup>**

Construct	Factor Loading	Standard Error	Residual <sup>*</sup>	R <sup>2</sup> <sup>**</sup>
<b>Supportive Leadership</b>				
39a. My supervisor is friendly and approachable. (SL1)	.82	.03	.34	.66
33a. My supervisor looks out for the personal welfare of group members. (SL2)	.80	.03	.37	.63
27a. My supervisor treats all group members as his or her equals. (SL6)	.78	.03	.39	.61
43a. My supervisor is willing to make changes. (SL3)	.77	.02	.40	.60
30a. My supervisor encourages group members to speak up when they disagree with a decision. (SL4)	.76	.03	.43	.57
20a. My supervisor does little things to make it pleasant to be a member of the group. (SL5)	.73	.03	.47	.53
19a. My supervisor puts suggestions made by the group into operation. (SL7)	.72	.02	.48	.52
<b>Considerate Behaviour</b>				
7a. My supervisor helps me solve work-related problems. (CB1)	.73	.03	.47	.53
10a. My supervisor encourages me to develop new skills. (CB2)	.69	.03	.53	.47
17a. My supervisor keeps informed about how group members think and feel about things. (CB4)	.68	.03	.54	.46
2a. My supervisor gives advance notice of changes that affect my work. (CB3)	.64	.03	.59	.41
<b>Lack of Consideration</b>				
14a. My supervisor refuses to explain his or her actions. <sup>b</sup> (LC2)	.71	.03	.50	.50
35a. My supervisor acts without consulting the group. <sup>b</sup> (LC1)	.67	.03	.56	.44
45a. My supervisor keeps to himself or herself. <sup>b</sup> (LC3)	.65	.03	.58	.42

<sup>a</sup> Supervisory Consideration ( $\chi^2 = 430.99$ ,  $df = 74$ ,  $p < .001$ ,  $GFI = .94$ ,  $AGFI = .91$ ,  $RMSR = .04$ ).

<sup>b</sup> Reverse-scored item.

<sup>\*</sup> Standardised weights (error terms) for each observed variable.

<sup>\*\*</sup> Squared multiple correlations.

All items loaded significantly on their intended factors as indicated by strong standardised regression co-efficients (factor loadings) and squared multiple correlations greater than .40 ( $p < .001$ ). Significant positive correlations between supportive leadership and considerate behaviour ( $r = .88$ ,  $p < .001$ ), supportive

leadership and lack of consideration ( $r=.86$ ,  $p<.001$ ), and considerate behaviour and lack of consideration ( $r=.78$ ,  $p<.001$ ) revealed strong relationships between the three consideration factors.

### 7.2.3.1 Supportive Leadership

Supportive leadership is “concerned with helpful and supportive behaviors which are oriented towards the well-being of followers” (Schriesheim & Stogdill, 1975:198). According to path-goal theory (House, 1971), supportive leaders show concern for others’ well being and personal needs. Such concern increases followers’ self-confidence leading to a positive impact on work effort, satisfaction and performance (Yukl, 1981:146-152). Seven high loading items comprise the supportive leadership factor (see Table 7.3). Supportive leaders are “friendly and approachable” (SL1), “look out for the personal welfare of group members” (SL2); “treat all group members as (their) equals” (SL6), encourage “group members to speak up when they disagree with a decision” (SL4) and do “little things to make it pleasant to be a member of the group” (SL5). These seven items accounted for 42.5 per cent of the total variance in the supportive leadership factor.

### 7.2.3.2 Considerate Behaviour

Considerate leaders engage in behaviour designed to encourage and support the learning and skill development of others. Considerate behaviour is measured by four strong loading items (see Table 7.3) that reflect the dimensions of skill development (“My supervisor encourages me to develop new skills”, CB2), problem solving (“My supervisor helps me solve work-related problems”, CB1) and effective communication (“My supervisor gives advance notice of changes that affect my work”, CB3; “My supervisor keeps informed about how group members think and feel about things”, CB4). Four items explained 25.2 per cent of the total variance in considerate behaviour.

### 7.2.3.3 Lack of Consideration

The lack of consideration factor includes three reverse-coded items that measure inconsiderate or arbitrary leader behaviour. The items are similar in content to Schriesheim and Stogdill’s (1975:202) Arbitrary vs. Considerate Behavior factor. A lack of consideration is shown when a leader “acts without consulting the group”

(LC1), when a leader "refuses to explain his or her actions" (LC2), and when a leader "keeps to himself or herself" (LC3). These three items accounted for 24.5 per cent of the total variance in the lack of consideration factor.

#### 7.2.4 Organisation Structure

Hall (1963) and later, Hall and Tittle (1966), Aiken and Hage (1966), and Brutsaert (1977) developed and validated analytical measures of the degree of bureaucratisation perceived by individual employees. Bureaucratisation is measured in terms of two continuous structural dimensions: centralisation and formalisation. Centralisation measures the locus of decision making authority in an organisation (Hage & Aiken, 1967; Pugh, Hickson, Hinings, & Turner, 1968). Centralisation means that decisions affecting the organisation are taken near top organisational levels. Formalisation refers to the degree of written documentation (i.e., rules, policies, procedures, regulations) to direct, control and coordinate employees and work activities (Pugh et al., 1968). Hall's (1963:37) research, on the basis of data collected from employees in ten U.S. organisations of different sizes ( $n=317$ ), suggested hierarchy of authority (centralisation) to be the central dimension in the overall degree of bureaucratisation of an organisation.

Aiken and Hage's (1966:498) measure of centralisation, based upon research by Hall (1963), identified two subconstructs of centralisation:

1. Hierarchy of authority (i.e., the extent to which staff members are assigned tasks and provided with the freedom to implement them without interruption from supervision), and
2. Participation in decision making (i.e., the extent to which staff members participate in setting the goals and policies of the organisation).

Aiken and Hage's (1966) hierarchy of authority and participation sub-scales were negatively correlated ( $-.55, p<.05$ ) in their study of 16 U.S. social welfare agencies ( $n=314$  professional employees) suggesting the constructs are not independent. Dewar, Whetten and Boje (1980) examined the reliability and validity of Aiken and Hage's (1966) centralisation sub-scales based on data from Hage and Aiken studies (1967) and a second set of data from 69 manpower organisations. For both

centralisation measures median inter-item correlations were "at least twice the size of the median off-diagonal correlations" indicating "both sets of items have high degrees of convergent and discriminant validity" (Dewar et al., 1980:125). Furthermore, Gazieli and Weiss (1990) and Meyer (1992) have demonstrated the cross-cultural validity of Aiken and Hage's (1966) centralisation sub-scales in Israeli and Zambian organisations respectively.

Finlay, Martin, Roman, and Blum (1995) constructed a measure of the structuring of work activities based on Pugh et al.'s (1968) and Hall's (1963) definitions of formalisation. Finlay et al.'s (1995) standardisation of procedures three-item scale ( $\alpha=.69$ ) is consistent with House and Rizzo's (1972) measure of formalisation and measures the extent to which the organisation follows established procedures, emphasises written rules, and has procedures to deal with every situation. Finlay et al.'s (1995) standardisation of procedures scale correlated positively ( $r=.50$ ) with a one-item measure of hierarchy of authority based on a sample of 169 U.S. administrators.

Aiken and Hage's (1966) hierarchy of authority (five items) and participation in decision making (five items), and Finlay et al.'s formalisation (three items) scales were subjected to a CFA. Table 7.4 presents results for the three-factor organisation structure measurement model. The three-factor model yielded a  $\chi^2 = 406.74$ ,  $df = 62$  ( $n=1041$ ),  $p<.001$ , a GFI of .94 (AGFI=.91), and a RMSR of .06. Additional goodness of fit indices indicated acceptable fit to the data (Tucker-Lewis index = .90, Comparative Fit index = .92). By comparison, the independence structural model provided a very poor fit to the data and produced a  $\chi^2 = 4,466.75$ ,  $df = 78$  ( $n=1041$ ),  $p<.001$ , a GFI of .47 (AGFI=.39), and a RMSR of .38.

**Table 7.4**  
**Confirmatory Factor Analysis (AMOS Maximum-Likelihood) for the Three-Factor Organisation Structure Measurement Model<sup>a</sup>**

Construct	Factor Loading	Standard Error	Residual <sup>*</sup>	R <sup>2</sup> <sup>**</sup>
<b>Formalisation</b>				
26b. The university often relies upon rules, procedures and memos to structure and coordinate academic work activities. (FO3)	.75	.03	.44	.56
6b. In this university, academic staff are expected to adhere to a large number of written rules and policies. (FO1)	.68	.03	.54	.46
15b. This university stresses to academic staff the importance of following established educational rules and policies. (FO2)	.54	.03	.71	.29
<b>Participation in Decision Making</b>				
22a. I participate in decisions to appoint new academic staff. (PD3)	.80	.04	.36	.64
12a. I participate in decisions on the promotion of academic staff. (PD2)	.76	.04	.43	.57
5a. I participate in decisions that influence departmental policy. (PD1)	.74	.03	.46	.54
25a. I participate in decisions on the adoption of new university policies. (PD4)	.66	.04	.56	.44
41a. I participate in decisions on the adoption of new course programs. (PD5)	.64	.03	.59	.41
<b>Hierarchy of Authority</b>				
24b. In this university, even small matters have to be referred to someone higher up for a final answer. (HA3)	.72	.03	.47	.53
17b. In this university, I have to ask my supervisor before I do almost anything important. (HA2)	.69	.03	.52	.48
8b. An academic who wants to make his/her own decisions would be quickly discouraged in this university. (HA4)	.67	.03	.55	.45
3b. There can be little action taken in this university until someone in authority approves a decision. (HA1)	.57	.03	.68	.32
12b. Any resource decision I make in this university has to have my supervisor's approval. (HA5)	.48	.04	.77	.23

<sup>a</sup> Organisational Structure ( $\chi^2 = 406.74$ ,  $df = 62$ ,  $p < .001$ ,  $GFI = .94$ ,  $AGFI = .91$ ,  $RMSR = .06$ ).

<sup>\*</sup> Standardised weights (error terms) for each observed variable.

<sup>\*\*</sup> Squared multiple correlations.

All factor co-efficients were significant (greater than twice their standard errors) and loaded strongly on their respective dimensions as indicated by previous work

alienation (Aiken & Hage, 1966; Hoy, Blazovsky, & Newland, 1983; Kakabadse, 1986) and organisational structure studies (Dewar et al., 1980; Finlay et al., 1995; Pugh et al., 1968). Hierarchy of authority correlated strongly and positively with formalisation (.62,  $p < .01$ ), and strongly and negatively with participation in decision making (-.46,  $p < .01$ ) as indicated by Aiken and Hage's (1966) findings (-.55,  $p < .05$ ). Formalisation and participation showed little relationship (-.06).

#### 7.2.4.1 Formalisation

Formalisation refers to the degree of standardisation of procedures in an organisation (Finlay et al., 1995:435-436). The three-item factor measures the degree to which standard rules, procedures and policies have been explicitly formalised by the organisation. The three-item factor contains similar content to House and Rizzo's (1972) formalisation construct in terms of codifying the work process. Items measure the extent to which "academic staff are expected to adhere to a large number of written rules and policies" (FO1), the degree to which the university "stresses to academic staff the importance of following established educational rules and policies" (FO2), and the degree to which the university "often relies upon rules, procedures and memos to structure and coordinate academic work activities" (FO3). Three items explained 28.7 per cent of the total variance in the formalisation factor.

#### 7.2.4.2 Participation in Decision Making

Participation in decision making, a subconstruct of centralisation (Aiken & Hage, 1966; Hage & Aiken, 1967), refers to "the degree to which staff members participate in setting the goals and policies of the entire organization" (Aiken & Hage, 1996:498). Participation measures the distribution of power in an organisation and from an employee perspective, is similar to Vroom's (1964) perceived participation in decision making scale. The five-item participation factor includes items pertaining to "decisions that influence departmental policy" (PD1), "decisions on the promotion of academic staff" (PD2), "decisions to appoint new academic staff" (PD3), "decisions on the adoption of new university policies" (PD4) and "decisions on the adoption of new course programs" (PD5). These five items accounted for 27.6 per cent of the total variance in participation in decision making.



### 7.2.4.3 Hierarchy of Authority

Hierarchy of authority, a subconstruct of centralisation (Aiken & Hage, 1966; Hage & Aiken, 1967), refers to "the extent to which members are assigned tasks and then provided with the freedom to implement them without interruption from superiors" (Aiken & Hage, 1996:498). Staff reliant on superiors for making decisions reflects a scalar chain (hierarchy) of authority structure. Hierarchy of authority items measure the degree to which action is suspended whilst "someone in authority approves a decision" (HA1), the extent to which staff have to "ask supervisors before they do almost anything important" (HA2), and the degree to which "even small matters have to be referred to someone higher up for a final answer" (HA3). Five items explained 20.1 per cent of the total variance in hierarchy of authority.

### 7.2.5 Sectoral Changes

Large-scale changes to the Australian higher education sector impact on the perceived work environment of academics in Australian universities (Mahony, 1996; Taylor et al., 1998; Winter et al., 2000). Seven change items, reflective of corporate reforms (DeBats & Ward, 1998; Slaughter & Leslie, 1997; Taylor et al., 1998), were assessed to evaluate the validity of a two-factor measurement model. In a previous study of Australian academics (Winter, Sarros, & Tanewski, 1998b:4-5), sectoral change items measured a distinct factor and demonstrated adequate reliability ( $\alpha=.75$ ). Two broad change items were removed from the final model specification due to high cross-factor loadings and conceptual ambiguity.

Table 7.5 presents results for the two-factor sectoral changes measurement model. As can be seen, the two-factor model provided a good and acceptable fit to the data:  $\chi^2 = 300.40$ ,  $df = 34$  ( $n=1041$ ),  $p<.001$ , a GFI of .94 (AGFI=.91), and a RMSR of .05.

**Table 7.5**  
**Confirmatory Factor Analysis (AMOS Maximum-Likelihood) for the Two-Factor Sectoral Changes Measurement Model<sup>a</sup>**

Construct	Factor Loading	Standard Error	Residual <sup>*</sup>	R <sup>2</sup> <sup>**</sup>
<b>Corporate Reforms</b>				
10c. The rise of consumerism and a 'user-pays' fees regime. (HC6)	.72	.03	.48	.52
7c. Managerialism (i.e. business-related 'managerial' practices) replacing collegiality in the academic community. (HC4)	.65	.03	.58	.42
12c. Increased competition between institutions for fee-paying student income. (HC7)	.63	.04	.60	.40
2c. Decreased public funding and increased private funding of higher education. (HC2)	.62	.03	.61	.39
9c. Institutional pressures to increase productivity through quality assurance mechanisms, appraisal systems, and performance indicators. (HC5)	.61	.03	.63	.37
1c. Increased emphasis on academic entrepreneurialism and fee-raising activities. (HC1)	.61	.03	.63	.37
3c. Increased emphasis on academic accountability and institutional efficiency. (HC3)	.60	.03	.64	.36
<b>Academic Pressures</b>				
6c. Increased pressure to use information technology to produce quality courseware.	.56	.04	.68	.32
4c. An expansion and diversification of the student population.	.53	.04	.72	.28
8c. Increased student and employer dissatisfaction with curricula.	.51	.04	.74	.26

<sup>a</sup> Sectoral Changes ( $\chi^2 = 300.40$ ,  $df = 34$ ,  $p < .001$ ,  $GFI = .94$ ,  $AGFI = .91$ ,  $RMSR = .05$ ).

<sup>\*</sup> Standardised weights (error terms) for each observed variable.

<sup>\*\*</sup> Squared multiple correlations.

Regression co-efficients (factor loadings), squared multiple correlations ( $R^2$ ) and factor score weights indicated items loaded adequately on a distinct factor. By comparison, the independence sectoral model provided a very poor fit to the data and produced a  $\chi^2 = 2,847.65$ ,  $df = 45$  ( $n=1041$ ),  $p < .001$ , a GFI of .48 ( $AGFI = .37$ ), and a RMSR of .36.

#### 7.2.5.1 Corporate Reforms

The seven items in this factor measure corporate reforms to the Australian higher education sector such as: (1) the rise of consumerism and income-raising activities

(Marginson, 1999; Slaughter & Leslie, 1997), (2) the rise of managerialism in academe (DeBats & Ward, 1998; Taylor et al., 1998; Winter et al., 2000), and (3) increased reliance on quality assurance and accountability mechanisms in universities (McInnis, Powles, & Anwyl, 1994; McInnis, 1996). The seven items in this factor accounted for 20 per cent of the total variance in corporate reforms.

#### **7.2.5.2 Academic Pressures**

The three items in this factor measure pressures on academics emanating from: (1) an expansion and diversification of the student population (Meek, 1991), (2) student and employer demands for more relevant (vocational) curricula, and (3) the need to use information technology to service students across campuses and various modes of education (Mazzarol & Hosie, 1997). The three items in this factor (see Table 7.5) accounted for 10 per cent of the total variance in academic pressures.

### **7.3 Work Attitude Factors**

#### **7.3.1 Job Involvement**

Job involvement is an established indicator of a person's intrinsic motivation at work (Hackman & Lawler, 1971; Kahn, 1990; Kanungo, 1982b; Lawler & Hall, 1970). Kanungo (1982a:342) defines job involvement as "a cognitive or belief state of psychological identification with a particular job". A state of involvement implies a "positive and relatively complete state of engagement of core aspects of the self in the job" (Brown, 1996:235). From an individual perspective, job involvement represents a major source of needs satisfaction at work when the job situation is a 'central life interest' (Dubin, 1958) and important to a person's total self-image (Lodahl & Kejner, 1965). From an organisational perspective, jobs that engage and motivate employees lower turnover and absenteeism (Blau & Boal, 1987) and establish competitive advantage in business markets (Lawler, 1992; Pfeffer, 1998).

Kanungo's (1982a) study developed separate measures (semantic differential, questionnaire, graphic) of job and work involvement constructs to establish reliability, construct validity, and criterion-related validity of each measure. Data collected and analysed from a heterogeneous sample of 703 French Canadian and

English Canadian employees, from various sized public/private Canadian organisations, indicated the 10-item Job Involvement Questionnaire (JIQ) reflected both reliability ( $\alpha=.87$ ; test-retest co-efficient  $r=.85$ ,  $n=63$ ) and validity (factor loadings .44 to .77, median item-total correlation  $r=.68$ ; for graphic and questionnaire scales the correlation equalled .80 suggesting convergent validity). A principal-components factor analysis (varimax rotation) yielded two clear interpretable factors of job and work involvement (eigenvalues of 5.15 and 2.39 respectively). Both factors explained 47 per cent of the total variance (Kanungo, 1982:344). Similar results were obtained in the current study with a principal-components factor analysis (varimax rotation) extracting two factors (eigenvalues of 4.67 and 1.19 respectively) accounting for 59 per cent of total variance (all communalities exceeded .40,  $p<.01$ ). Table 7.6 presents results for the two-factor job involvement measurement model.

Since goodness of fit indices were above .90 (Bentler & Bonett, 1980:600) and the RMSR was .05 (Jöreskog & Sörbom, 1989), the two-factor model provided an acceptable fit to the data. By comparison, the independence model provided a poor fit to the data producing the following results:  $\chi^2$  (45,  $n=1041$ ) = 3,964.52,  $p<.001$ , GFI=.39, AGFI=.26, RMSR=.45. As can be seen from Table 7.6, factor loadings (regression co-efficients) and  $R^2$  (squared multiple correlations) estimates were strong for both job involvement and job attachment factors. Factor score weights indicated strong factor loadings and weak cross-factor loadings. These results support the unidimensionality of the job involvement measure. Job involvement and job attachment factors correlated strongly (.74,  $p<.001$ ).

**Table 7.6**  
**Confirmatory Factor Analysis (AMOS Maximum-Likelihood) for the Two-Factor Job Involvement Measurement Model<sup>a</sup>**

Construct	Factor Loading	Standard Error	Residual <sup>*</sup>	R <sup>2**</sup>
<b>Job Involvement</b>				
4b. Most of my personal life goals are job-oriented. (JI2)	.78	.03	.39	.61
16b. Most of my interests are centered around my job. (JI5)	.77	.03	.41	.59
19b. I consider my job to be very central to my existence. (JI6)	.75	.03	.43	.57
14b. I live, eat and breathe my job. (JI4)	.74	.03	.45	.55
7b. To me, my job is only a small part of who I am. <sup>b</sup> (JI3)	.67	.03	.55	.45
2b. The most important things that happen to me involve my present job. (JI1)	.66	.03	.57	.43
<b>Job Attachment</b>				
10b. I am very much involved personally in my job. (JI7)	.67	.03	.55	.45
27b. I like to be absorbed in my job most of the time. (JI10)	.61	.03	.63	.37
23b. I have very strong ties with my present job which would be very difficult to break. (JI9)	.57	.02	.68	.32
22b. Usually I feel detached from my job. <sup>b</sup> (JI8)	.57	.03	.68	.32

<sup>a</sup> Job Involvement ( $\chi^2 = 242.66$ ,  $df = 34$ ,  $p < .001$ ,  $GFI = .95$ ,  $AGFI = .92$ ,  $RMSR = .05$ ).

<sup>b</sup> Reverse-scored item.

<sup>\*</sup> Standardised weights (error terms) for each observed variable.

<sup>\*\*</sup> Squared multiple correlations.

### 7.3.1.1 Job Involvement

This factor consists of six items that gauge the degree to which an individual identifies psychologically with his/her job (Kanungo, 1982a:342). An individual's psychological identification with a particular job will differ according to: (1) the saliency of his/her (growth) needs, and (2) the perceptions she/he has about the need-satisfying potentialities of the job. A job-involved person has "personal life goals which are job-oriented" (JI2) and "considers the job to be central to their existence" (JI6). In this positive state of mind, the individual engages core aspects of the self in the job; the job is "central to the person and his/her psychological identity" (Blau, 1985:33). Six items accounted for 32.1 per cent of the total variance in job involvement.

### 7.3.1.2 Job Attachment

The four items in this factor measure the degree to which an individual expresses a state of psychological attachment (or separation) with (from) their job (Kanungo, 1982b:116). A job-attached person "likes to be absorbed in their job most of the time" (JI10) reflecting the fact they have "very strong ties with the job which are very difficult to break" (JI9). A person expressing low levels of job attachment implies a state of separation (alienation) from the job context (Kanungo, 1982b:116). Thus, an alienated individual feels "detached from their job" (JI8) and "not involved personally in their job" (JI7). Four items explained 19.3 per cent of the total variance in job attachment.

## 7.3.2 Organisation Commitment

Organisation commitment is an established indicator of an individual's intrinsic motivation and commitment to their organisation (Brown, 1996; Lawler & Hall, 1970; Mathieu & Farr, 1991; Mathieu & Zajac, 1990; Vandenberg, Richardson, & Eastman, 1999). Organisation commitment refers to "the relative strength of an individual's identification with and involvement in a particular organization" (Mowday, Steers, & Porter, 1979:226). As a work related attitude, commitment emphasises psychological attachment to the employing organisation (i.e., individuals stay with the organisation because they want to), including its goals and values. According to Mowday et al. (1979:226), organisational commitment is characterised by three related factors:

1. A strong belief in and acceptance of the organisation's goals and values;
2. A willingness to exert considerable effort on behalf of the organisation; and
3. A strong desire to maintain membership in the organisation.

To measure these related factors, Mowday et al. (1979) devised a nine-item short version of the Organisational Commitment Questionnaire (OCQ), an instrument that has demonstrated good psychometric properties (Angle & Perry, 1981; Brooke, Russell, & Price, 1988; Gaertner & Nollen, 1989; Mathieu & Farr, 1991; Mowday et al., 1979). Factor analyses (varimax rotation) performed on six samples of employees ( $n=2,329$ ) in a wide variety of U.S. work organisations "resulted in a single factor solution" supporting the assertion the OCQ items "are measuring a single common underlying construct" (Mowday et al., 1979:232). The OCQ was correlated (.63 to

.74, median correlation equalled .70) with the Sources of Organizational Attachment Questionnaire providing evidence of the instrument's convergent validity ( $n=2,329$ ). Studies have shown the nine-item version of the OCQ discriminates favourably against job satisfaction and job involvement measures (Brooke et al., 1988; Mathieu & Farr, 1991) and respondents are able to distinguish between "the degree to which they are absorbed or preoccupied with their job (involvement), and the degree of attachment or loyalty they feel toward their employing organisation (commitment) (Brooke et al., 1988:143).

Two items from the OCQ ("I am extremely glad that I chose this university to work for over others I was considering at the time I joined" and "I would accept almost any type of job assignment in order to keep working for this university") were excluded from the analysis on the basis of poor internal validity in the survey pilot ( $n=189$ ). To examine the factor structure after item exclusion, a principal-components factor analysis (varimax rotation) was performed on the remaining seven items from the OCQ. Table 7.7 provides a rotated factor matrix for the two-factor commitment solution.

**Table 7.7**  
**Rotated Factor Matrix for Organisation Commitment Variables<sup>a</sup>**

Variable	Factor 1	Factor 2
I talk about this university to my friends as a great place to work (OC1)	.80	.13
This university really inspires the very best in me (OC2)	.81	.18
I find that my values and the university's values are similar (OC3)	.73	.16
I am proud to tell others that I am part of this university (OC4)	.78	.33
For me, this is the best of all possible universities for which to work (OC5)	.80	.10
I really care about the fate of this university (OC6)	.34	.76
I am willing to put in a great deal of effort to help this university (OC7)	.01	.90
Eigenvalues	3.68	1.09
Variance	52.6	15.6
Cumulative Variance	52.6	68.2

<sup>a</sup> Principal components factor analysis (varimax rotation with Kaiser normalisation)

Eigenvalues and a scree plot indicated two factors summarised the seven variables adequately accounting for 68 per cent of explained variance (eigenvalues of 3.68 and 1.09 respectively). As can be seen in Table 7.7, five variables loaded strongly on factor one (membership commitment) and two variables on factor two (affective

commitment). Communalities for each variable after factor extraction exceeded .56 indicating the extracted factors explained a significant degree of variable variance.

Table 7.8 presents results for the two-factor organisation commitment measurement model. The two-factor commitment model provided a good and acceptable fit to the data yielding the following results:  $\chi^2$  (13, n=1041) = 76.87,  $p < .001$ , GFI=.98, AGFI=.96, RMSR=.03. By comparison, the independence model provided a very poor fit to the data producing the following results:  $\chi^2$  (21, n=1041) = 2,854.53,  $p < .001$ , GFI=.44, AGFI=.26, RMSR=.44. Relatively high factor loadings (standardised regression co-efficients) and  $R^2$  (squared multiple correlations) estimates provided support for Factor 1, Mowday et al.'s (1979) membership commitment factor.

**Table 7.8**  
**Confirmatory Factor Analysis (AMOS Maximum-Likelihood) for the Two-Factor Organisation Commitment Measurement Model<sup>a</sup>**

Construct	Factor Loading	Standard Error	Residual <sup>*</sup>	$R^2$ <sup>**</sup>
<b>Membership Commitment</b>				
13b. I find that my values and the university's values are similar. (OC3)	.82	.03	.56	.44
9b. For me, this is the best of all possible universities for which to work. (OC5)	.78	.03	.46	.54
1b. I talk about this university to my friends as a great place to work. (OC1)	.75	.03	.44	.56
25b. I am proud to tell others that I am part of this university.(OC4)	.73	.03	.33	.67
18b. This university really inspires the very best in me in the way of job performance. (OC2)	.67	.03	.40	.60
<b>Affective Commitment</b>				
5b. I really care about the fate of this university. (OC6)	.89	.05	.20	.80
21b. I am willing to put in a great deal of effort beyond that normally expected to help this university be successful. (OC7)	.52	.04	.73	.27

<sup>a</sup> Organisational Commitment ( $\chi^2 = 76.87$ ,  $df = 13$ ,  $p < .001$ , GFI = .98, AGFI = .96, RMSR = .03).

<sup>\*</sup> Standardised weights (error terms) for each observed variable.

<sup>\*\*</sup> Squared multiple correlations.

Less empirical support (given the omission of two OCQ items) was found for Factor 2, the affective commitment factor. However, the relationship between affective and



membership commitment was positive and significant (.58,  $p < .001$ ) and weak cross-factor loadings indicated items were measuring distinct and separate factors.

### 7.3.2.1 Membership Commitment

Four items in this factor measure the degree to which an individual expresses a strong desire to maintain membership of the organisation (Mowday et al., 1979:226). The desire to remain employed in an organisation is a strong indicator of psychological commitment (Balfour & Wechsler, 1991). An individual academic expressing membership commitment talks about the university to friends "as a great place to work" (OC1), has values similar to that of the university (OC3), is "proud to tell others that they are part of the university" (OC4), and regards the university as "the best of all possible universities for which to work" (OC5). A fifth related item indicates membership commitment is strengthened when individuals feel the university "really inspires the very best in them in the way of job performance" (OC2). These five items explained 39.5 per cent of the total variance in membership commitment.

### 7.3.2.2 Affective Commitment

Two items in this factor measure the degree of emotional attachment to the organisation (Mowday et al., 1979). Individual academics expressing affective commitment "really care about the fate of their university" (OC6). This item is a strong indicator of psychological attachment and in turn has implications for the continuing participation of the individual in the organisation (Meyer & Allen, 1991). A less salient indicator of affective commitment is 'extra-role behaviour' and the extent to which an academic is "willing to put in a great deal of effort beyond that normally expected to help the university be successful" (OC7). These two items accounted for 42.9 per cent of the total variance in affective commitment.

## 7.4 Relationships Among and Between Factors

Table 7.9 presents reliabilities and Pearson's correlation co-efficients for work environment and work attitude factor variables. To illustrate relationships among and between factors, correlations greater than or equal to .40 ( $p < .01$ ) inferred strong correlations, between .20 and .39 ( $p < .01$ ) moderate correlations, and below .20 ( $p < .01$ ) weak correlations (Stevens, 1996:371). Cronbach alpha co-efficients ranged from .54 (academic pressures) to .91 (supportive leadership). Fifteen of the nineteen factor variables exceeded or approximated Nunnally's (1978) .70 criterion for adequate reliability. Four factor variables exhibited moderate internal consistency: (1) academic pressures ( $\alpha = .54$ ), (2) task identity ( $\alpha = .58$ ), (3) role conflict ( $\alpha = .61$ ), and (4) affective commitment ( $\alpha = .63$ ). The small number of items for each weighted factor may account for their moderate reliabilities.

As the correlation matrix (Table 7.9) indicates, work environment-organisation commitment associations were generally stronger and more significant than work environment-job involvement associations. Of the thirty-five work environment-organisation commitment correlations, eight were classified as strong ( $\geq .40$ ,  $p < .01$ ), eighteen moderate ( $\geq .20$  to  $\leq .39$ ,  $p < .01$ ), and nine weak ( $< .20$ ,  $p < .01$ ). By contrast, of the thirty-one work environment-job involvement correlations, two were classified as strong, eight moderate, and twenty-one weak. Consequently, work environment-work attitude hypotheses were often supported by strong commitment correlations and not supported by weak, and/or non-significant correlations with job involvement.

Pearson's correlation co-efficients for work environment-organisation commitment associations revealed similar signs and degrees of magnitude as reported in previous studies (DeCotiis & Summers, 1987; Fisher & Gitelson, 1983; Mathieu & Zajac, 1990; Spector, 1986) including those reported in the survey pilot conducted eleven months earlier (Winter, Sarros, & Tanewski, 1998b:5). Work environment-job involvement correlations were generally weaker than those reported in previous studies (Brown, 1996). Results suggest organisation commitment in academe is a function of the immediate work environment, while job involvement is more an interactive function of personal (e.g., work ethic, self-esteem) and environmental factors (Blau, 1987:252).

**Table 7.9**  
**Cronbach Alpha Reliabilities and Correlation Co-Efficients for Work Environment**  
**and Work Attitude Factors (N=1,041)**

Factors <sup>a</sup>	$\alpha$	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16	F17	F18	F19
<b>Work Environment</b>																				
Role Stress																				
Role Ambiguity - F1	.83	1.00																		
Role Conflict - F2	.61	.39	1.00																	
Role Overload - F3	.71	.30	.48	1.00																
<b>Job Characteristics</b>																				
Autonomy - F4	.73	-.46	-.31	-.27	1.00															
Task Identity - F5	.58	-.39	-.31	-.35	.53	1.00														
Feedback - F6	.70	-.56	-.29	-.26	.24	.22	1.00													
Job Challenge - F7	.83	-.46	-.24	-.04	.55	.37	.34	1.00												
<b>Considerate Supervision</b>																				
Supportive Leadership - F8	.91	-.49	-.33	-.18	.36	.23	.55	.33	1.00											
Considerate Behaviour - F9	.77	-.52	-.38	-.27	.26	.23	.69	.33	.75	1.00										
Lack of Consideration - F10	.71	-.36	-.38	-.17	.25	.20	.40	.28	.69	.58	1.00									
<b>Organisation Structure</b>																				
Hierarchy of Authority - F11	.76	.37	.34	.15	-.50	-.30	-.29	-.40	-.42	-.30	-.38	1.00								
Participation - F12	.84	-.39	-.05	.05	.32	.17	.35	.39	.41	.36	.34	-.38	1.00							
Formalisation - F13	.69	.04	.23	.14	-.20	-.10	-.02	-.10	-.14	-.05	-.13	.47	-.05	1.00						
<b>Sectoral Changes</b>																				
Corporate Reforms - F14	.82	.14	.29	.29	-.20	-.20	-.12	-.08	-.14	-.13	-.14	.26	.05	.30	1.00					
Academic Pressures - F15	.54	.16	.18	.19	-.18	-.15	-.07	-.08	-.10	-.08	-.09	.22	-.06	.18	.55	1.00				
<b>Work Attitudes</b>																				
<b>Job Involvement</b>																				
Job Involvement - F16	.87	-.11	.01	.11	.11	.08	.08	.25	.04	.04	.08	-.10	.16	.03	.13	-.07	1.00			
Job Attachment - F17	.69	-.28	-.10	.09	.29	.21	.18	.48	.22	.17	.20	-.29	.25	.00	.01	.05	.58	1.00		
<b>Organisation Commitment</b>																				
Member Commitment - F18	.86	-.47	-.39	-.31	.39	.31	.44	.48	.47	.46	.38	-.51	.34	-.21	-.23	-.15	.15	.39	1.00	
Affective Commitment - F19	.63	-.28	-.11	-.04	.16	.15	.20	.31	.27	.23	.21	-.26	.25	-.03	.03	-.01	.28	.51	.49	1.00

<sup>a</sup> For all correlations, if  $r \geq .08$ ,  $p < .05$  (2-tailed);  $r \geq .10$ ,  $p < .01$  (2-tailed)

### 7.4.1 Relationships Among Work Environment Factors

Role ambiguity correlated negatively and strongly with feedback ( $r = -.56$ ,  $p < .01$ ), job challenge ( $r = -.46$ ,  $p < .01$ ), autonomy ( $r = -.46$ ,  $p < .01$ ) job characteristics and negatively and strongly with supportive leadership ( $r = -.49$ ,  $p < .01$ ) and considerate (leader) behaviour ( $r = -.52$ ,  $p < .01$ ). Negative correlations suggest role ambiguity moderates the level of job enrichment and the effects of supervisory consideration at work (French & Caplan, 1973; Frost, 1983; Jackson & Schuler, 1985).

Hierarchy of authority correlated negatively and strongly with job challenge ( $r = -.40$ ,  $p < .01$ ) and autonomy ( $r = -.50$ ,  $p < .01$ ) job characteristics. This result suggests academics that report low levels of hierarchy (centralisation) at work will also report high levels of job challenge and autonomy. Employee creativity studies indicate individuals produce their most creative work in non-hierarchical (controlling) work environments and when engaged on complex, challenging job tasks (Amabile, Conti, Coon, Lazenby, & Herron, 1996; Oldham & Cummings, 1996).

Feedback and considerate supervision correlated strongly and positively across all three factors (.40, .55, .69,  $p < .01$ ). This association may be explained by the fact that one of the three feedback items has the supervisor as its referent point ("I receive feedback from my supervisor on how well I'm doing my job", FB1) and another item infers a supervisor's intervention ("Information about how my job performance will be evaluated has been directly communicated to me", FB2).

Sectoral changes and formalisation showed generally weak to moderate associations with other work environment factors.

### 7.4.2 Relationships Among Work Attitude Factors

**Hypothesis 1a** was supported, the more job involvement academics express, the greater their organisation commitment.

**Hypothesis 1b** was supported, the less organisation commitment academics express, the lower their job involvement.

The job attachment factor correlated moderately and strongly with membership commitment and affective commitment factors ( $r = .39, .51, p < .01$ ). Job involvement correlated weakly and moderately with membership commitment and affective commitment factors ( $r = .15, .28, p < .01$ ). These positive associations suggest academics engaged in their jobs also express a strong attachment to their universities (Brown, 1996:239). Similarly, academics expressing low levels of organisation commitment are also likely to express a sense of detachment (alienation) from their jobs.

### 7.4.3 Relationships Between Work Environment and Work Attitude Factors

#### 7.4.3.1 Role Stress and Job Involvement

**Hypothesis 2a**, the more role ambiguity, role conflict, and role overload academics perceive, the lower their job involvement, received only limited support.

Results indicated generally weak and inconsistent associations between role stress characteristics and job involvement factors. Role ambiguity and role conflict correlated negatively and significantly with job attachment ( $r = -.28, -.10, p < .01$  respectively). Role ambiguity had a weak, but significant negative effect on job involvement ( $r = -.11, p < .01$ ) whilst role overload had a weak, but significant positive effect on job involvement ( $r = .11, p < .01$ ) and job attachment ( $r = .09, p < .05$ ).

Results support Brown's (1996:235) assertion job involvement is influenced more by personality and situational variables (i.e., job characteristics, participation) rather than role perceptions. In meta-analyses of 51 pairwise relationships involving job involvement (212 studies, 249 independent samples), Brown (1996:243) reported "neither role conflict nor role ambiguity was significantly related to job involvement in the overall analysis". Role ambiguity and role conflict correlated weakly and negatively with job involvement ( $r = -.16, -.17, p < .01$ ) suggesting "these adverse role perceptions have smaller negative effects on job involvement than they do on other job attitudes, such as job satisfaction and organizational commitment" (Brown, 1996:243).

### 7.4.3.2 Role Stress and Organisation Commitment

**Hypothesis 2b** was supported, the more role ambiguity, role conflict, and role overload academics perceive, the lower their organisation commitment.

Significant negative correlations were recorded between role stress characteristics and organisation commitment factors. Role ambiguity, role ambiguity, and role overload correlated negatively and significantly with membership commitment ( $r = -.47, -.39, -.31, p < .01$ ). Role ambiguity and role conflict correlated less strongly with affective commitment ( $r = -.28, -.11, p < .01$ ).

Role perceptions have generally been considered antecedents of organisational commitment (Mowday, Porter, & Steers, 1982). Mathieu and Zajac's (1990) meta-analyses of the antecedents of organisation commitment (124 studies, 174 samples) support the contention employees who report greater levels of role stress also tend to report lower levels of organisation commitment. In their meta-analysis, role ambiguity and role conflict correlated negatively and moderately with organisation commitment ( $r = -.24, -.27, p < .01$ ) whilst role overload correlated negatively and less significantly with commitment ( $r = -.14, p < .05$ ).

### 7.4.3.3 Job Characteristics and Job Involvement

**Hypothesis 3a** was supported, the more autonomy, task identity, feedback, and job challenge academics perceive, the greater their job involvement.

Job characteristics were significantly and positively correlated with job involvement factors. Job challenge correlated strongly and significantly with job attachment ( $r = .48, p < .01$ ) and more moderately with job involvement ( $r = .25, p < .01$ ). Autonomy and task identity correlated moderately with job attachment ( $r = .29, .21, p < .01$ ) but weakly with job involvement ( $r = .11, .08, p < .01, p < .05$  respectively). Feedback correlated moderately and significantly with job attachment ( $r = .18, p < .01$ ) but weakly with job involvement ( $r = .08, p < .05$ ). Brown (1996:242) reported similar but stronger positive correlations in his meta-analysis of job characteristics and job involvement relationships (autonomy,  $r = .22, p < .01$ ; task identity,  $r = .21, p < .01$ ; feedback,  $r = .28, p < .01$ ; job challenge,  $r = .47, p < .01$ ).

#### 7.4.3.4 Job Characteristics and Organisation Commitment

**Hypothesis 3b** was supported, the more autonomy, task identity, feedback, and job challenge academics perceive, the greater their organisation commitment.

Job characteristics correlated positively and significantly with organisation commitment factors. Autonomy, task identity, feedback, and job challenge characteristics correlated moderately and strongly with membership commitment ( $r = .39, .31, .44, .48$ ) and weakly and moderately with affective commitment ( $r = .16, .15, .20, .31$ ). All correlations were significant at the .01 level of significance (two-tailed). Mathieu and Zajac's (1990:175) meta-analysis found autonomy and job challenge correlated positively and significantly with organisation commitment ( $r = .15, .23, p < .01$ ). Winter et al.'s (2000:286) exploratory study of the quality of academic work life within a comprehensive Australian university ( $n=189$ ) also found job characteristics to correlate positively and significantly with organisation commitment ( $r = .22, .30, .34, .41, p < .01$ ).

#### 7.4.3.5 Supervisory Consideration and Job Involvement

**Hypothesis 4a**, the more supportive leadership and considerate behaviour academics perceive, the greater their job involvement, received only limited support.

Supportive leadership, lack of consideration and considerate behaviour factors correlated moderately and significantly with the job attachment factor ( $r = .22, .20, .17, p < .01$ ) but showed little association with the job involvement factor ( $r = .04, .08, .04$ ). This finding differs markedly to Brown's (1996:242) overall results in which supervisory consideration had a moderate but significant positive correlation with job involvement ( $r = .27, p < .01$ ).

#### 7.4.3.6 Supervisory Consideration and Organisation Commitment

**Hypothesis 4b** was supported, the more supportive leadership and considerate behaviour academics perceive, the greater their organisation commitment.

The supportive leadership, considerate behaviour and lack of consideration factors correlated positively and strongly with membership commitment ( $r = .47, .46, .38, p < .01$ ) and positively and moderately with affective commitment ( $r = .27, .23, .21, p < .01$ ). Mathieu and Zajac's (1990:175) meta-analyses of research on organisation commitment, based on findings across twelve separate samples ( $n=2,642$ ), also reported a positive association between leader consideration and organisation commitment ( $r = .33, p < .01$ ). Considerate leadership, it seems, provides professional employees with the psychological support they need to cope with complex job demands. This support enhances both membership and affective commitment to the organisation (Gaertner & Nollen, 1989; Zeffane, 1994).

#### 7.4.3.7 Organisation Structure and Job Involvement

**Hypothesis 5a** was supported, the more hierarchy of authority academics perceive, the lower their job involvement.

Hierarchy of authority correlated negatively and significantly with the job attachment factor ( $r = -.29, p < .01$ ) and weakly with the job involvement factor ( $r = -.10, p < .01$ ).

**Hypothesis 6a** was supported, the more participation in decision making academics perceive, the greater their job involvement.

Participation in decision making correlated positively and significantly with job attachment ( $r = .25, p < .01$ ) and job involvement ( $r = .16, p < .01$ ) factors. Previous studies have reported a strong positive association between participation and job involvement (Brown, 1996; Spector, 1986). In Spector (1986:1012) and Brown's (1996:242) meta-analyses, participation correlated strongly with job involvement ( $r = .50, .55, p < .05, n=5,866, n=7,577$  respectively).

**Hypothesis 7a**, the more formalisation academics perceive, the lower their job involvement, was not supported.

**Hypothesis 8a**, the more formalisation academics perceive, the greater their job involvement, was not supported.



The relationship between formalisation and job involvement factors was weak and non-significant ( $r = .03, .00$ ) thus providing no support for Hypotheses 7a and 8a. A non-significant relationship between formalisation and job involvement supports Brown's (1996) review of organisation research on job involvement in which formalisation is not classified as a structural antecedent.

#### 7.4.3.8 Organisation Structure and Organisation Commitment

**Hypothesis 5b** was supported, the more hierarchy of authority academics perceive, the lower their organisation commitment.

Significant negative correlations were recorded between hierarchy of authority and organisation commitment factors ( $r = -.51, -.26, p < .01$ ). A number of studies have reported hierarchy to be negatively associated with organisation commitment (Brooke et al., 1988; DeCotiis & Summers, 1987). Winter et al. (2000:286) reported a significant negative correlation between hierarchy and organisation commitment ( $r = -.32, p < .01$ ) based on a sample of university academics ( $n=189$ ).

**Hypothesis 6b** was supported, the more participation in decision making academics perceive, the greater their organisation commitment.

Participation correlated positively and significantly with both membership and affective commitment factors ( $r = .34, .25, p < .01$ ). Bateman and Strasser (1984), Gaertner and Nollen (1989) and Spector (1986) reported moderate to strong positive correlations between participation and commitment across a variety of occupational groups ( $n=374, n=496, n=184$  respectively).

**Hypothesis 7b**, the more formalisation academics perceive, the lower their organisation commitment, received only limited support.

**Hypothesis 8b**, the more formalisation academics perceive, the greater their organisation commitment, was not supported.

Formalisation correlated negatively and significantly with membership commitment ( $r = -.21, p < .01$ ) but correlated weakly and non-significantly with affective commitment ( $r = -.03$ ). A negative formalisation commitment relationship supports Oldham and Hackman's (1981) findings of the relationship between organisation

structure and employee reactions to the work context ( $n=2,960$ ). In their study of 428 jobs in 36 organisations, formalisation related negatively and significantly to employee's internal motivation ( $r = -.14, p < .05$ ) and job satisfaction ( $r = -.16, p < .05$ ). Based on a sample of Australian academics ( $n=189$ ), Winter et al. (2000:286) reported a moderate but significant negative correlation between formalisation and organisation commitment ( $r = -.18, p < .05$ ).

#### 7.4.3.9 Sectoral Changes and Job Involvement

**Hypothesis 9a**, the greater the perceived impact of corporate reforms on academic work, the lower the job involvement of academics, was not supported.

Corporate reforms correlated positively and significantly with the job involvement factor ( $r=.13, p < .01$ ) and showed little association with the job attachment factor ( $r=.01$ ) thus providing no support for Hypothesis 9a.

**Hypothesis 9c**, the more academic pressures academics perceive, the lower the job involvement of academics, was not supported.

The relationship between academic pressures and job involvement was weak and inconsistent ( $r = -.07, .05$ ) thus providing no support for Hypothesis 9c.

#### 7.4.3.10 Sectoral Changes and Organisation Commitment

**Hypothesis 9b**, the greater the perceived impact of corporate reforms on academic work, the lower the organisation commitment of academics, received only limited support.

The relationship between corporate reforms and membership commitment was negative and significant ( $r=-.23, p < .01$ ) but positive and non-significant with affective commitment ( $r=.03$ ) thus proving limited support for Hypothesis 9b. Previous studies exploring the impact of corporate reforms in academe suggest reforms have exerted a negative effect on the morale (Currie, 1996; Taylor et al., 1998) and organisation commitment (Martin, 1999; Winter et al., 2000) of Australian academics.

**Hypothesis 9d**, the more academic pressures academics perceive, the lower the organisation commitment of academics, received only limited support.

The relationship between academic pressures and membership commitment was negative and significant ( $r = -.15$ ,  $p < .01$ ), but there was little association between academic pressures and affective commitment ( $-.01$ ) thus providing limited support for Hypothesis 9d.

## 7.5 Summary

### 7.5.1 Validity of Survey Measures

This chapter has reported confirmatory factor analysis (CFA) results for work environment and work attitude measurement models. Strong multiple correlations ( $>.30$ ,  $p < .001$ ) and significant standardised factor co-efficients (greater than twice their standard errors) indicated observed variables loaded adequately on their respective factors (i.e., measures were valid and unidimensional).

Table 7.10 provides a summary of CFA results for each measurement model. As indicated, all goodness of fit indices reflected acceptable measurement model fit to the observed data.

**Table 7.10**  
**Summary of Confirmatory Factor Analysis Results**

Model	$\chi^2$	df	p	GFI	AGFI	RMSR
Role Stress	263.56	41	.000	.95	.92	.05
Job Characteristics	470.50	71	.000	.93	.90	.05
Supervisory Consideration	430.99	74	.000	.94	.91	.04
Organisation Structure	406.74	62	.000	.94	.91	.06
Sectoral Changes	300.40	34	.000	.94	.91	.05
Job Involvement	242.66	34	.000	.95	.92	.05
Organisation Commitment	76.87	13	.000	.98	.96	.03

GFI = Goodness of fit index, AGFI = Adjusted goodness of fit index, RMSR = Root mean square residual.

### 7.5.2 Factor Relationships

Correlations were computed to assess relationships among and between work environment and work attitude factors (see Table 7.9). On the basis of reported

correlations, hypotheses were supported or not supported. Table 7.11 presents a summary of the degree of support for research hypotheses.

**Table 7.11**  
**Degree of Support for Research Hypotheses**

Research Hypotheses	Degree of Support
H1a: the more job involvement academics express, the greater their organisation commitment.	Support
H1b: the less organisation commitment academics express, the lower their job involvement.	Support
H2a: the more role ambiguity, role conflict, and role overload academics perceive, the lower their job involvement.	Limited Support
H2b: the more role ambiguity, role conflict, and role overload academics perceive, the lower their organisation commitment.	Support
H3a: the more autonomy, task identity, feedback, and job challenge academics perceive, the greater their job involvement.	Support
H3b: the more autonomy, task identity, feedback, and job challenge academics perceive, the greater their organisation commitment.	Support
H4a: the more supportive leadership and considerate behaviour academics perceive, the greater their job involvement.	Limited Support
H4b: the more supportive leadership and considerate behaviour academics perceive, the greater their organisation commitment.	Support
H5a: the more hierarchy of authority academics perceive, the lower their job involvement.	Support
H5b: the more hierarchy of authority academics perceive, the lower their organisation commitment.	Support
H6a: the more participation in decision making academics perceive, the greater their job involvement.	Support
H6b: the more participation in decision making academics perceive, the greater their organisation commitment.	Support
H7a: the more formalisation academics perceive, the lower their job involvement.	No Support
H7b: the more formalisation academics perceive, the lower their organisation commitment.	Limited Support
H8a: the more formalisation academics perceive, the greater their job involvement.	No Support
H8b: the more formalisation academics perceive, the greater their organisation commitment.	No Support
H9a: the greater the perceived impact of corporate reforms on academic work, the lower the job involvement of academics.	No Support
H9b: the greater the perceived impact of corporate reforms on academic work, the lower the organisation commitment of academics.	Limited Support
H9c: the more academic pressures academics perceive, the lower the job involvement of academics.	No Support
H9d: the more academic pressures academics perceive, the lower the organisation commitment of academics.	Limited Support

Of the twenty stated hypotheses (see Table 7.11), ten were supported, five received limited support and five were not supported. Three formalisation-work attitude hypotheses were not supported (H7a, H8a, H8b) and one hypothesis received only limited support (H7b) suggesting formalisation is not associated with high or low levels of intrinsic motivation for Australian academics. Two sectoral change-job involvement hypotheses were not supported (H9a, H9c) suggesting corporate reforms and associated academic pressures do not influence the job involvement of Australian academics.

Work environment-job involvement factor relationships were of a lower magnitude than work environment-job attachment factor relationships. Job involvement correlated moderately with one work environment variable: job challenge ( $r=.25$ ,  $p<.01$ ). In contrast, job attachment correlated strongly with job challenge ( $r=.48$ ,  $p<.01$ ), and moderately and positively with autonomy, task identity, participation and supervisory consideration factors ( $r = .29, .21, .25, .22, .17, .20$ ,  $p<.01$ ). Correlations indicated the more positive job characteristics, participation in decision making, and considerate supervision academics perceive, the greater their job attachment. A moderately negative correlation between role ambiguity and job attachment ( $r=-.28$ ,  $p<.01$ ) suggests role ambiguity reduces the job attachment of academics.

Work environment-membership commitment factor associations were of a higher magnitude than work environment-affective commitment associations. Six strongly significant work environment-membership commitment correlations were reported. Job challenge, feedback, supportive leadership and considerate behaviour correlated strongly with membership commitment ( $r = .48, .44, .47, .46$ ,  $p<.01$ ) indicating the more job challenge, feedback and considerate supervision academics perceive, the greater their commitment to the university. Hierarchy of authority correlated strongly and negatively with membership commitment ( $r = -.51$ ,  $p<.01$ ) suggesting the more university centralisation academics perceive, the lower their commitment to the university. Role ambiguity, role conflict and role overload correlated negatively with membership commitment ( $r = -.47, -.39, -.31$ ,  $p<.01$ ) indicating the more role stress academics report, the lower their organisation commitment.

## CHAPTER EIGHT

### MULTIPLE REGRESSION ANALYSIS

#### 8.1 Introduction

This chapter presents results of multiple regression analyses to determine significant predictors of academics' work attitudes (Research Question Four). Hierarchical (sequential) regression analyses are carried out to assess the share of explained work attitude variance by demographic variables, associated work attitude factors, and work environment factors (Tabachnick & Fidell, 1996:185-191).

The order of entry of variables and factors into the regression equations reflected logical and theoretical considerations. That is, so-called 'nuisance' variables were given higher priority for entry and entered first (Tabachnick & Fidell, 1996:149). Next, the main set of work environment factors were entered according to how research hypotheses had been presented based on a discussion of the extant literature (see Chapter 2). On this basis, personal and professional control variables were entered in the first and second stages respectively, work attitudes in the third stage, role stress factors in the fourth stage, job characteristics in the fifth stage, supervisory style in the sixth stage, organisation structure in the seventh stage, and sectoral changes in the eighth stage. Model summary and analysis of variance (ANOVA) statistics are presented at each stage to examine the incremental variations in work attitude measures explained by the predictors.

#### 8.2 Job Involvement

Table 8.1 displays results of the regressions for job involvement factors. Unstandardised (B) and standardised regression co-efficients ( $\beta$ ) indicate the strength of the linear relationship between predictor and job involvement factors. The proportion of variance explained and the significance of the regression equation after entry of predictor variables are indicated by Adjusted  $R^2$  and F statistics.

**Table 8.1**  
**Hierarchical Regression Analysis for Prediction of Job Involvement and Job Attachment by Demographic Variables, Organisation Commitment, and Work Environment Factors**

Predictors	Job Involvement				Job Attachment			
	B	SE	$\beta$	t	B	SE	$\beta$	t
<b>Step 1: Personal<sup>a</sup></b>								
Male	.12	.05	.15	2.46*	.00	.05	.05	.81
Female	-.13	.04	-.18	-2.94**	-.01	.04	-.10	-1.66
Adj.R <sup>2</sup> = .01, F(5,822) = 2.36					Adj.R <sup>2</sup> = .01, F(5,828) = 2.50			
<b>Step 2: Professional<sup>b</sup></b>								
Associate Lecturer	-.33	.12	-.45	-2.76**	-.35	.12	-.50	-2.92**
Lecturer	-.20	.07	-.28	-2.98**	-.17	.07	-.26	-2.57*
Senior Lecturer	-.17	.06	-.23	-2.64**	-.12	.06	-.18	-1.94
Associate Professor	.34	.08	.46	3.93***	.32	.08	.46	3.73***
Professor	.32	.10	.44	3.18**	.28	.10	.41	2.87**
Masters degree	-.14	.08	-.18	-1.80	-.21	.08	-.26	-2.71**
Teaching only	-.47	.13	-.29	-3.70***	-.38	.12	-.20	-3.06***
Adj.R <sup>2</sup> = .09, F(32,795) = 3.46					Adj.R <sup>2</sup> = .08, F(32,801) = 3.17			
<b>Step 3: Commitment</b>								
Membership commitment	.00	.05	.06	1.25	.10	.04	.10	2.73**
Affective commitment	.27	.04	.27	7.13***	.42	.03	.42	13.58***
Adj.R <sup>2</sup> = .18, F(34,793) = 6.27***					Adj.R <sup>2</sup> = .39, F(34,799) = 16.39***			
<b>Step 4: Role Stress</b>								
Role ambiguity	-.01	.03	-.08	-2.18*	-.26	.03	-.26	-7.93***
Role conflict	.01	.03	.08	2.28*	.13	.03	.13	3.91***
Role overload	-.01	.03	-.06	-1.87	-.12	.03	-.12	-3.82***
Adj.R <sup>2</sup> = .18, F(37,790) = 5.96***					Adj.R <sup>2</sup> = .41, F(37,796) = 16.41***			
<b>Step 5: Job Characteristics</b>								
Job challenge	.16	.04	.16	4.29***	.32	.03	.33	9.56***
Feedback	.00	.04	.01	.37	.00	.04	.04	1.08
Task identity	.01	.04	.08	1.93	.16	.04	.17	4.46***
Autonomy	-.00	.04	-.00	-.02	.00	.04	.06	1.48
Adj.R <sup>2</sup> = .19, F(41,786) = 5.72***					Adj.R <sup>2</sup> = .47, F(41,792) = 18.85***			
<b>Step 6: Supervision</b>								
Supportive leadership	-.10	.06	-.10	-1.70	.00	.05	.02	.46
Considerate behaviour	-.00	.06	-.02	-.36	-.00	.05	-.06	-1.12
Lack of consideration	.11	.05	.11	2.35*	.01	.04	.09	2.19*
Adj.R <sup>2</sup> = .20, F(44,783) = 5.62***					Adj.R <sup>2</sup> = .47, F(44,789) = 17.83***			
<b>Step 7: Structure</b>								
Hierarchy of authority	-.01	.04	-.01	-.21	-.01	.03	-.09	-2.42*
Participation	-.01	.05	-.08	-1.81	-.00	.04	-.04	-.95
Formalisation	.00	.04	.00	.13	.00	.03	.05	1.73
Adj.R <sup>2</sup> = .20, F(47,780) = 5.45***					Adj.R <sup>2</sup> = .48, F(47,786) = 17.08***			
<b>Step 8: Sectoral Changes</b>								
Corporate reforms	.14	.04	.14	3.22**	.11	.04	.11	2.89**
Academic pressures	.00	.05	.04	1.14	-.12	.04	-.10	-2.73**
Adj.R <sup>2</sup> = .21, F(49,778) = 5.55***					Adj.R <sup>2</sup> = .48, F(49,784) = 16.72***			

B = unstandardised regression co-efficients, SE = standard error,  $\beta$  = standardised regression co-efficients.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

<sup>a</sup> Age and gender personal variables.

<sup>b</sup> Qualifications, current position, contract basis, contract hours, primary work role, years in university, years in higher education, discipline area, university type professional variables.

With all demographic, organisation commitment, and work environment predictors in the equations (step eight), personal and professional variables, organisation commitment, role stress, job characteristics, supervisory style, organisation structure, and sectoral change factors accounted for 21 per cent of the variance in job involvement and 48 per cent of the variance in job attachment. A Durbin-Watson test statistic of 2.09 for each job involvement factor indicated residuals were not correlated suggesting error terms were independent of each other (Selvanathan, Selvanathan, Keller, & Warrack, 2000:706).

In *Step One* (with age and gender in the equation), gender (females) weakly but significantly predicted job involvement ( $\beta = -.18$ ,  $p < .01$ ) but not job attachment. Less significantly, males positively predicted job involvement ( $\beta = .15$ ,  $p < .05$ ). Age displayed no linear relationship with job involvement. Personal variables accounted for a small percentage of the variance in job involvement factors (Adjusted  $R^2 = .01$ ).

*Step Two* (i.e., qualifications, position, contract basis, contract hours, primary role, years in university, years in higher education, discipline area, university type) indicated academic position was a strong predictor of job involvement factors. Associate professor and professorial positions significantly and positively predicted job involvement ( $\beta = .46$ ,  $.44$ ,  $p < .001$ ,  $p < .01$  respectively) and job attachment ( $\beta = .46$ ,  $.41$ ,  $p < .001$ ,  $p < .01$  respectively). In contrast, associate lecturer and lecturer positions significantly and negatively predicted job involvement ( $\beta = -.45$ ,  $-.28$ ,  $p < .01$  respectively) and job attachment ( $\beta = -.50$ ,  $-.26$ ,  $p < .01$ ,  $p < .05$  respectively). The senior lecturer position significantly and negatively predicted job involvement ( $\beta = -.23$ ,  $p < .01$ ). The variable masters degree (qualifications) significantly and negatively predicted job attachment ( $\beta = -.26$ ,  $p < .01$ ). The variable 'teaching only' significantly and negatively predicted job involvement ( $\beta = -.29$ ,  $p < .001$ ) and job attachment ( $\beta = -.20$ ,  $p < .01$ ). Changes to Adjusted  $R^2$  statistics indicated professional variables explained a significant amount of variance in job involvement and job attachment factors (8 and 7 per cent respectively).

In *Step Three* (i.e., membership commitment, affective commitment), affective commitment significantly and positively predicted job involvement and job attachment ( $\beta = .27$ ,  $.42$ ,  $p < .001$  respectively). Less significantly, membership commitment weakly



predicted job attachment ( $\beta=.10$ ,  $p<.01$ ). Results indicated support for **Hypothesis 1b** (the less organisation commitment academics express, the lower their job involvement). Change statistics indicated organisation commitment factors contributed a further 31 per cent to the variance in job attachment ( $\Delta\text{Adjusted } R^2=.31$ ,  $\Delta F=202.39$ ,  $p<.001$ ) and a further 9 per cent to the variance in job involvement ( $\Delta\text{Adjusted } R^2=.09$ ,  $\Delta F=45.20$ ,  $p<.001$ ).

In *Step Four* (i.e., role ambiguity, role conflict, role overload), role ambiguity and role overload significantly and negatively predicted job attachment ( $\beta=-.26$ ,  $-.12$ ,  $p<.001$  respectively). Less significantly, role ambiguity weakly predicted job involvement ( $\beta=-.08$ ,  $p<.05$ ). Role conflict significantly and positively predicted job attachment ( $\beta=.13$ ,  $p<.001$ ) and job involvement ( $\beta=.08$ ,  $p<.05$ ) factors. Inconsistent role stress-job involvement associations provided limited support for **Hypothesis 2a** (the more role ambiguity, role conflict, and role overload academics perceive, the lower their job involvement). Changes to Adjusted  $R^2$  showed role stress factors contributed a further 2 per cent to the variance in job attachment and an insignificant percentage to the variance in job involvement.

In *Step Five* (i.e., job challenge, feedback, task identity, autonomy), job challenge significantly and positively predicted both job involvement and job attachment ( $\beta=.16$ ,  $.33$ ,  $p<.001$  respectively) whereas task identity significantly and positively predicted job attachment ( $\beta=.17$ ,  $p<.001$ ). Feedback and autonomy job characteristics factors displayed non-significant and weak associations with both job involvement factors. Results indicated limited support for **Hypothesis 3a** (the more autonomy, task identity, feedback, and job challenge academics perceive, the greater their job involvement). Change statistics showed job characteristics contributed a further 6 per cent to the variance in job attachment ( $\Delta\text{Adjusted } R^2=.06$ ,  $\Delta F=23.88$ ,  $p<.001$ ) and 1 per cent to the variance in job involvement ( $\Delta\text{Adjusted } R^2=.01$ ,  $\Delta F=2.98$ ,  $p<.05$ ).

In *Step Six* (i.e., supportive leadership, considerate behaviour, lack of consideration), supportive leadership and considerate behaviour factors showed weak and non-significant relationships with job involvement and job attachment thus providing no support for **Hypothesis 4a** (the more supportive leadership and considerate behaviour academics perceive, the greater their job involvement). Lack of consideration weakly

but significantly predicted job involvement and job attachment ( $\beta=.11$ ,  $.09$ ,  $p<.05$  respectively). Changes in Adjusted  $R^2$  indicated supervisory style contributed 1 per cent of the variance to job involvement but did not reliably improve the job attachment model.

In *Step Seven* (i.e., hierarchy of authority, participation, formalisation), hierarchy of authority weakly, but significantly and negatively predicted job attachment ( $\beta=-.09$ ,  $p<.05$ ) but not job involvement ( $\beta=-.01$ ) thus providing limited support for **Hypothesis 5a** (the more hierarchy of authority academics perceive, the lower their job involvement). Negative, non-significant standardised regression co-efficients for participation and job involvement factors ( $\beta=-.08$ ,  $-.04$  respectively) provided no support for **Hypothesis 6a** (the more participation in decision making academics perceive, the greater their job involvement). Non-significant beta co-efficients ( $\beta=.00$ ,  $.05$ ) provided no support for **Hypothesis 7a** (the more formalisation academics perceive, the lower their job involvement) or **Hypothesis 8a** (the more formalisation academics perceive, the greater their job involvement). Change statistics indicated organisation structure factors contributed a further 1 per cent to the variance in job attachment ( $\Delta\text{Adjusted } R^2=.01$ ,  $\Delta F=3.58$ ,  $p<.05$ ) but did not reliably improve the job involvement model.

In *Step Eight* (i.e., corporate reforms, academic pressures), corporate reforms were positively and significantly related to job involvement and job attachment ( $\beta=.14$ ,  $.11$ ,  $p<.01$  respectively) thus rejecting **Hypothesis 9a** (the greater the perceived impact of corporate reforms on academic work, the lower the job involvement of academics). Academic pressures negatively and significantly predicted job attachment ( $\beta=-.10$ ,  $p<.01$ ) but not job involvement ( $\beta=.04$ ) thus providing limited support for **Hypothesis 9c** (the more academic pressures academics perceive, the lower the job involvement of academics). Change statistics indicated sectoral changes contributed 1 per cent to the variance in job involvement ( $\Delta\text{Adjusted } R^2=.01$ ,  $\Delta F=6.37$ ,  $p<.01$ ) but did not reliably improve the job attachment model.

### 8.3 Organisation Commitment

Table 8.2 displays the results for the prediction of organisation commitment by demographic variables, job involvement and work environment factors. With all predictors in the equation, demographic variables, job involvement and work environment factors accounted for 50 per cent and 38 per cent of the variance in membership commitment and affective commitment respectively. Durbin-Watson test statistics of 1.96 (membership commitment) and 2.03 (affective commitment) indicated residuals were not correlated with each other suggesting independence of adjacent error terms.

*Step One* (i.e., age, gender) indicated personal variables were not strong predictors of organisation commitment accounting for 1 per cent of the variance in affective commitment and zero variance in membership commitment. Gender (females) negatively and significantly predicted affective commitment ( $\beta = -.16, p < .01$ ).

In *Step Two* (i.e., qualifications, position, contract basis, contract hours, primary role, years in university, years in higher education, discipline area, university type), strong positive predictors of both facets of commitment were the associate professor and professor level positions ( $\beta = .27, .31, p < .05$ ;  $\beta = .36, .46, p < .05$ ). In contrast, associate lecturer and lecturer level positions negatively and significantly predicted affective commitment ( $\beta = -.45, -.23, p < .05$ ). The senior lecturer position variable and qualifications variable doctorate degree negatively and significantly predicted membership commitment ( $\beta = -.20, -.23, p < .05$ ). The variable teaching only negatively and significantly predicted membership commitment ( $\beta = -.14, p < .05$ ). The graduate degree variable positively and significantly predicted membership commitment ( $\beta = .34, p < .05$ ). The university type variables sandstone and metropolitan positively and significantly predicted membership commitment ( $\beta = .11, .10, p < .01$ ). The university type variable university of technology negatively and significantly predicted membership commitment ( $\beta = -.07, p < .05$ ). Changes to Adjusted  $R^2$  indicated professional variables contributed 8 per cent to the variance in membership commitment ( $\Delta \text{Adjusted } R^2 = .08$ ) and 3 per cent to the variance in affective commitment ( $\Delta \text{Adjusted } R^2 = .03$ ).

Table 8.2

**Hierarchical Regression Analysis for Prediction of Membership Commitment and Affective Commitment by Demographic Variables, Job Involvement and Work Environment Factors**

Predictors	Membership Commitment				Affective Commitment			
	B	SE	$\beta$	t	B	SE	$\beta$	t
<b>Step 1: Personal<sup>a</sup></b>								
Male	.00	.05	.05	.85	.01	.05	.11	1.82
Female	.00	.04	.02	.37	-.12	.04	-.16	-2.72**
Adj.R <sup>2</sup> = .00, F(5,828) = .67					Adj.R <sup>2</sup> = .01, F(5,822) = 2.76			
<b>Step 2: Professional<sup>b</sup></b>								
Associate Lecturer	-.15	.12	-.22	-1.27	-.32	.12	-.45	-2.65**
Lecturer	-.16	.07	-.23	-2.34*	-.16	.07	-.23	-2.36*
Senior Lecturer	-.14	.06	-.20	-2.15*	-.12	.06	-.17	-1.88..
Associate Professor	.19	.09	.27	2.18*	.23	.09	.31	2.61**
Professor	.25	.10	.36	2.52*	.33	.10	.46	3.28**
Doctorate degree	-.19	.07	-.23	-2.58*	-.14	.08	-.17	-1.89
Graduate degree	.28	.12	.34	2.27*	.13	.12	.16	1.04
Teaching only	-.26	.12	-.14	-2.13**	-.18	.13	-.10	-1.42
Sandstone university	.20	.06	.11	3.20**	-.01	.06	-.01	-.15
Metro. University	.19	.07	.10	2.92**	.00	.07	.03	.89
University of technology	-.14	.07	-.07	-2.05*	.10	.07	.05	1.44
Adj.R <sup>2</sup> = .08, F(32,801) = 3.27**					Adj.R <sup>2</sup> = .04, F(32,795) = 2.20**			
<b>Step 3: Involvement</b>								
Job involvement	-.00	.03	-.00	-.17	.00	.04	.02	.53
Job attachment	.24	.04	.23	6.51***	.52	.04	.51	12.82***
Adj.R <sup>2</sup> = .22, F(34,799) = 8.12***					Adj.R <sup>2</sup> = .33, F(34,793) = 13.18***			
<b>Step 4: Role Stress</b>								
Role ambiguity	-.38	.03	-.39	-12.87***	-.27	.03	-.27	-8.04***
Role conflict	-.18	.03	-.18	-6.06***	.01	.03	.09	2.64**
Role overload	-.26	.03	-.26	-8.83***	-.00	.03	-.02	-.61
Adj.R <sup>2</sup> = .40, F(37,796) = 15.94***					Adj.R <sup>2</sup> = .35, F(37,790) = 13.12***			
<b>Step 5: Job Characteristics</b>								
Job challenge	.26	.03	.26	8.44***	.20	.04	.20	5.47***
Feedback	.21	.03	.21	6.26***	.01	.04	.06	1.57
Task identity	.10	.03	.10	2.94**	.13	.04	.13	3.11**
Autonomy	.01	.03	.08	2.34*	-.10	.04	-.10	-2.32*
Adj.R <sup>2</sup> = .45, F(41,792) = 17.38***					Adj.R <sup>2</sup> = .36, F(41,786) = 12.34***			
<b>Step 6: Supervision</b>								
Supportive leadership	.20	.05	.20	4.12***	.16	.06	.16	2.75**
Considerate behaviour	.00	.05	.02	.43	-.00	.06	-.03	-.51
Lack of consideration	-.00	.04	-.02	-.45	-.00	.05	-.00	-.11
Adj.R <sup>2</sup> = .47, F(44,789) = 17.50***					Adj.R <sup>2</sup> = .37, F(44,783) = 11.88***			
<b>Step 7: Structure</b>								
Hierarchy of authority	-.21	.03	-.22	-6.99***	-.11	.04	-.11	-2.82**
Participation	.17	.04	.16	4.53***	.01	.04	.10	2.09*
Formalisation	-.00	.03	-.05	-1.80	.00	.03	.05	1.48
Adj.R <sup>2</sup> = .50, F(47,786) = 19.04***					Adj.R <sup>2</sup> = .37, F(47,780) = 11.43***			

(continued)

Table 8.2 (continued)

**Hierarchical Regression Analysis for Prediction of Membership Commitment and Affective Commitment by Demographic Variables, Job Involvement and Work Environment Factors**

Predictors	Membership Commitment				Affective Commitment			
	B	SE	$\beta$	t	B	SE	$\beta$	t
<b>Step 8: Sectoral Changes</b>								
Corporate reforms	-.00	.03	-.04	-1.27	.15	.04	.16	3.75***
Academic pressures	.00	.04	.02	.61	-.00	.05	-.02	-.42***
Adj.R <sup>2</sup> = .50, F(49,784) = 18.40					Adj.R <sup>2</sup> = .38, F(49,778) = 11.36***			

B = Unstandardised regression co-efficients, SE = standard error,  $\beta$  = standardised regression co-efficients.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

<sup>a</sup> Age, gender, marital status personal variables.

<sup>b</sup> Qualifications, current position, contract basis, contract hours, primary work role, years in university, years in higher education, discipline area, university type professional variables.

In *Step Three* (i.e., job involvement, job attachment), job attachment positively and significantly predicted membership and affective commitment ( $\beta = .23, .51, p < .001$ ). However, job involvement showed little association with either commitment factor ( $\beta = -.00, .02$ ). Results indicated support for **Hypothesis 1a** (the more job involvement academics express, the greater their organisation commitment). Change statistics indicated job involvement factors contributed a further 14 per cent to the variance in membership commitment ( $\Delta \text{Adjusted } R^2 = .14, \Delta F = 76.00, p < .001$ ) and 29 per cent to the variance in affective commitment ( $\Delta \text{Adjusted } R^2 = .29, \Delta F = 173.49, p < .001$ ).

In *Step Four* (i.e., role ambiguity, role conflict, role overload), role ambiguity, role conflict, and role overload negatively and significantly predicted membership commitment ( $\beta = -.39, -.18, -.26, p < .001$  respectively) and role ambiguity negatively and significantly predicted affective commitment ( $\beta = -.27, p < .001$ ). Role conflict positively and significantly predicted affective commitment ( $\beta = .09, p < .01$ ) and role overload showed little association with affective commitment ( $\beta = -.02$ ). Results indicated limited support for **Hypothesis 2b** (the more role ambiguity, role conflict, and role overload academics perceive, the lower their organisation commitment). Change statistics indicated role stress factors contributed a further 18 per cent to the variance in membership commitment ( $\Delta \text{Adjusted } R^2 = .18, \Delta F = 77.91, p < .001$ ) and 2 per cent to the variance in affective commitment ( $\Delta \text{Adjusted } R^2 = .02, \Delta F = 8.34, p < .001$ ).

In *Step Five* (i.e., job challenge, feedback, task identity, autonomy), job challenge, feedback, task identity, and autonomy positively and significantly predicted membership commitment ( $\beta=.26, .21, p<.001; .10, .08, p<.05$  respectively) and job challenge and task identity positively and significantly predicted affective commitment ( $\beta=.20, .13, p<.01$ ). Autonomy negatively and significantly predicted affective commitment ( $\beta=-.10, p<.05$ ) and feedback showed little relationship with affective commitment ( $\beta=.06$ ). These results indicated limited support for **Hypothesis 3b** (the more autonomy, task identity, feedback, and job challenge academics perceive, the greater their organisation commitment). Changes in Adjusted  $R^2$  indicated job characteristics explained approximately 5 per cent of the variance in membership commitment ( $\Delta\text{Adjusted } R^2=.05, \Delta F=18.08, p<.001$ ) and 1 per cent of the variance in affective commitment ( $\Delta\text{Adjusted } R^2=.01, \Delta F=3.56, p<.05$ ).

In *Step Six* (i.e., supportive leaders, proactive behaviours, lack of consideration), supportive leadership positively and significantly predicted membership commitment ( $\beta=.20, p<.001$ ) and affective commitment ( $\beta=.16, p<.01$ ). Considerate behaviour and lack of consideration factors showed little relationship to either membership commitment or affective commitment factors. Results indicated no support for **Hypothesis 4b** (the more supportive leadership and considerate behaviour academics perceive, the greater their organisation commitment). Supervisory style factors accounted for 2 and 1 per cent of the variance in membership and affective commitment respectively.

In *Step Seven* (i.e., hierarchy of authority, participation, formalisation), hierarchy of authority negatively and significantly predicted membership and affective commitment ( $\beta=-.22, -.11, p<.01$  respectively) thus supporting **Hypothesis 5b** (the more hierarchy of authority academics perceive, the lower their organisation commitment). Participation in decision making positively and significantly predicted membership commitment ( $\beta=.16, p<.001$ ) and affective commitment ( $\beta=.10, p<.05$ ) thus supporting **Hypothesis 6b** (the more participation in decision making academics perceive, the greater their organisation commitment). Formalisation was weakly and non-significantly associated with both commitment factors ( $\beta=-.05, .05$ ). Results provided no support for **Hypothesis 7b** (the more formalisation academics perceive, the lower their organisation commitment) and no support for **Hypothesis 8b** (the more

formalisation academics perceive, the greater their organisation commitment). Organisation structure factors accounted for 3 per cent of the variance in membership commitment ( $\Delta\text{Adjusted } R^2=.03$ ,  $\Delta F=21.50$ ,  $p<.001$ ) but did not reliably improve the affective commitment model.

In *Step Eight* (i.e., corporate reforms, academic pressures), corporate reforms were positively and significantly related to affective commitment ( $\beta=.16$ ,  $p<.001$ ) but showed no significant relationship to membership commitment ( $\beta=-.04$ ). Results indicated no support for **Hypothesis 9b** (the greater the perceived impact of corporate reforms on academic work, the lower the organisation commitment of academics). Academic pressures were weakly and non-significantly associated with both commitment factors ( $\beta=.02$ ,  $-.02$ ) thus providing no support for **Hypothesis 9d** (the more academic pressures academics perceive, the lower the organisation commitment of academics). Change statistics indicated sectoral changes accounted for 1 per cent of the variance in affective commitment ( $\Delta\text{Adjusted } R^2=.01$ ,  $\Delta F=6.13$ ,  $p<.01$ ) but did not reliably improve the membership commitment model.

## 8.4 Summary

Results of multiple regression analyses indicated that in total 21 per cent of the variance in job involvement was accounted for by demographic variables (9 per cent), organisation commitment (9 per cent), job characteristics (1 per cent), supervisory style (1 per cent), and sectoral changes (1 per cent) work environment factors. In total, 48 per cent of the variance in job attachment was explained by organisation commitment factors (31 per cent), demographic variables (8 per cent), job characteristics (6 per cent), role stress (2 per cent), and organisation structure (1 per cent) work environment factors. Significant predictors of job involvement factors were organisation commitment factors and professional demographic variables.

The three strongest positive predictors of job involvement and job attachment factors were associate professor ( $\beta=.46$ ,  $.46$ ,  $p<.001$ ) and professor ( $\beta=.44$ ,  $.41$ ,  $p<.01$ ) demographic variables, and the affective commitment ( $\beta=.27$ ,  $.42$ ,  $p<.001$ ) factor. The three strongest negative predictors of job involvement and job attachment factors were associate lecturer ( $\beta=-.45$ ,  $-.50$ ,  $p<.01$ ), lecturer ( $\beta=-.28$ ,  $-.26$ ,  $p<.05$ ), and teaching only ( $\beta=-.29$ ,  $-.20$ ,  $p<.01$ ) demographic variables.

In total, 50 per cent of the variance in membership commitment was accounted for by role stress (18 per cent), job involvement factors (14 per cent), demographic variables (8 per cent), job characteristics (5 per cent), organisation structure (3 per cent), and supervisory style (2 per cent) factors. In total, 38 per cent of the variance in affective commitment was accounted for by job involvement factors (29 per cent), demographic variables (4 per cent), role stress (29 per cent), job characteristics (1 per cent), supervisory style (1 per cent), and sectoral changes work environment factors (1 per cent). Significant predictors of organisation commitment factors were job involvement factors, role stress factors, and professional demographic variables.

The three strongest positive predictors of membership commitment and affective commitment factors were the job attachment factor ( $\beta=.23, .51, p<.001$ ), professor ( $\beta=.36, .46, p<.05$ ) and associate professor ( $\beta=.27, .31, p<.05$ ) demographic variables. The three strongest negative predictors of membership commitment and affective commitment factors were role ambiguity ( $\beta=-.39, -.27, p<.001$ ) and hierarchy of authority ( $\beta=-.22, -.11, p<.01$ ) factors and the lecturer ( $\beta=-.23, -.23, p<.05$ ) demographic variable.



## CHAPTER NINE

# STRUCTURAL EQUATION MODELING

### 9.1 Introduction

This chapter examines relationships among demographic, work environment and work attitude variables (Research Question 5). Hypothesised work environment-work attitude relationships, as posited by theory (see Chapter 2), are specified as structural equation models and their relative fit assessed. In this stage of model building (Anderson & Gerbing, 1988), structural models provide an assessment of the predictive validity of posited models thus supporting, or not supporting, hypothesised variable relationships. In a previous stage of model building, confirmatory factor analyses provided an assessment of the measurement validity of each model (see Chapter 7).

Hypothesised structural models were examined using covariance matrices and the maximum likelihood estimation procedure. Covariances using estimated mean values for missing data were computed based on a sample of 1,041 academics. Hypothesised models were compared with an independence model where all correlations among variables are zero. To determine which model best represented the observed (sample) covariance matrix, and the number of estimated co-efficients required to achieve a specific level of fit, model fit (absolute), model comparison (incremental), and model parsimony measures are reported. To illustrate latent variable relationships in the structural model, standardised path estimates (regression co-efficients) are shown. Standardised co-efficients are reported because of their suitability in comparing relative contributions to explained variance (Bagozzi, 1980).

Model specification begins with the work attitudes model and an assessment of the relationship between job involvement and organisation commitment. Next, a demographic model is specified based on the results of multiple regression results whereby demographic variables accounted for a significant proportion of the variance in work attitude variables (see Chapter 8). Role, job, supervisor, structure,

and sector work environment models then follow. In the final section, integrated models are presented based on the results of the demographic best-fitting structural model.

## 9.2 Work Attitudes Model

The Hypothesised Work Attitudes Model is illustrated in Figure 9.1. The measurement model indicates observed factor variables as indicators of job involvement (V1, V2) and organisation commitment (V3, V4) latent variables respectively. Measurement error, a measure of each variable's reliability, is shown by D (unobserved) and E (observed) ovals. The structural model depicts a single-headed arrow linking Y1 and Y2 dependent latent variables positing a positive association between job involvement and organisation commitment.

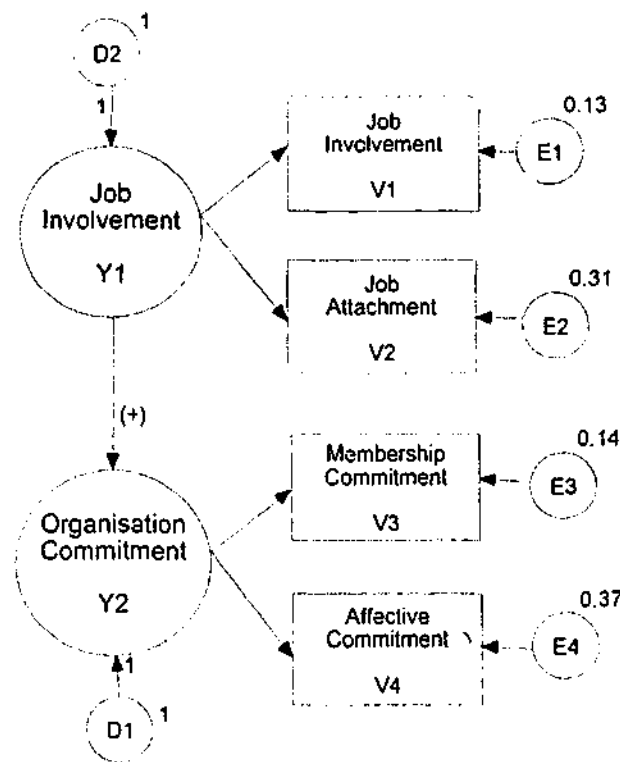


Figure 9.1

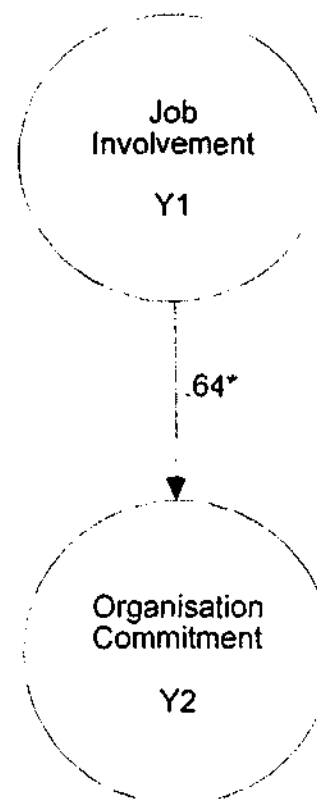
### Hypothesised Work Attitudes Model

The independence model that tests the hypothesis that the variables are uncorrelated with one another was rejected [ $\chi^2$  (6, n=1041) = 1,075.64,  $p < .001$ ]. The hypothesised model was tested and the chi-square [ $\chi^2$  (1, n=1041) = 12.62,  $p < .001$ ] indicated a significant improvement in fit between the independence and hypothesised models.

**Table 9.1**  
**Work Attitudes Model Results**

Work Attitudes Model	Hypothesised Model	Independence Model
<b>Absolute Indices</b>		
Chi – Square ( $\chi^2$ )	12.62	1,075.64
Degrees of Freedom ( <i>df</i> )	1	6
Goodness of Fit Index (GFI)	.99	.65
Adjusted Goodness of Fit Index (AGFI)	.94	.41
Root Mean Square Residual (RMSR)	.02	.23
<b>Incremental Indices</b>		
Normed Fit Index (NFI)	.99	
Relative Fit Index (RFI)	.93	
Incremental Fit Index (IFI)	.99	
Tucker-Lewis Index (TLI)	.93	
Comparative Fit Index (CFI)	.99	
<b>Parsimonious Measures</b>		
Normed Chi-square ( $\chi^2/df$ )	12.62	179.27
Parsimony Ratio	.17	
<b>Explained Variance</b>		
Organisation Commitment	.41	

As shown in Table 9.1, absolute fit indices (GFI=.99, AGFI=.94, RMSR=.02) and incremental fit indices (NFI=.99, IFI=.99, RFI=.93, TLI=.93) were well within acceptable levels for model fit (Bentler & Bonett, 1980; Bollen, 1989) indicating the structural model fits the sample data well. Approximately 41 per cent of the variance in organisation commitment was accounted for by job involvement ( $R^2=0.41$ ). As illustrated in Figure 9.2, job involvement was positively and strongly associated with organisation commitment (standardised co-efficient = .64,  $p<.01$ ) thus supporting **Hypothesis 1a** (the more job involvement academics express, the greater their organisation commitment).



\*  $p < .01$

Figure 9.2

Standardised Path Estimate for the Work Attitudes Structural Model

Re-specifying the model to depict a reciprocal relationship between job involvement and organisation commitment resulted in an unspecified model. By constraining the job attachment and affective commitment variable parameters to 1, the following model fit results were obtained:  $\chi^2=278.78$ ,  $df=12$ ,  $p<.001$ ,  $GFI=.93$ ,  $AGFI=.85$ ,  $RMSR=.08$ . Negative standardised correlations exceeding 1 indicated 'offending estimates' and a mis-specified model (Schumacher & Lomax, 1996:130). This result suggests a reciprocal work attitudes model is unidentifiable given the strong correlation between job involvement and commitment variables. On the basis of this evidence, **Hypothesis 1b** (the less organisation commitment academics express, the lower their job involvement) was not supported. Results support the proposition job involvement has a direct positive effect on organisation commitment and thus a direct causal path (arrow) is warranted in demographic and work environment structural models.

### 9.3 Demographic Model

Figure 9.3 shows the Hypothesised Demographic Model with university type (X1) and academic position (X2) specified as independent latent variables to the work attitudes (Y1, Y2) model previously specified. The measurement model indicates three observed variables measure university type (sandstone, metropolitan, university of technology), and five observed variables measured academic position (associate lecturer, lecturer, senior lecturer, associate professor, professor). Again, error variance is depicted by D (unobserved) and E (observed) ovals. Path signs are not specified for latent variable (X and Y) relationships in the structural model since no hypotheses were formulated for demographic variable-work attitude relationships.

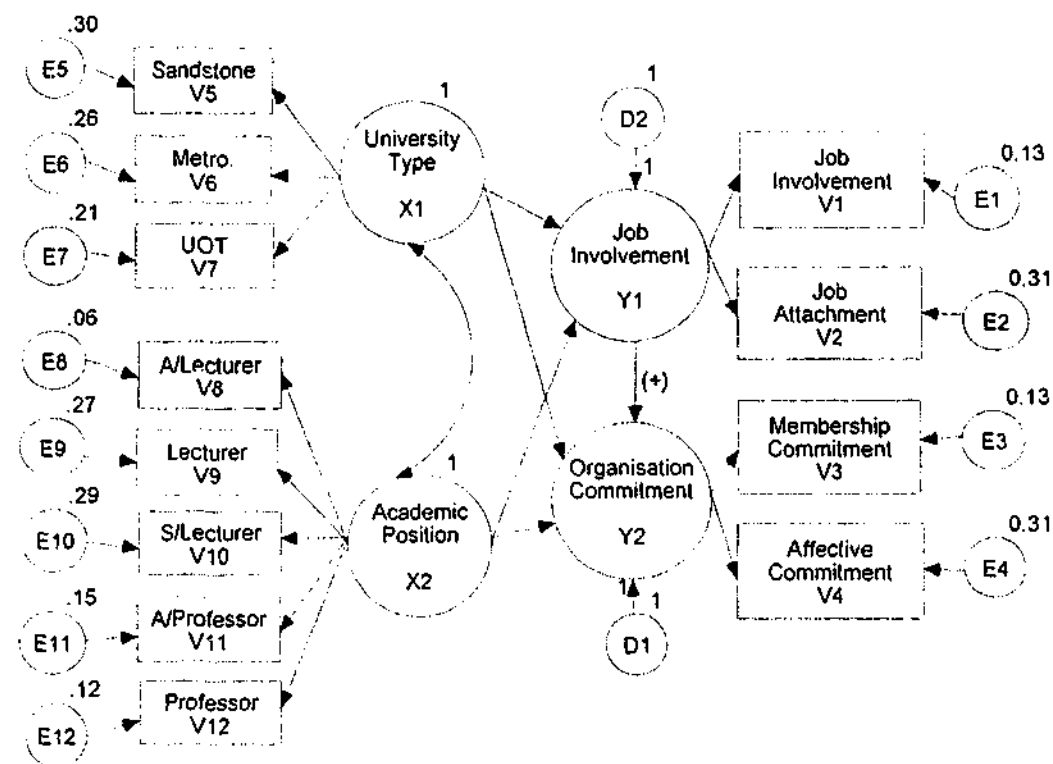


Figure 9.3

#### Hypothesised Demographic Model

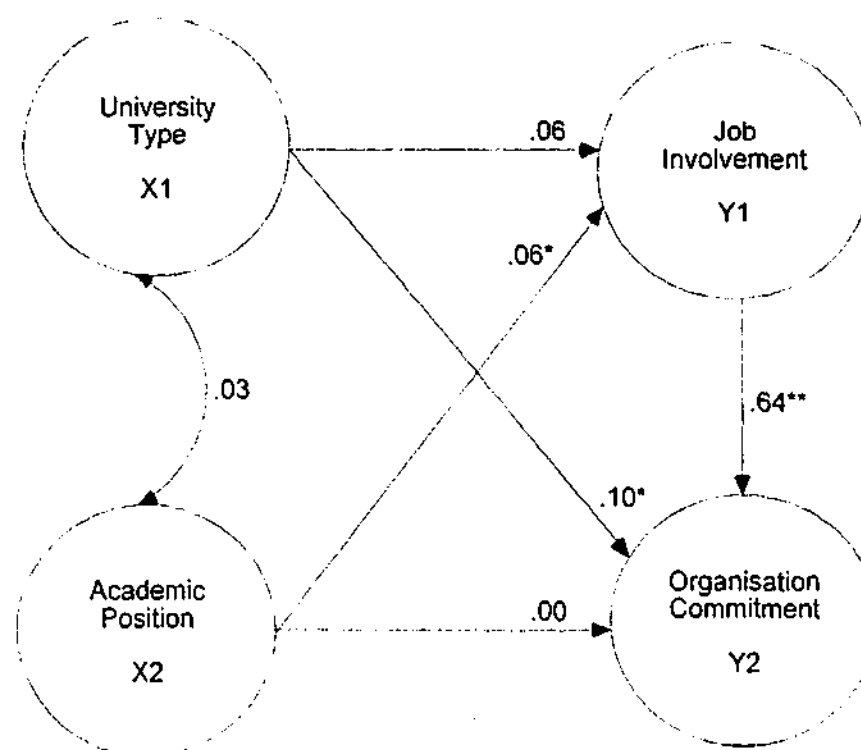
Table 9.2 indicates the two-variable demographic measurement model provided an excellent fit to the data yielding the following results:  $\chi^2=217.47$ ,  $df=48$ ,  $p<.001$ ,  $GFI=.97$ ,  $AGFI=.95$ ,  $RMSR=.02$ . By comparison, the independence model was easily rejected [ $\chi^2 (66, n=1041) = 10,779.25$ ,  $p<.001$ ]. Model results indicated strong absolute fit to observed data even after adjusting the model by the degrees of freedom (Bollen, 1989).

Table 9.2  
Demographic Model Results

Demographic Model	Hypothesised Model	Independence Model
<b>Absolute Indices</b>		
Chi – Square ( $\chi^2$ )	217.47	10,779.25
Degrees of Freedom ( <i>df</i> )	48	66
Goodness of Fit Index (GFI)	.97	.38
Adjusted Goodness of Fit Index (AGFI)	.95	.27
Root Mean Square Residual (RMSR)	.02	.74
<b>Incremental Indices</b>		
Normed Fit Index (NFI)	.98	
Relative Fit Index (RFI)	.97	
Incremental Fit Index (IFI)	.99	
Tucker-Lewis Index (TLI)	.98	
Comparative Fit Index (CFI)	.98	
<b>Parsimonious Measures</b>		
Normed Chi-square ( $\chi^2/df$ )	4.53	163.32
Parsimony Ratio	.73	
<b>Explained Variance</b>		
Job Involvement	.01	
Organisation Commitment	.42	

Incremental and parsimonious measures also reflected good model fit (see Table 9.2). University type and academic position demographic variables accounted for approximately 1 per cent of the variance in job involvement ( $R^2=.01$ ) and 42 per cent of the variance in organisation commitment ( $R^2=.42$ ).

Figure 9.4 shows standardised path estimates for the Demographic Structural Model. As can be seen, university type weakly and positively predicted organisation commitment (standardised co-efficient = .10,  $p<.05$ ) and academic position weakly and positively predicted job involvement (standardised co-efficient = .06,  $p<.05$ ). The inclusion of demographic variables did not alter the strong positive association between job involvement and organisation commitment (.64,  $p<.01$ ).



\*  $p < .05$ , \*\*  $p < .01$

**Figure 9.4**

#### Standardised Path Estimates for the Demographic Structural Model

Excluding university type from the specified model resulted in a model with a lower chi-square ( $\chi^2=135.15$ ,  $df=24$ ,  $p<.001$ ) and acceptable model fit indices (GFI=.97, AGFI=.95, RMSR=.02). The academic position model explained zero variance in job involvement and 41 per cent of the variance in organisation commitment. Differences in model variance of 1 per cent indicated the variables academic position and university type jointly explained 1 per cent of the variance in job involvement. Results from the previous work attitudes model indicated job involvement is the dominant predictor of organisation commitment and thus, only 1 per cent of the variance in organisation commitment is explained by university type.

### 9.4 Role Stress Model

Role stress represented the first work environment model to be tested. The Hypothesised Role Stress Model (see Figure 9.5) shows three observed variables (role ambiguity, role conflict, role overload) measure the role stress latent variable (X1). The second part of the measurement model, the work attitudes model, remains as specified in Figure 9.1.

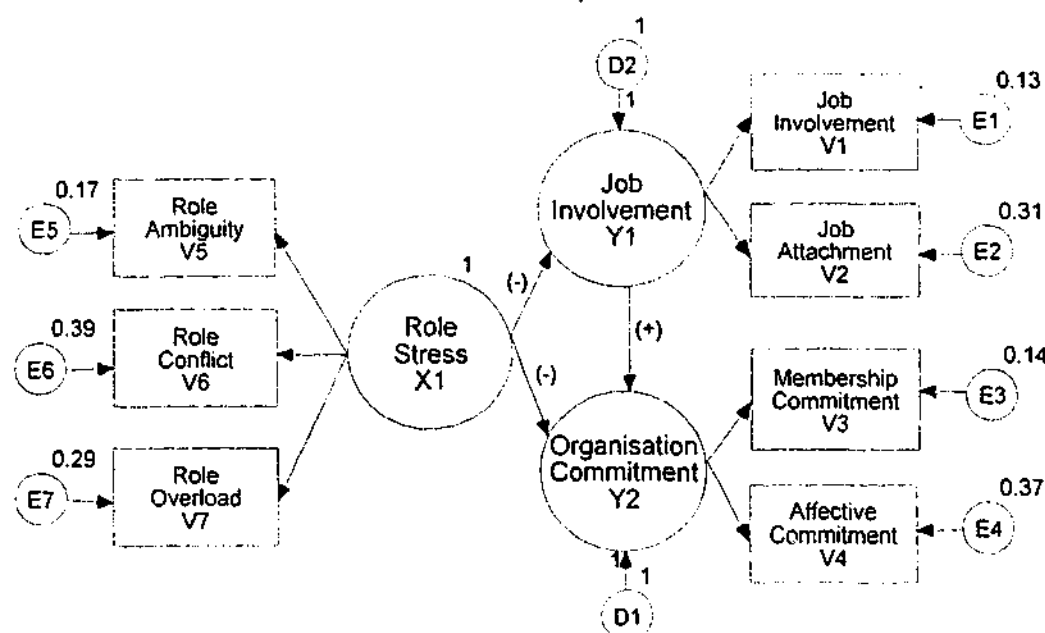


Figure 9.5

## Hypothesised Role Stress Model

The structural model depicts negative hypothesised relationships between role stress (X1) and work attitude latent (Y1 and Y2) variables, and a positive relationship between dependent latent (Y1 and Y2) variables.

The independence model that tests the variables are uncorrelated was rejected [ $\chi^2$  (21,  $n=1041$ ) = 1,981.14,  $p<.001$ ]. A chi-square difference test indicated a significant improvement in fit between the independence model and the hypothesised model but only limited support was found for the hypothesised model in terms of overall model fit indices [ $\chi^2$  (11,  $n=1,041$ ) = 292.73,  $p<.001$ , GFI=.92, AGFI=.81, RMSR=.07]. Table 9.3 shows low incremental fit indices below the .90 critical value suggested by Bentler and Bonett (1980).

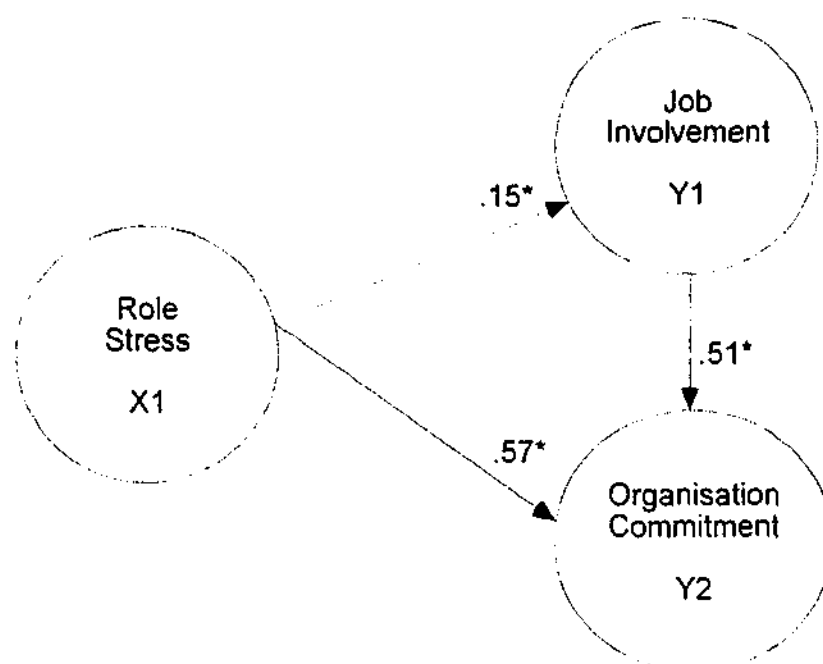
Role stress model results (see Table 9.3) also show a high Normed Chi-Square measure (Jöreskog, 1969) indicating the hypothesised model does not provide an acceptable fit to the observed data and needs improvement. Role stress accounted for 2 per cent of the variance in job involvement ( $R^2=.02$ ) and 68 per cent of the variance in organisation commitment ( $R^2=.68$ ).



**Table 9.3**  
**Role Stress Model Results**

<b>Role Stress Model</b>	<b>Hypothesised Model</b>	<b>Independence Model</b>
<b>Absolute Indices</b>		
Chi – Square ( $\chi^2$ )	292.73	1,981.14
Degrees of Freedom ( <i>df</i> )	11	21
Goodness of Fit Index (GFI)	.92	.61
Adjusted Goodness of Fit Index (AGFI)	.81	.48
Root Mean Square Residual (RMSR)	.07	.19
<b>Incremental Indices</b>		
Normed Fit Index (NFI)	.85	
Relative Fit Index (RFI)	.72	
Incremental Fit Index (IFI)	.86	
Tucker-Lewis Index (TLI)	.73	
Comparative Fit Index (CFI)	.86	
<b>Parsimonious Measures</b>		
Normed Chi-square ( $\chi^2/df$ )	26.61	94.34
Parsimony Ratio	.52	
<b>Explained Variance</b>		
Job Involvement	.02	
Organisation Commitment	.68	

Standardised path estimates for the Role Stress Structural Model are shown in Figure 9.6. As illustrated in Figure 9.6, role stress was positively and significantly associated with job involvement (standardised co-efficient = .15,  $p < .01$ ) thus providing no support for **Hypothesis 2a** (the more role ambiguity, role conflict, and role overload academics perceive, the lower their job involvement). Role stress was positively and significantly associated with organisation commitment (standardised co-efficient = .57,  $p < .01$ ) thus providing no support for **Hypothesis 2b** (the more role ambiguity, role conflict, and role overload academics perceive, the lower their organisation commitment). Job involvement was positively and significantly associated with organisation commitment (standardised co-efficient = .51,  $p < .01$ ).

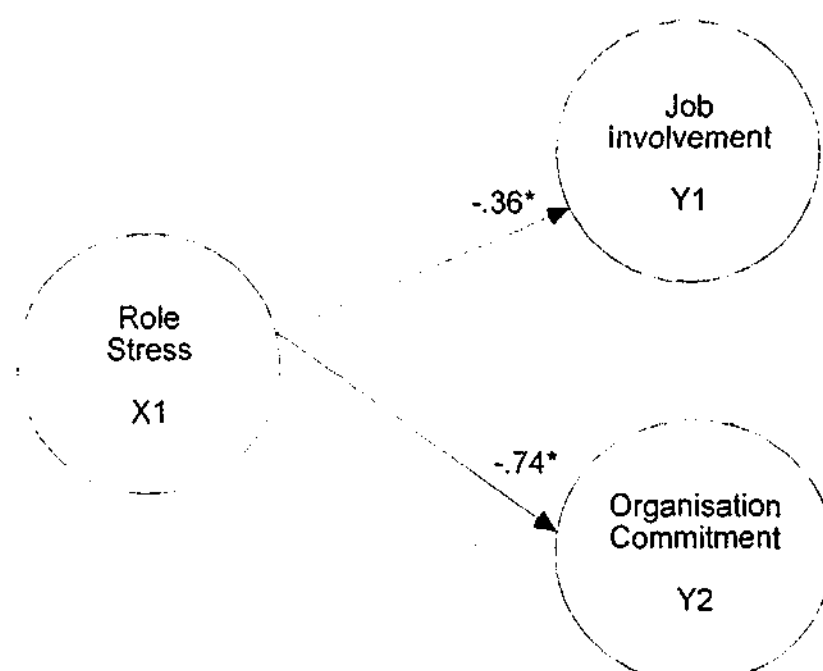


\*  $p < .01$

Figure 9.6

#### Standardised Path Estimates for the Role Stress Structural Model

Removal of the specified path between job involvement and organisation commitment resulted in a model with a higher chi-square ( $\chi^2=454.28$ ,  $df=12$ ,  $p<.001$ ) and lower model fit indices (GFI=.88, AGFI=.72, RMSR=.08). Figure 9.7 shows standardised path estimates for the Role Stress Modified Structural Model.



\*  $p < .01$

Figure 9.7

#### Standardised Path Estimates for the Role Stress Modified Structural Model

In the Role Stress Modified Structural Model (see Figure 9.7), role stress was negatively and moderately associated with job involvement (standardised coefficient =  $-0.36$ ,  $p < 0.01$ ), and negatively and strongly associated with organisation commitment (standardised coefficient =  $-0.74$ ,  $p < 0.01$ ). Modified model results suggest the strong, positive job involvement-organisation commitment relationship negates the negative role stress-work attitudes relationships. Hence, job involvement at work exerts a strong positive effect on the commitment of academics irrespective of the role stress academics experience from the immediate work environment.

## 9.5 Job Characteristics Model

The Hypothesised Job Characteristics Model is presented in Figure 9.8.

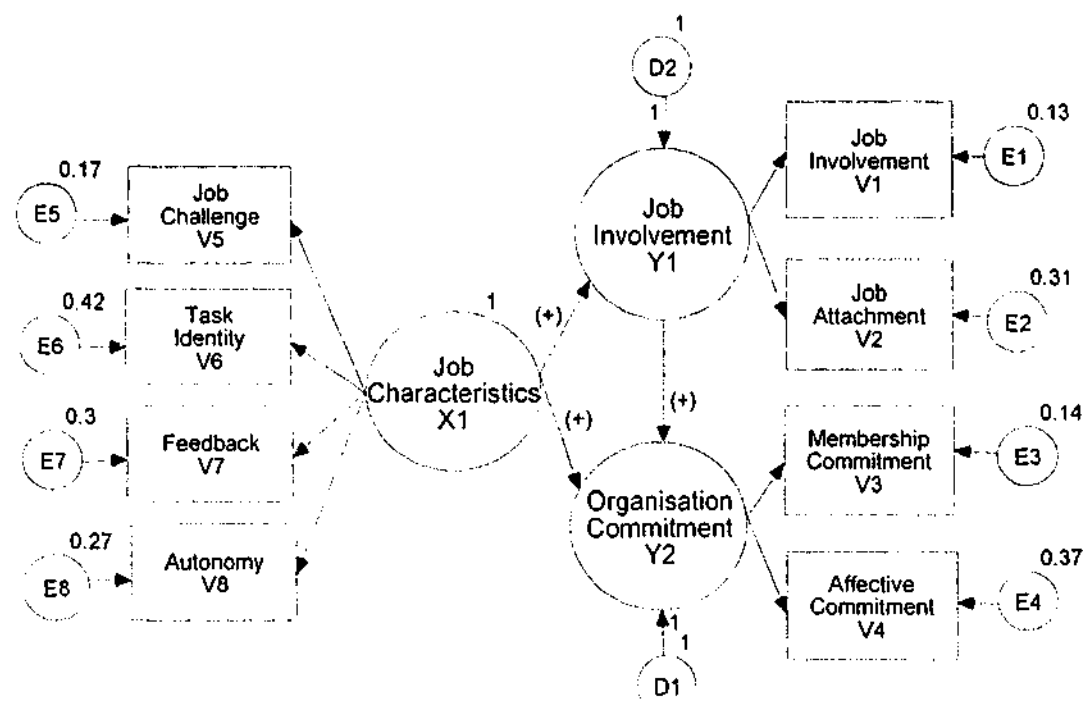


Figure 9.8

### Hypothesised Job Characteristics Model

The measurement model shows four observed variables (V5, V6, V7, V8) measure the latent variable job characteristics (X1). The structural model depicts positive associations between job characteristics (X1) and work attitude (Y1, Y2) latent variables. The independence model positing zero relationships between variables was easily rejected ( $\chi^2=2,542.36$ ,  $df=28$ ,  $p < 0.001$ ). The hypothesised job characteristics model was tested and the chi-square ( $\chi^2=352.54$ ,  $df=17$ ,  $p < 0.001$ )

indicated a significant improvement in fit between the independence and hypothesised models. Model fit results for the Job Characteristics Model are presented in Table 9.4.

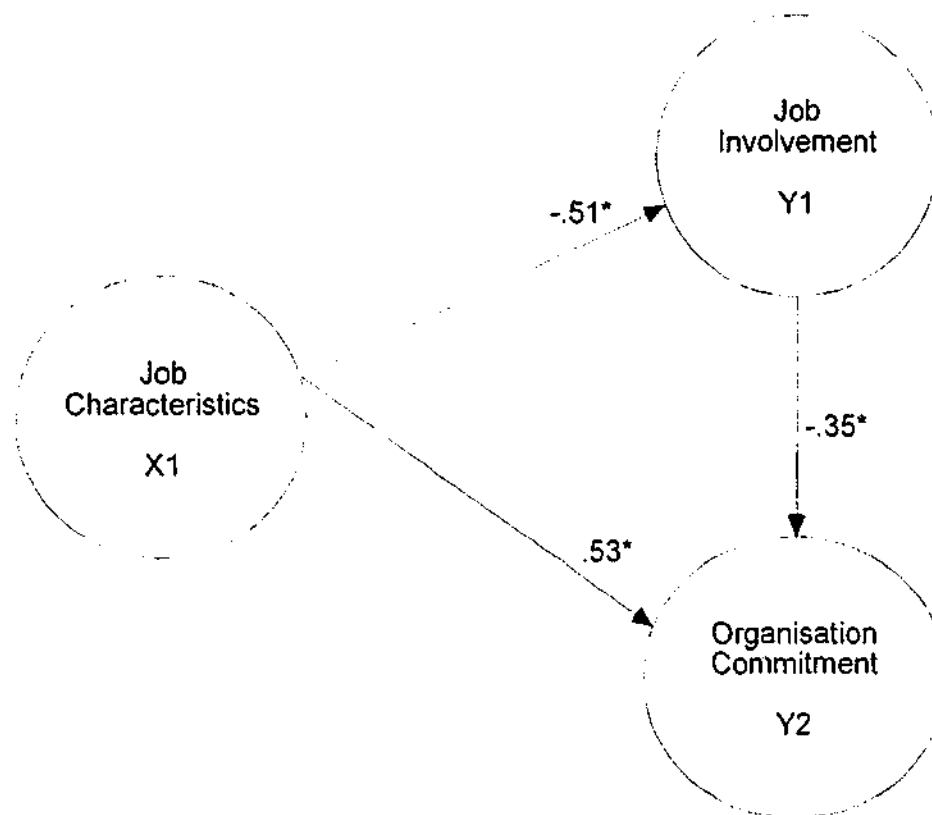
**Table 9.4**  
**Job Characteristics Model Results**

<b>Job Characteristics Model</b>	<b>Hypothesised Model</b>	<b>Independence Model</b>
<b>Model Fit</b>		
Chi – Square ( $\chi^2$ )	352.54	2,542.36
Degrees of Freedom ( <i>df</i> )	17	28
Goodness of Fit Index (GFI)	.92	.54
Adjusted Goodness of Fit Index (AGFI)	.83	.41
Root Mean Square Residual (RMSR)	.05	.19
<b>Model Comparison</b>		
Normed Fit Index (NFI)	.86	
Relative Fit Index (RFI)	.77	
Incremental Fit Index (IFI)	.87	
Tucker-Lewis Index (TLI)	.78	
Comparative Fit Index (CFI)	.87	
<b>Model Parsimony</b>		
Normed Chi-square ( $\chi^2/df$ )	20.74	90.80
Parsimony Ratio	.61	
<b>Explained Variance</b>		
Job Involvement	.26	
Organisation Commitment	.59	

The Goodness of Fit Index (GFI), a measure of overall variation explained by the model, was above the .90 value suggested by Bentler and Bonett (1980) for acceptable model fit. The Root Mean Square Residual (RMSR) index of .05 also indicated sufficient fit based on Jöreskog and Sörbom's (1989) criteria. However, other absolute and incremental fit indices, such as the Adjusted Goodness of Fit Index (AGFI=.83) and Normed Fit Index (NFI=.86) were below the minimum critical value of .90 indicating poor model fit (see Table 9.4). The Normed Chi-Square (NC) parsimonious fit measure, which adjusts  $\chi^2$  by the degrees of freedom to assess model fit (Jöreskog, 1969), indicated the hypothesised model did not fit the observed data well and needed improvement. Large standardised residuals also indicated poor model fit. Approximately 26 per cent of the variance in job

involvement ( $R^2=.26$ ) and 59 per cent of the variance in organisation commitment ( $R^2=.59$ ) was accounted for by job characteristics.

Standardised path estimates for the Job Characteristics Structural Model (see Figure 9.9) indicated job characteristics were negatively and significantly associated with job involvement (standardised co-efficient =  $-.51$ ,  $p<.01$ ) thus providing no support for **Hypothesis 3a** (the more autonomy, task identity, feedback, and job challenge academics perceive, the greater their job involvement).



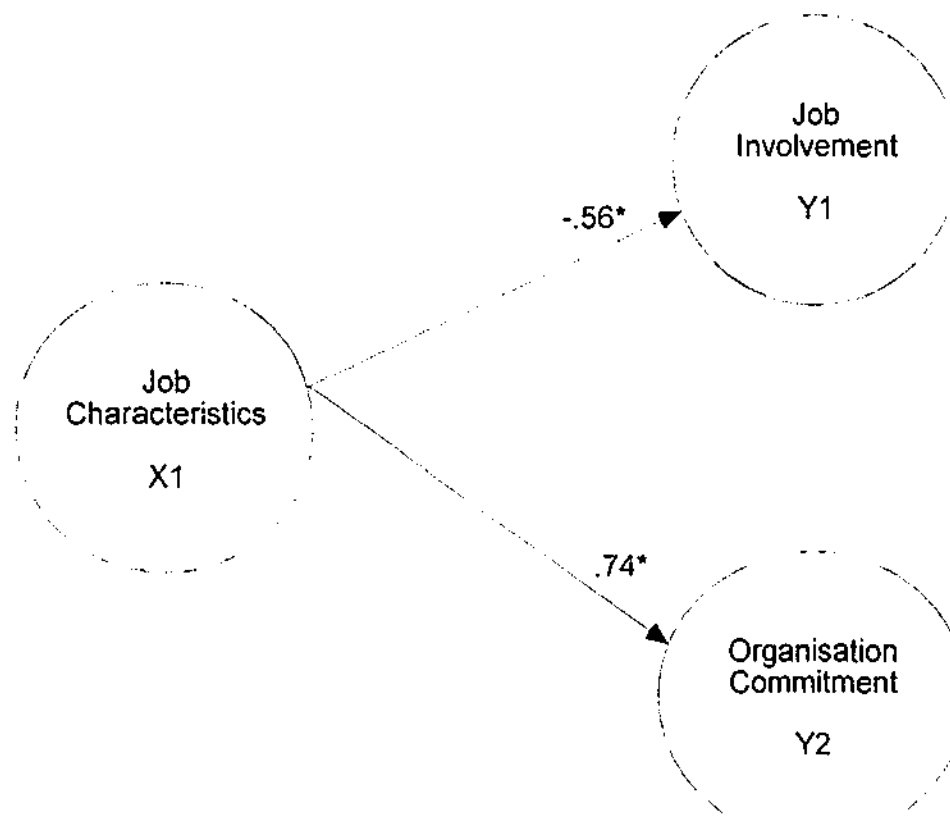
\*  $p < .01$

Figure 9.9

Standardised Path Estimates for the Job Characteristics Structural Model

Job characteristics were strongly associated with organisation commitment in the predicted direction (standardised co-efficient =  $.53$ ,  $p<.01$ ) thus supporting **Hypothesis 3b** (the more autonomy, task identity, feedback, and job challenge academics perceive, the greater their organisation commitment). In contrast to previous structural models, job involvement was negatively associated with organisation commitment (standardised co-efficient =  $-.35$ ,  $p<.01$ ).

Removal of the specified path between job involvement and organisation commitment resulted in a model with a higher chi-square ( $\chi^2=404.72$ ,  $df=17$ ,  $p<.001$ ) and slightly lower model fit indices (GFI=.91, AGFI=.82, RMSR=.05). The modified model accounted for 31 per cent more of the variance in job involvement ( $R^2=.31$ ) and 55 per cent of the variance in organisation commitment ( $R^2=.55$ ). Thus, the addition of a path between job involvement and organisation commitment contributed to 4 per cent more variance in commitment but 5 per cent less variance in job involvement. Standardised path estimates for the Job Characteristics Modified Structural Model are shown in Figure 9.10.



\*  $p < .01$

**Figure 9.10**

**Standardised Path Estimates for the Job Characteristics Modified Structural Model**

As can be seen in Figure 9.10, the relationship between job characteristics and job involvement remained negative and significant (standardised co-efficient =  $-.56$ ,  $p<.01$ ). However, the relationship between job characteristics and organisation commitment was stronger and positive (standardised co-efficient =  $.74$ ,  $p<.01$ ). On the basis of this evidence, job characteristics weaken job involvement directly thus

moderating the strength of the positive relationship between job involvement and organisation commitment.

## 9.6 Supervisory Consideration Model

Figure 9.11 illustrates the Hypothesised Supervisory Consideration Model. The measurement model shows three observed variables (V5, V6, V7) measure the supervisory consideration latent variable (X1). The structural model depicts positive hypothesised relationships between consideration (X1) and work attitude (Y1, Y2) latent variables.

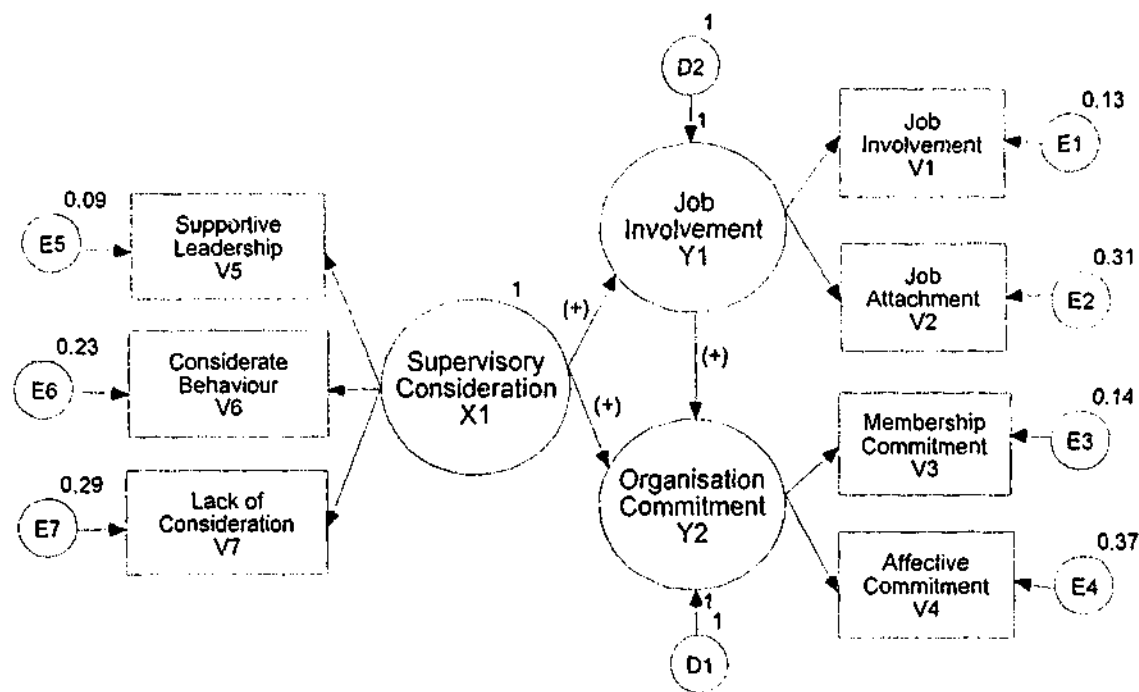


Figure 9.11

### Hypothesised Supervisory Consideration Model

The independence model was significant and hence rejected ( $\chi^2 = 2,938.07$ ,  $df=21$ ,  $p<.001$ ). The hypothesised model was tested and the chi-square ( $\chi^2 = 118.68$ ,  $df=11$ ,  $p<.001$ ) indicated a significant improvement in fit between the independence and hypothesised models. Table 9.5 presents model fit results for the Supervisory Consideration Model.

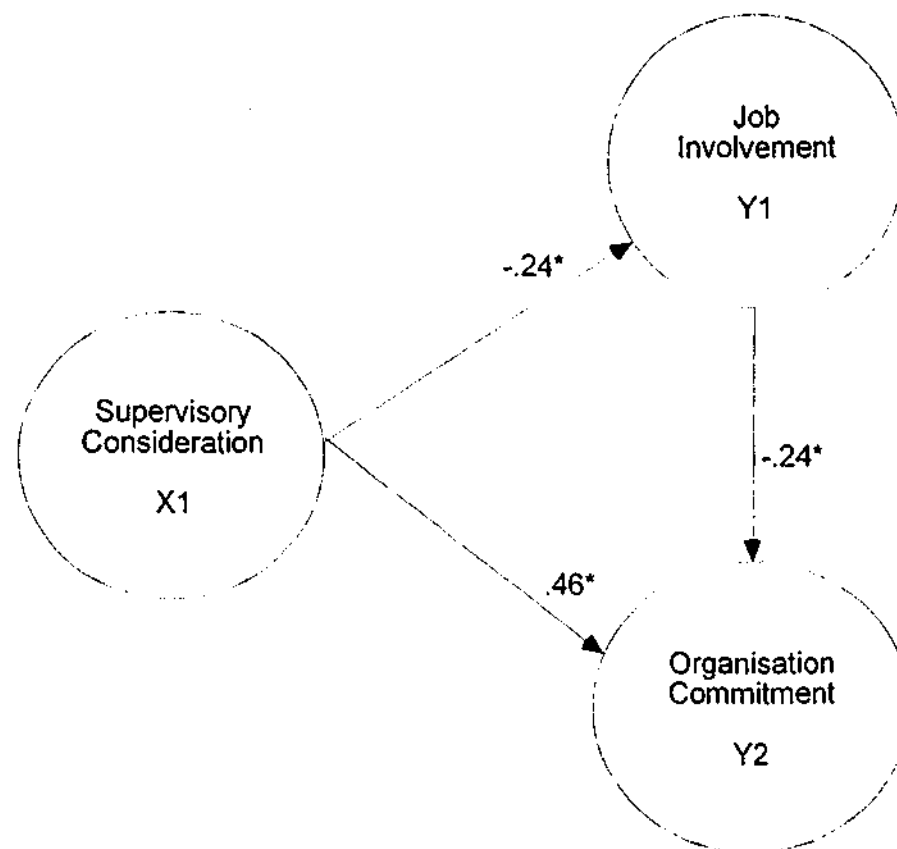
**Table 9.5**  
**Supervisory Consideration Model Results**

<b>Supervisory Consideration Model</b>	<b>Hypothesised Model</b>	<b>Independence Model</b>
<b>Absolute Indices</b>		
Chi – Square ( $\chi^2$ )	118.68	2,938.07
Degrees of Freedom ( <i>df</i> )	11	21
Goodness of Fit Index (GFI)	.97	.51
Adjusted Goodness of Fit Index (AGFI)	.92	.35
Root Mean Square Residual (RMSR)	.04	.25
<b>Incremental Indices</b>		
Normed Fit Index (NFI)	.96	
Relative Fit Index (RFI)	.92	
Incremental Fit Index (IFI)	.96	
Tucker-Lewis Index (TLI)	.93	
Comparative Fit Index (CFI)	.96	
<b>Parsimonious Measures</b>		
Normed Chi-square ( $\chi^2/df$ )	10.79	139.91
Parsimony Ratio	.52	
<b>Explained Variance</b>		
Job Involvement	.06	
Organisation Commitment	.61	

The Goodness of Fit Index (GFI=.97), Adjusted Goodness of Fit Index (AGFI=.92), and Root Mean Square Residual (RMSR=.04) indicated an acceptable correspondence between observed and expected covariance matrices (Bollen, 1989). The NFI, a measure that rescales chi-square into a 0 (no fit) to 1.0 (perfect fit) range (Bentler & Bonett, 1980), was .96 reflecting good model fit. Further evidence of incremental model fit is shown in Table 9.5. A relatively low Normed Chi-square of 10.79 indicated the model estimated a small number of co-efficients to achieve this level of model fit. Still, the index is higher than 5 reflecting a need for model improvement (Jöreskog, 1969). Approximately 6 per cent of the variance in job involvement and 61 per cent of the variance in organisation commitment was explained by supervisory consideration.



Standardised path estimates for the Supervisory Consideration Structural Model are illustrated in Figure 9.12. As can be seen, consideration was negatively associated with job involvement (standardised co-efficient =  $-.24$ ,  $p < .01$ ) thus providing no support for **Hypothesis 4a** (the more supportive leadership and considerate behaviour academics perceive, the greater their job involvement). A strong positive association between consideration and organisation commitment (standardised co-efficient =  $.46$ ,  $p < .01$ ) provided support for **Hypothesis 4b** (the more supportive leadership and considerate behaviour academics perceive, the greater their organisation commitment). The structural relationship between job involvement and organisation commitment was moderately negative and significant (standardised co-efficient =  $-.24$ ,  $p < .01$ ) thus similar to the relationship in the Job Characteristics Structural Model (see Figure 9.9).



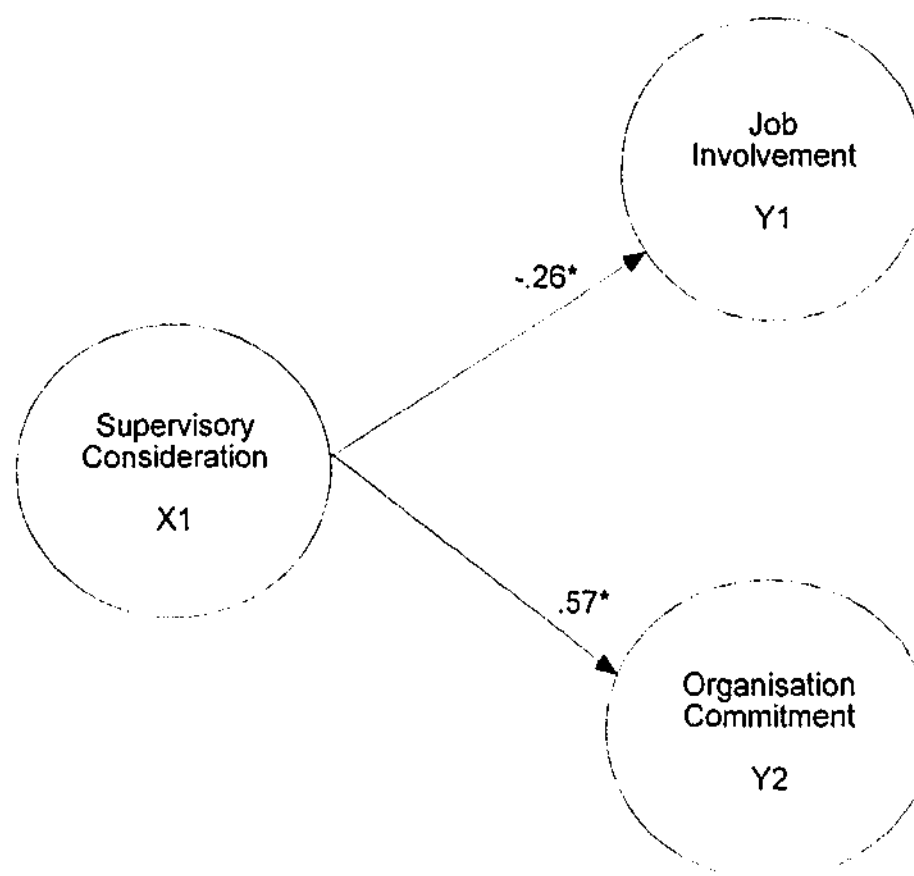
\*  $p < .01$

Figure 9.12

**Standardised Path Estimates for the Supervisory Consideration Structural Model**

Removal of the specified path between job involvement and organisation commitment resulted in a model with higher chi-square ( $\chi^2=328.59$ ,  $df=12$ ,  $p < .001$ ) and lower model fit indices (GFI=.93, AGFI=.83, RMSR=.07).

The Supervisory Consideration Modified Structural Model (see Figure 9.13) explained substantially less variance in organisation commitment ( $R^2=.33$ ) suggesting job involvement is an important predictor of organisation commitment. Supervisory consideration remained negatively and significantly associated with job involvement (standardised co-efficient =  $-.26$ ,  $p<.01$ ), and positively and strongly associated with organisation commitment (standardised co-efficient =  $.57$ ,  $p<.01$ ). A comparison of standardised path estimates for the two models indicated supervisory consideration weakens job involvement directly thus moderating the strength of the positive relationship between job involvement and organisation commitment.



\*  $p < .01$

Figure 9.13

Standardised Path Estimates for the Supervisory Consideration Modified Structural Model

## 9.7 Organisation Structure Model

Figure 9.14 illustrates the Hypothesised Organisation Structure Model. In the measurement model, two observed variables (V5 and V6) measure the structural dimensions of hierarchy of authority and participation in decision making respectively. One observed variable (V7) measures the dimension of formalisation. All three structural dimensions are related as shown by the double-headed covariance arrows. The structural model depicts negative and positive associations respectively between hierarchy of authority (X1), participation in decision making (X2) and work attitude latent variables (Y1, Y2). Both negative and positive associations are posited between formalisation (X3) and work attitude latent variables (Y1, Y2).

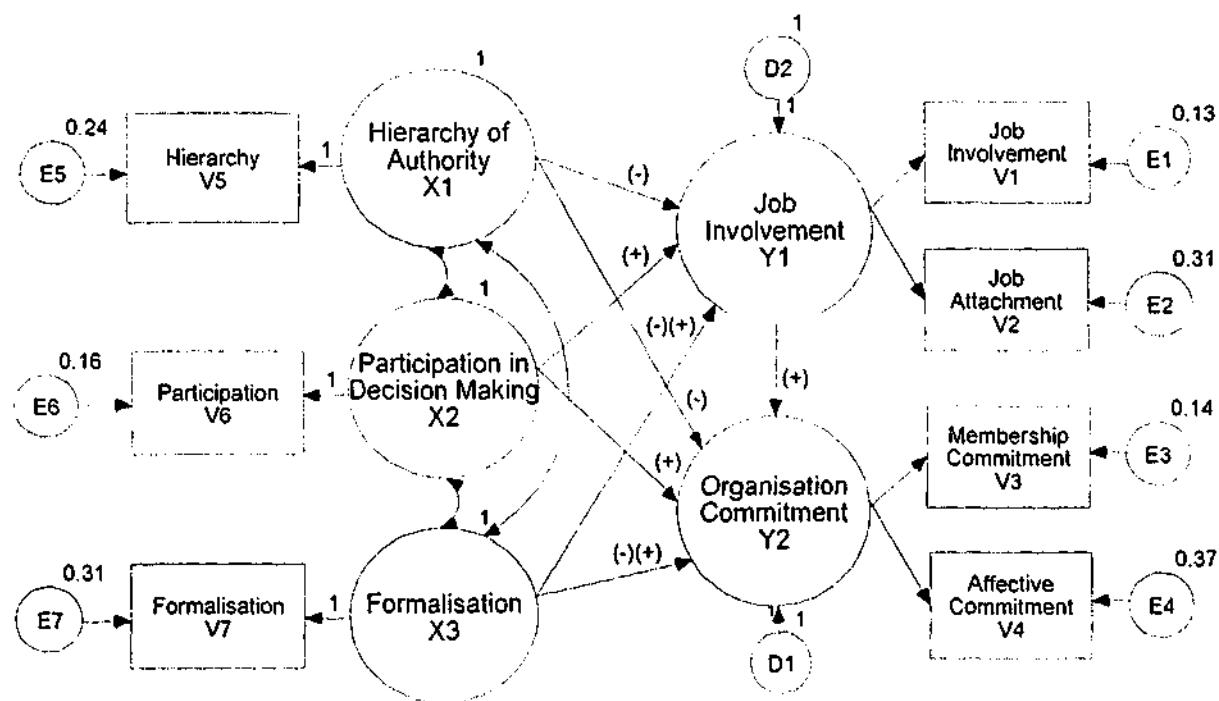


Figure 9.14

### Hypothesised Organisation Structure Model

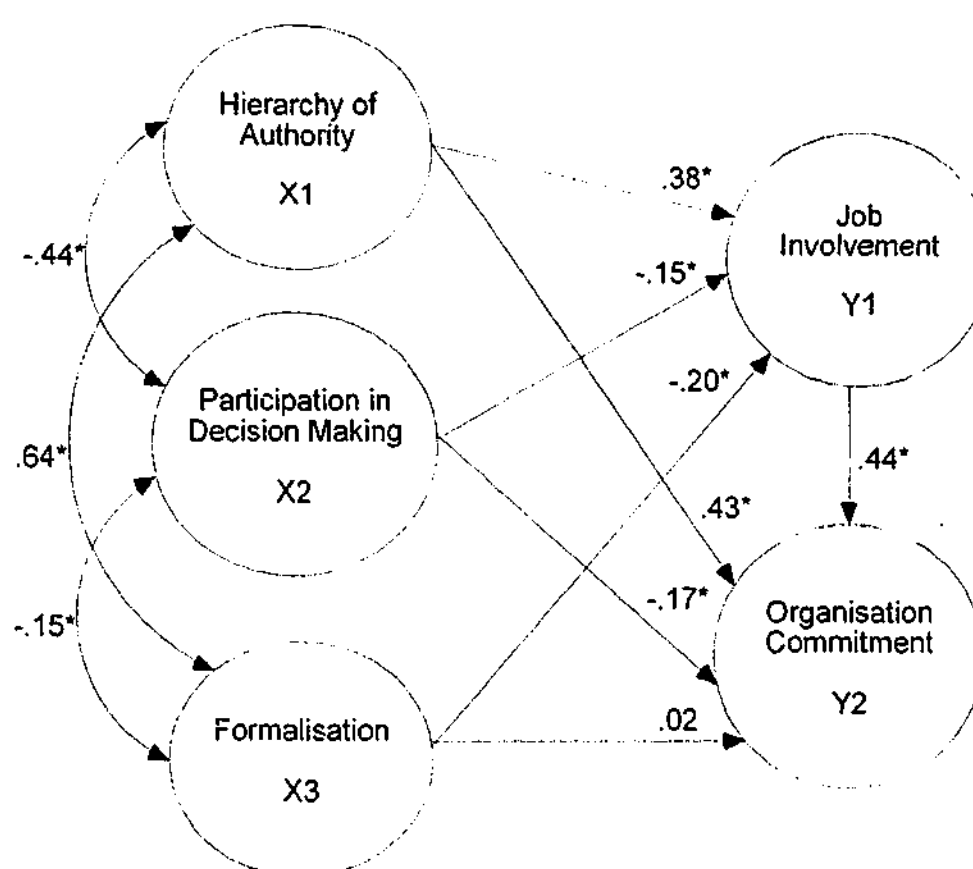
The independence model was rejected ( $\chi^2 = 1,930.54$ ,  $df=21$ ,  $p<.001$ ). The hypothesised model was tested and the chi-square ( $\chi^2 = 300.08$ ,  $df=7$ ,  $p<.001$ ) indicated a significant improvement in fit between the independence and hypothesised models. However, model fit indices (see Table 9.6) taking into account the degrees of freedom to assess model fit indicated the model had poor fit to the data and needed improvement (AGFI = .73, Normed Chi-Square = 42.87).

**Table 9.6**  
**Organisation Structure Model Results**

Organisation Structure Model	Hypothesised Model	Independence Model
<b>Absolute Indices</b>		
Chi – Square ( $\chi^2$ )	300.08	1,930.54
Degrees of Freedom ( <i>df</i> )	7	21
Goodness of Fit Index (GFI)	.93	.62
Adjusted Goodness of Fit Index (AGFI)	.73	.49
Root Mean Square Residual (RMSR)	.16	.20
<b>Incremental Indices</b>		
Normed Fit Index (NFI)	.84	
Relative Fit Index (RFI)	.53	
Incremental Fit Index (IFI)	.85	
Tucker-Lewis Index (TLI)	.54	
Comparative Fit Index (CFI)	.85	
<b>Parsimonious Measures</b>		
Normed Chi-square ( $\chi^2/df$ )	42.87	91.93
Parsimony Ratio	.33	
<b>Explained Variance</b>		
Job Involvement	.15	
Organisation Commitment	.64	

As shown in Table 9.6, the RMSR of .16 indicated a substantial proportion of covariance not accounted by the model. The incremental fit of the model, compared to a null model, was also weak with indices well below the minimum critical value of .90 suggested by Bollen (1989). High standardised residuals (largest 9.77 and several greater than 3) also confirmed poor model fit. The Organisation Structure Model accounted for 15 per cent of the variance in job involvement ( $R^2=.15$ ) and 64 per cent of the variance in organisation commitment ( $R^2=.64$ ).

Figure 9.15 presents standardised path estimates for the Organisation Structure Structural Model. Hierarchy of authority was positively associated with job involvement and organisation commitment (standardised co-efficients = .38, .43,  $p<.01$  respectively) thus providing no support for **Hypothesis 5a** (the more hierarchy of authority academics perceive, the lower their job involvement) and no support for **Hypothesis 5b** (the more hierarchy of authority academics perceive, the lower their organisation commitment).



\*  $p < .01$

Figure 9.15

#### Standardised Path Estimates for the Organisation Structure Structural Model

Figure 9.15 indicates participation in decision making was negatively associated with job involvement and organisation commitment (standardised co-efficients =  $-.15$ ,  $-.17$ ,  $p < .01$  respectively) thus providing no support for **Hypothesis 6a** (the more participation in decision making academics perceive, the greater their job involvement) and no support for **Hypothesis 6b** (the more participation in decision making academics perceive, the greater their organisation commitment). Formalisation was negatively and significantly associated with job involvement (standardised co-efficient =  $-.20$ ,  $p < .01$ ) thus supporting **Hypothesis 7a** (the more formalisation academics perceive, the lower their job involvement) and providing no support for **Hypothesis 8a** (the more formalisation academics perceive, the greater their job involvement). A weak association between formalisation and organisation commitment (standardised co-efficient =  $.02$ ) provided no support for **Hypothesis 7b** (the more formalisation academics perceive, the lower their organisation commitment) and no support for **Hypothesis 8b** (the more formalisation academics

perceive, the greater their organisation commitment). Hierarchy of authority and formalisation were strongly and positively correlated (covariance = .64,  $p < .01$ ). The inclusion of structural variables did not change the strong positive association between job involvement and organisation commitment (standardised co-efficient = .44,  $p < .01$ ).

## 9.8 Sectoral Changes Model

Figure 9.16 illustrates the Hypothesised Sectoral Changes Model. The measurement model shows sectoral changes are measured by corporate reforms (V5) and academic pressures (V6) observed variables. The structural model depicts negative associations between sectoral changes (X1, X2) and work attitude (Y1, Y2) latent variables.

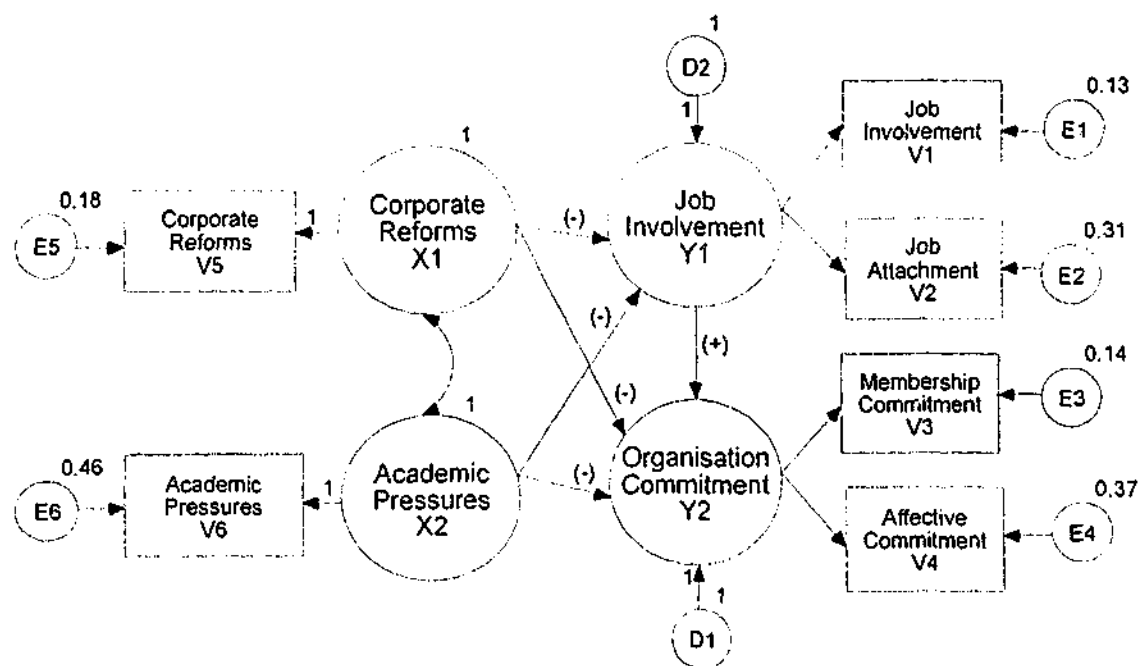


Figure 9.16

### Hypothesised Sectoral Changes Model

The independence model positing zero correlations between variables was rejected ( $\chi^2 = 1,548.06$ ,  $df=15$ ,  $p < .001$ ). A chi-square difference test indicated a significant improvement in fit between the independence and hypothesised models ( $\chi^2 = 288.88$ ,  $df=5$ ,  $p < .001$ ). However, only marginal support was found for the hypothesised model when adjusted for the degrees of freedom relative to the number of variables

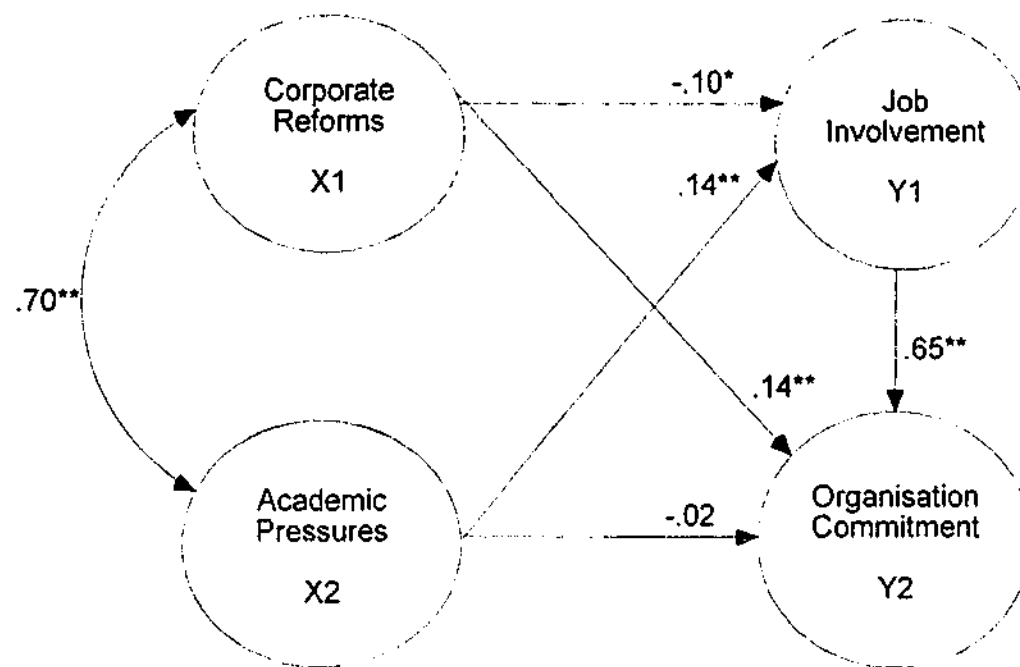
(AGFI=.71, RMSR=.16). Table 9.7 presents model fit results for the Sectoral Changes Model.

**Table 9.7**  
**Sectoral Changes Model Results**

Sectoral Changes Model	Hypothesised Model	Independence Model
<b>Absolute Indices</b>		
Chi – Square ( $\chi^2$ )	288.88	1,548.06
Degrees of Freedom ( <i>df</i> )	5	15
Goodness of Fit Index (GFI)	.93	.67
Adjusted Goodness of Fit Index (AGFI)	.71	.54
Root Mean Square Residual (RMSR)	.16	.18
<b>Incremental Indices</b>		
Normed Fit Index (NFI)	.81	
Relative Fit Index (RFI)	.44	
Incremental Fit Index (IFI)	.82	
Tucker-Lewis Index (TLI)	.44	
Comparative Fit Index (CFI)	.81	
<b>Parsimonious Measures</b>		
Normed Chi-square ( $\chi^2/df$ )	57.78	103.20
Parsimony Ratio	.33	
<b>Explained Variance</b>		
Job Involvement	.01	
Organisation Commitment	.44	

Table 9.7 shows low incremental model fit indices below the .90 critical value suggested by Bentler and Bonett (1980). A high Normed Chi-Square Index (Jöreskog, 1969) also indicated the hypothesised model did not fit the observed data well and needed improvement. The Sectoral Changes Model accounted for 1 per cent of the variance in job involvement and 44 per cent of the variance in organisation commitment.

Standardised regression co-efficients (path estimates) for the Sectoral Changes Structural Model are shown in Figure 9.17. Corporate reforms were negatively but weakly associated with job involvement (standardised co-efficient = -.10,  $p < .05$ ) thus providing support for **Hypothesis 9a** (the greater the perceived impact of corporate reforms on academic work, the lower the job involvement of academics).



\* $p < .05$ , \*\* $p < .01$

Figure 9.17

#### Standardised Path Estimates for the Sectoral Changes Structural Model

A positive association between corporate reforms and organisation commitment (standardised co-efficient = .14,  $p < .01$ ) provided no support for **Hypothesis 9b** (the greater the perceived impact of corporate reforms on academic work, the lower the organisation commitment of academics). A positive association between academic pressures and job involvement (standardised co-efficient = .14,  $p < .01$ ) provided no support for **Hypothesis 9c** (the more academic pressures academics perceive, the lower the job involvement of academics). A weak negative association between academic pressures and organisation commitment (standardised co-efficient = -.02) provided no support for **Hypothesis 9d** (the more academic pressures academics perceive, the lower the organisation commitment of academics). Corporate reforms and academic pressures were strongly and positively correlated (covariance = .70,  $p < .01$ ). The inclusion of sectoral change variables did not alter the strong positive association between job involvement and organisation commitment (standardised co-efficient = .65,  $p < .01$ ).



## 9.9 Structural Model Comparisons

Table 9.8 presents the results of structural model comparisons. Model fit indices are recommended on the basis of sample size and number of parameters estimated (Gerbing & Anderson, 1992; Medsker, Williams, & Holahan, 1994). All of the specified structural models produced significant chi-squares ( $p < .001$ ) suggesting inadequate model fit. Assuming this discrepancy is a function of a large sample size (i.e., as sample size increases, the  $\chi^2$  test has a tendency to indicate a significant probability level), all of the models may be tentatively accepted as plausible.

**Table 9.8**  
**Results of Structural Model Comparisons<sup>a</sup>**

Structural Model	$\chi^2$	df	AGFI	RMSR	NFI	TLI	NC	R <sup>2*</sup>
Work attitudes	12.62	1	.94	.02	.99	.93	12.62	.41
Demographic	217.47	48	.95	.02	.98	.98	4.53	.43
Role Stress	292.73	11	.81	.07	.85	.73	26.61	.70
Job Characteristics	352.54	17	.83	.05	.86	.78	20.74	.85
Supervision	118.68	11	.92	.04	.96	.93	10.79	.67
Structure	300.08	7	.73	.16	.84	.54	42.87	.79
Sector	288.88	5	.71	.16	.81	.44	57.78	.45

<sup>a</sup> N for all chi-squares was 1,041. All chi-squares were significant ( $p < .001$ ). AGFI = adjusted goodness of fit index; RMSR = root mean square residual; NFI = normed fit index; TLI = Tucker-Lewis fit index; NC = normed chi-square parsimony measure.

\* Co-efficient of determination (total variance in work attitudes accounted for by model).

Three models (Work Attitudes, Demographic, Supervision) exceeded the minimum AGFI criteria of .90 (Bentler & Bonett, 1980), indicating a high degree of fit relative to the number of parameters estimated (see Table 9.8). All three models had RMSR indices below .05 indicating sufficient fit based on Jöreskog and Sörbom's (1989) criteria. In addition, The Normed Fit Index (NFI) and Tucker-Lewis Index (TLI) measures that assess the incremental fit of the model compared to a null (independence) model, exceeded .90 reflecting good model fit. To achieve this acceptable level of fit, the Work Attitudes, Demographic and Supervision models estimated a lower number of co-efficients (as reflected in the Normed Chi-Square measure) compared to job, role, structure and sector models. Thus, absolute, incremental and parsimony values indicated that the hypothesised Work Attitudes,

Demographic and Supervision models have good model fit. Hence, all three-best fitting models should display adequate model fit in an integrated model.

By contrast, Role, Job, Structure, and Sector models displayed absolute and incremental fit measures below the .90 minimum critical value (Bentler & Bonett, 1980), RMSR values greater or equal to .05 (Jöreskog and Sörbom, 1989) and relatively high Normed Chi-square values (Jöreskog, 1969). These results suggest unacceptable levels of model fit and hence limited utility in an integrated, parsimonious model.

### 9.10 Integrated Models

Recognising that demographic variables may interact with perceived work environment variables in determining work attitudes (Blau, 1987; Lewin, 1951), the demographic best-fitting model was expanded to include the interaction effects of five work environment exogenous variables (i.e., role stress, job characteristics, supervisory consideration, organisation structure, sectoral changes). Thus, the analysis included five new Integrative Models: (1) Integrated Role Stress, (2) Integrated Job Characteristics, (3) Integrated Supervision, (4) Integrated Structure, and (5) Integrated Sector. Each model was tested for fit with the data.

Table 9.9 presents the results of Integrated Model Comparisons. All five integrated models showed stronger incremental fit indices with the inclusion of demographic variables (see NFI and TLI indices in Tables 9.8 and 9.9). All incremental indices (Normed Fit Index, Relative Fit Index, Incremental Fit Index, Tucker-Lewis Index, Comparative Fit Index) were greater than .90 signifying acceptable incremental fit for the integrated (hypothesised) model compared to the independence (null) model (Bentler & Bonett, 1980; McDonald & Marsh, 1990).

**Table 9.9**  
**Results of Integrated Model Comparisons<sup>a</sup>**

Integrated Model	$\chi^2$	df	AGFI	RMSR	NFI	TLI	NC	R <sup>2</sup> <sup>b</sup>
Role Stress	845.53	81	.85	.07	.93	.91	10.44	.78
Job Characteristics	606.40	94	.90	.03	.95	.95	6.45	.86
Supervision	379.28	80	.93	.03	.97	.97	4.74	.67
Structure	825.00	72	.86	.08	.93	.91	11.46	.80
Sector	540.73	65	.90	.07	.95	.94	8.32	.47

<sup>a</sup> N for all chi-squares was 1,041. All chi-squares were significant ( $p < .000$ ). AGFI = adjusted goodness of fit index; RMSR = root mean square residual; NFI = normed fit index; TLI = Tucker-Lewis fit index; NC = normed chi-square parsimony measure.

<sup>b</sup> Co-efficient of determination (total variance in work attitudes accounted for by model).

### 9.10.1 Integrated Role Stress Model

The Integrated Role Stress Model produced the highest significant chi-square ( $\chi^2=845.53$ ,  $df=81$ ,  $p<.001$ ) of all integrated models. The model also showed lower absolute model fit indices (AGFI=.85, RMSR=.07) compared to supervisor (AGFI=.93, RMSR=.03) and job characteristics (AGFI=.90, RMSR=.03) integrated models. In addition, the integrated role stress model displayed a high Normed Chi-Square value compared to supervisor and job characteristics models (see Table 9.9). Results indicated the role stress model did not provide an acceptable fit to the observed data and needed improvement. Hence, the role stress model could not be considered a best-fitting integrated model.

### 9.10.2 Integrated Job Characteristics Model

The Integrated Job Characteristics Model showed acceptable levels of absolute model fit (GFI=.93, AGFI=.90, RMSR=.03) according to Bentler and Bonett (1980) and Bollen's (1989) criteria. In addition, the model displayed the highest explained variance of all integrated models ( $R^2 = .86$ ). Table 9.9 indicates incremental fit indices were strong (NFI=.95, TLI=.95) reflecting a good fit with the observed data. A Normed Chi-Square parsimony measure of 6.45 was close to 5 indicating model fit (Jöreskog, 1969). The Integrated Job Characteristics Model accounted for 26 per cent of the variance in job involvement and 60 per cent of the variance in organisation commitment. Path estimates indicated job characteristics were strongly and negatively associated with job involvement (standardised co-efficient = -.51,

$p < .01$ ) and strongly and positively associated with organisation commitment (standardised co-efficient = .53,  $p < .01$ ).

### 9.10.3 Integrated Supervision Model

The Integrated Supervision Model produced a significant chi-square result ( $\chi^2 = 379.28$ ,  $df = 80$ ,  $p < .001$ ), the lowest of all the integrated models (see Table 9.9). The Adjusted Goodness of Fit Index (AGFI=.93) and Root Mean Square Residual (RMSR=.03) in this model indicated an acceptable fit between observed and expected covariance matrices (Bollen, 1989). A strong Normed Fit Index (NFI=.97), the highest of all the integrated models, reflected good model fit (Bentler & Bonett, 1980). The Normed Chi-Square parsimony value of 4.74, the lowest of all the integrated models, indicated the supervisor model fit the observed data well based on Jöreskog's (1969) criteria. The Integrated Supervision Model accounted for 6 per cent of the variance in job involvement and 61 per cent of the variance in organisation commitment. Path estimates indicated supervisory consideration was negatively associated with job involvement (standardised co-efficient = -.23,  $p < .01$ ) and positively associated with organisation commitment (standardised co-efficient = .45,  $p < .01$ ).

### 9.10.4 Integrated Structure Model

The Integrated Structure Model produced the second highest chi-square result ( $\chi^2 = 825.00$ ,  $df = 72$ ,  $p < .001$ ) and lower model fit indices (AGFI=.86, RMSR=.08) compared to job characteristics (AGFI=.90, RMSR=.03) and supervision (AGFI=.93, RMSR=.03) models. The structure model also displayed the highest Normed Chi-Square value (NC=11.46) of all competing models. On the basis of this evidence, the integrated structure model could not be considered a best-fitting model.

### 9.10.5 Integrated Sector Model

The Integrated Sector Model produced a higher significant chi-square ( $\chi^2 = 540.73$ ,  $df = 65$ ,  $p < .001$ ) but showed a significant improvement in absolute fit (AGFI=.90, RMSR=.07) compared to its non-demographic variable counterpart ( $\chi^2 = 288.88$ ,  $df = 5$ ,  $p < .000$ , AGFI=.71, RMSR=.16). However, an RMSR value of .07 indicated insufficient model fit based on Jöreskog and Sörbom's (1989) criteria. The inclusion

of demographic variables did not make a significant difference to the amount of total variance explained by the model ( $R^2=.47$ ). In view of the low predictive power of sectoral changes (accounting for just 2 per cent of variance in job involvement), and the relatively high RMSR value, the sector model could not be considered a best-fitting model.

#### **9.10.6 Best-Fitting Integrated Model**

Job characteristics and supervision integrated models were selected as best-fitting on the basis of absolute, incremental, and parsimony model fit measures exceeding minimum criteria suggested by Bentler and Bonett (1980) and McDonald and Marsh (1990).

##### **9.10.6.1 Job Characteristics – Supervision Integrated Model**

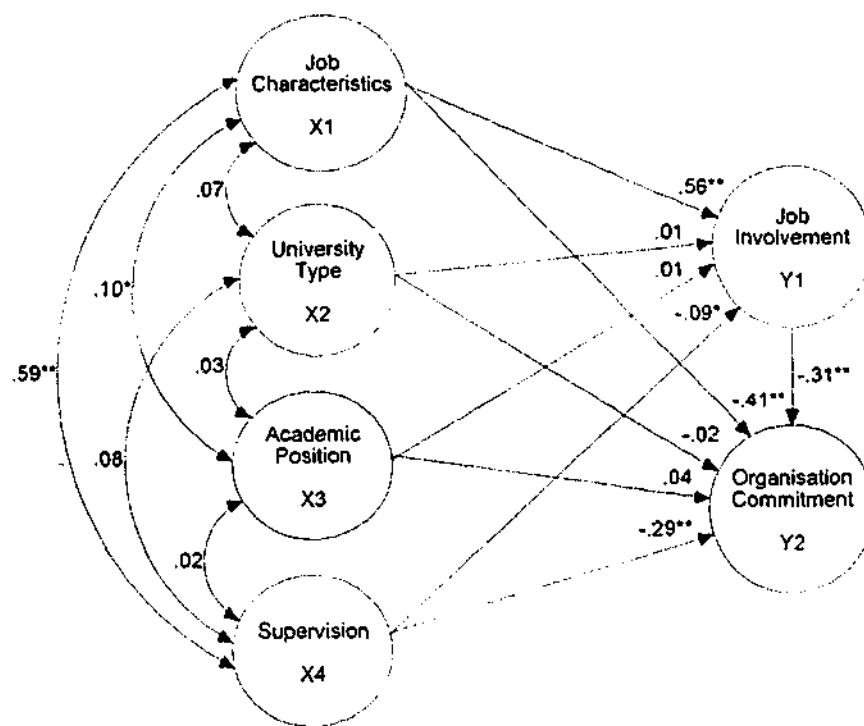
The Job Characteristics – Supervision Integrated Model produced a significant chi-square ( $\chi^2 = 1,179.06$ ,  $df=145$ ,  $p<.001$ ) and showed acceptable levels of absolute (GFI=.90, AGFI=.87, RMSR=.04) and incremental (NFI=.92, TLI=.92) model fit. The independence model, that tests the hypothesis that the variables are uncorrelated with one another, was easily rejected ( $\chi^2 = 14,787.30$ ,  $df=171$ ,  $p<.001$ ). The model explained 26 per cent of the variance in job involvement ( $R^2=.26$ ) and 66 per cent of the variance in organisation commitment ( $R^2=.66$ ). Table 9.10 presents model fit results for the Job Characteristics – Supervision Integrated Model.

Table 9.10

## Job Characteristics – Supervision Integrated Model Results

Job Characteristics – Supervision Model	Hypothesised Model	Independence Model
<b>Absolute Indices</b>		
Chi – Square ( $\chi^2$ )	1,179.06	14,787.30
Degrees of Freedom ( <i>df</i> )	145	171
Goodness of Fit Index (GFI)	.90	.37
Adjusted Goodness of Fit Index (AGFI)	.87	.30
Root Mean Square Residual (RMSR)	.04	.49
<b>Incremental Indices</b>		
Normed Fit Index (NFI)	.92	
Relative Fit Index (RFI)	.91	
Incremental Fit Index (IFI)	.93	
Tucker-Lewis Index (TLI)	.92	
Comparative Fit Index (CFI)	.93	
<b>Parsimonious Measures</b>		
Normed Chi-square ( $\chi^2/df$ )	8.13	86.48
Parsimony Ratio	.85	
<b>Explained Variance</b>		
Job Involvement	.26	
Organisation Commitment	.66	

The Job Characteristics – Supervision Integrated Model explained 6 per cent more total variance in work attitudes compared to the Integrated Job Characteristics Model ( $R^2=.86$ ), and 25 per cent more variance in work attitudes compared to the Integrated Supervision Model ( $R^2=.67$ ). Results suggest job characteristics are stronger predictors of work attitudes compared to supervisory style factors. Standardised path estimates for the Job Characteristics – Supervision Integrated Structural Model are shown in Figure 9.18.



\*  $p < .05$ , \*\*  $p < .01$

Figure 9.18

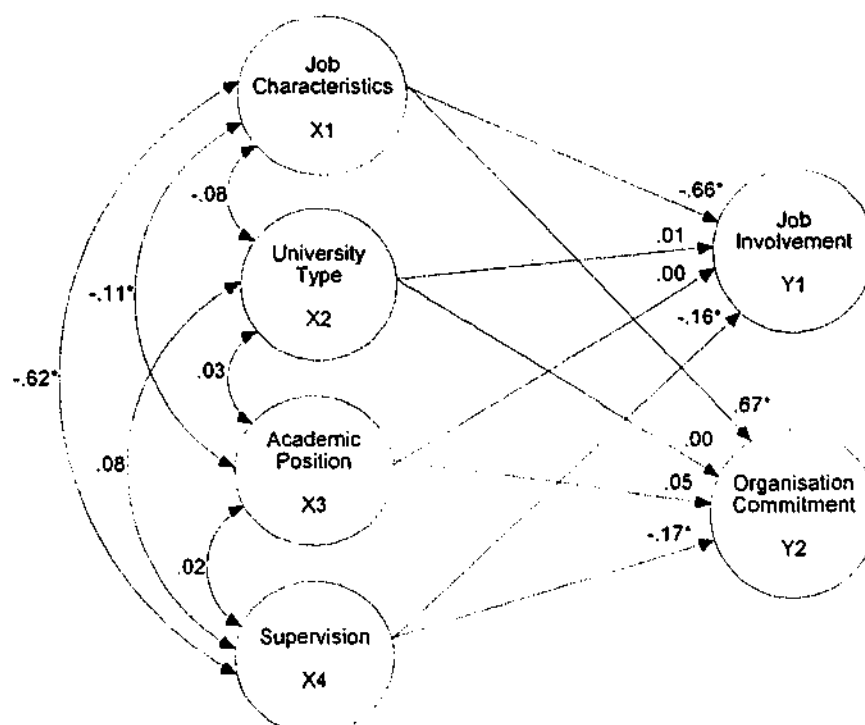
**Standardised Path Estimates for the Job Characteristics – Supervision Integrated Structural Model**

As can be seen in Figure 9.18, job characteristics were strongly and positively associated with job involvement (standardised co-efficient = .56,  $p < .01$ ) and strongly and negatively associated with organisation commitment (standardised co-efficient = -.41,  $p < .01$ ). Supervision was weakly and negatively associated with job involvement (standardised co-efficient = -.09,  $p < .05$ ) and moderately and negatively associated with organisation commitment (standardised co-efficient = -.29,  $p < .01$ ). Job characteristics and supervision were strongly and positively correlated (covariance = .59,  $p < .01$ ).

**9.10.6.2 Job Characteristics – Supervision Modified Model**

Removal of the negative path between job involvement and organisation commitment resulted in a modified model with a slightly higher chi-square ( $\chi^2 = 1,228.14$ ,  $df = 146$ ,  $p < .001$ ) and slightly lower model fit indices (GFI=.89, AGFI=.86, RMSR=.04).

The Job Characteristics – Supervision Modified Model accounted for 33 per cent of the variance in job involvement and 61 per cent of the variance in organisation commitment (7 per cent more job involvement and 5 per cent less organisation commitment compared to the unmodified model). Standardised path estimates for the Job Characteristics – Supervision Modified Structural Model are shown in Figure 9.19.



\*  $p < .01$

Figure 9.19

**Standardised Path Estimates for the Job Characteristics – Supervision Modified Structural Model**

As can be seen from Figure 9.19, supervisory consideration remained negatively but significantly associated with job involvement (standardised co-efficient =  $-.16$ ,  $p < .01$ ) and organisation commitment (standardised co-efficient =  $-.17$ ,  $p < .01$ ). However, job characteristics were now negatively and strongly associated with job involvement (standardised co-efficient =  $-.66$ ,  $p < .01$ ) and positively and strongly associated with organisation commitment (standardised co-efficient =  $.67$ ,  $p < .01$ ). Supervisory consideration and job characteristics now showed a strong negative association (covariance =  $-.62$ ,  $p < .01$ ). On the basis of this evidence, job characteristics and supervision weaken job involvement directly thus moderating the



strength of the positive relationship between job involvement and organisation commitment. Job characteristics exert a strong positive direct effect on organisation commitment, and a strong negative indirect effect (through job involvement) on organisation commitment. Supervision exerts a weak negative direct effect on organisation commitment, and a weak negative indirect effect (through job involvement) on organisation commitment.

## 9.11 Summary

In this chapter, the relative fit of demographic and work environment structural models were assessed. Absolute, incremental, and parsimony measures were reported to assess model fit. Standardised path estimates (regression co-efficients) illustrated the strength of variable relationships in the structural model thus supporting or not supporting hypotheses posited by theory.

Results of structural model comparisons indicated three models (Work Attitudes, Demographic, Supervision) had good model fit while four models (Role Stress, Job Characteristics, Structure, Sector) displayed unacceptable levels of model fit. Results of integrated model comparisons indicated three models (Role Stress, Structure, Sector) had insufficient model fit and needed improvement. Two models (Job Characteristics, Supervision) were selected as best-fitting on the basis of absolute, incremental, and parsimony model fit measures exceeding minimum criteria. The **Job Characteristics – Supervision Integrated Model** showed acceptable levels of model fit ( $GFI=.90$ ,  $AGFI=.87$ ,  $RMSR=.04$ ,  $NFI=.92$ ,  $TLI=.92$ ) accounting for 26 per cent of the variance in job involvement and 66 per cent of the variance in organisation commitment.

Removal of the negative structural path between job involvement and organisation commitment resulted in the **Job Characteristics – Supervision Modified Model**. This model accounted for 33 per cent of the variance in job involvement and 61 per cent of the variance in organisation commitment. Path estimates indicated job characteristics and supervision weaken job involvement directly thus moderating the strength of the positive relationship between job involvement and organisation commitment. Job characteristics exert a strong positive direct effect on organisation

commitment. Supervision exerts a weak negative direct effect on organisation commitment.

## 9.12 Hypotheses Supported

### 9.12.1 Job Involvement and Organisation Commitment

Job involvement was strongly and positively associated with organisation commitment (standardised co-efficient = .64,  $p < .01$ ) thus supporting **Hypothesis 1a** (the more job involvement academics express, the greater their organisation commitment). The Work Attitudes Structural Model showed strong model fit (see Table 9.8). The inclusion of demographic, role stress, structure, and sector latent variables in the work attitudes model did not alter the strong positive association between job involvement and organisation commitment.

### 9.12.2 Job Characteristics and Organisation Commitment

Job characteristics were strongly and positively associated with organisation commitment (standardised co-efficients = .53, .74, .67,  $p < .01$  respectively) in three structural models (see Figures 9.9, 9.10 and 9.19) thus supporting **Hypothesis 3b** (the more autonomy, task identity, feedback, and job challenge academics perceive, the greater their organisation commitment).

### 9.12.3 Supervisory Consideration and Organisation Commitment

Supervisory consideration was strongly and positively associated with organisation commitment (standardised co-efficient = .46,  $p < .01$ ) in the Structural Model (see Figure 9.12) and negatively associated with organisation commitment (standardised co-efficients = -.29, -.17,  $p < .01$  respectively) in the Integrated Job Characteristics – Supervision Structural Models (see Figures 9.18 and 9.19). Results provided limited support for **Hypothesis 4b** (the more supportive leadership and considerate behaviour academics perceive, the greater their organisation commitment).

### 9.12.4 Formalisation and Job Involvement

Formalisation was negatively and significantly associated with job involvement (standardised co-efficient = -.20,  $p < .01$ ) in the Structural Model (see 9.15) thus

providing support for **Hypothesis 7a** (the more formalisation academics perceive, the lower their job involvement).

#### **9.12.5 Corporate Reforms and Job Involvement**

Corporate reforms were negatively but weakly associated with job involvement (standardised co-efficient =  $-.10$ ,  $p < .05$ ) thus providing limited support for **Hypothesis 9a** (the greater the perceived impact of corporate reforms on academic work, the lower the job involvement of academics).

### **9.13 Hypotheses Not Supported**

Role stress, structure, and sector models displayed unacceptable levels of structural (see Table 9.8) and integrated (see Table 9.9) model fit. Hence, the majority of role stress, structure, and sector work attitude hypotheses were not supported.

#### **9.13.1 Organisation Commitment and Job Involvement**

A reciprocal work attitudes model could not be identified thus **Hypothesis 1b** (the less organisation commitment academics express, the lower their job involvement) was not supported.

#### **9.13.2 Role Stress and Work Attitudes**

Role stress was positively and significantly associated with job involvement and organisation commitment thus providing no support for **Hypothesis 2a** (the more role ambiguity, role conflict, and role overload academics perceive, the lower their job involvement) and no support for **Hypothesis 2b** (the more role ambiguity, role conflict, and role overload academics perceive, the lower their organisation commitment).

#### **9.13.3 Job Characteristics and Job Involvement**

Job characteristics were negatively and significantly associated with job involvement thus providing no support for **Hypothesis 3a** (the more autonomy, task identity, feedback, and job challenge academics perceive, the greater their job involvement).

#### 9.13.4 Supervisory Consideration and Job Involvement

Consideration was negatively associated with job involvement thus providing no support for **Hypothesis 4a** (the more supportive leadership and considerate behaviour academics perceive, the greater their job involvement).

#### 9.13.5 Centralisation and Work Attitudes

Hierarchy of authority was positively associated with job involvement and organisation commitment thus providing no support for **Hypothesis 5a** (the more hierarchy of authority academics perceive, the lower their job involvement) and no support for **Hypothesis 5b** (the more hierarchy of authority academics perceive, the lower their organisation commitment).

Participation in decision making was negatively associated with job involvement and organisation commitment thus providing no support for **Hypothesis 6a** (the more participation in decision making academics perceive, the greater their job involvement) and no support for **Hypothesis 6b** (the more participation in decision making academics perceive, the greater their organisation commitment).

#### 9.13.6 Formalisation and Work Attitudes

A weak association between formalisation and organisation commitment provided no support for **Hypothesis 7b** (the more formalisation academics perceive, the lower their organisation commitment) and no support for **Hypothesis 8b** (the more formalisation academics perceive, the greater their organisation commitment). Formalisation was negatively and significantly associated with job involvement thus providing no support for **Hypothesis 8a** (the more formalisation academics perceive, the greater their job involvement).

#### 9.13.7 Sectoral Changes and Work Attitudes

Corporate reforms were positively associated with organisation commitment providing no support for **Hypothesis 9b** (the greater the perceived impact of corporate reforms on academic work, the lower the organisation commitment of academics). A positive association between academic pressures and job involvement provided no support for **Hypothesis 9c** (the more academic pressures academics perceive, the lower the job involvement of academics). A weak negative association

between academic pressures and organisation commitment provided no support for **Hypothesis 9d** (the more academic pressures academics perceive, the lower the organisation commitment of academics).

## **CHAPTER TEN**

### **SUMMARY, DISCUSSION AND IMPLICATIONS**

#### **10.1 Introduction**

The chapter begins with a brief summary of the study and its aims. The conceptual framework of the study and research methods follow. A summary of research findings, including support for research hypotheses is then presented. Next, a discussion of research findings features integrative models and concepts to explain the work environment and work attitude responses of academics. Next, conclusions identify positive and negative quality of academic work life characteristics. Implications for research and practice are then highlighted. The chapter concludes with work redesign recommendations designed to increase academic motivation and university effectiveness.

#### **10.2 Summary of the Study**

##### **10.2.1 Purpose of the Study**

This quality of work life study addressed the problem of declining academic morale and motivation in Australian universities by identifying which work environment characteristics were associated with positive/negative work attitudes of academics. Five research questions framed the purpose of the study:

1. What are the work environment perceptions and work attitudes of academics across the sample?
2. Which demographic variables account for significant differences in the work environment and work attitude responses of academics?
3. What is the underlying factor structure of survey measures? How well do observed indicator variables measure unobserved latent variables?
4. Which demographic variables and work environment characteristics represent significant work attitude predictors?
5. How do demographic variables and work environment characteristics relate to the work attitudes of academics? What is the strength and direction of this relationship?

### 10.2.2 Conceptual Framework

The study focused on the perceived work environment of academics to understand and explain their quality of work life (Balch & Blanck, 1989). The Quality of Academic Work Life (QAWL) was conceptualised as a perceptual response to the prevailing work environment that induces high/low levels of job involvement and organisation commitment. Hence, academics express strong/weak levels of work motivation (i.e., job involvement, organisation commitment) when the immediate work environment satisfies/denies academics' growth and professional autonomy needs (Hackman & Oldham, 1980; Kanungo, 1992; Lewis & Altbach, 1996; Nixon, 1996). The study's Quality of Academic Work Life Conceptual Model is shown in Figure 10.1.

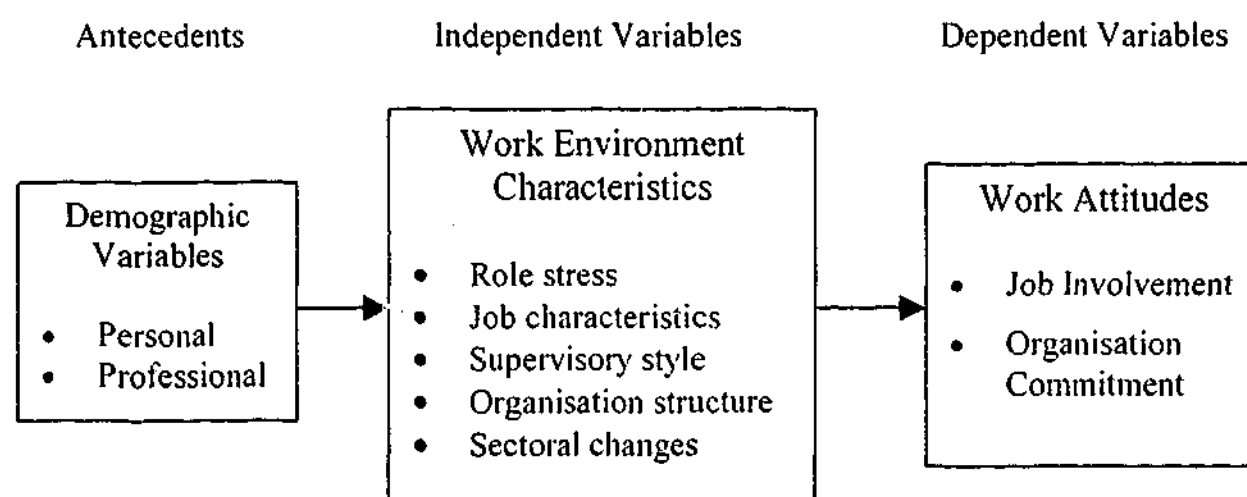


Figure 10.1

Quality of Academic Work Life Conceptual Model

#### 10.2.2.1 Demographic Variables

Two personal (age, gender) and nine professional (qualifications, position, hours, contract, university service, higher education service, function, discipline area, university type) characteristics were designated demographic variables for cross-sample analysis purposes.

#### 10.2.2.2 Work Environment Characteristics

The work environment was conceptualised in terms of: (1) role stress characteristics (role ambiguity, role conflict, role overload), (2) job characteristics (job challenge, autonomy, task identity, feedback), (3) supervisory style characteristics (supportive

leadership, considerate behaviour, lack of consideration), (4) university structural characteristics (centralisation, formalisation), and (5) sectoral changes (corporate reforms, academic pressures) that directly and indirectly shape the experiences, attitudes, and behaviour of academics on a daily basis.

#### 10.2.2.3 Work Attitudes

The work attitudes of academics were operationalised in terms of: (1) job involvement (job involvement, job attachment) and, (2) organisation commitment (affective commitment, membership commitment) dimensions. An academic involved in and attached to her/his job "implies a positive and relatively complete state of engagement of core aspects of the self in the job" (Brown, 1996:235). Hence, the job is central to the academic's psychological identity (Blau, 1985:33). An academic expressing commitment to the university indicates a degree of emotional attachment to the organisation (affective commitment) and a willingness to exert considerable effort on its behalf (Mowday et al., 1979:226). The desire to remain employed (membership commitment) indicates value congruency and is a strong indicator of psychological commitment to the institution (Balfour & Wechsler, 1991).

#### 10.2.3 Research Methods

A correlational field study research design was selected to examine the relationships between antecedent (demographic), independent (work environment) and dependent (work attitude) variables at a single point in time (Creswell, 1994). Surveys were administered to stratified samples of academics in eight university work environments utilising a two-stage proportional sampling design. In stage one, 36 publicly-funded universities were designated primary sampling units and divided into four categories: (1) sandstone research institutions; (2) regional universities; (3) generalist metropolitan universities; and (4) universities of technology. Two universities were then randomly selected from each of the four university groups to ensure adequate numbers for cross-sector analysis purposes. In stage two, 6,932 full-time staff in the eight selected institutions were designated secondary sampling units and stratified by position (five levels) and discipline area (five areas) using staff listings provided in the 1998 issues of each institution's Calendar.



### 10.2.3.1 Data Collection and Analysis

A self-administered mail survey, the Academic Work Environment Survey (AWES), was designed, pre-tested (18 academic participants at various levels across four disciplines), piloted (e-mail and hard copy in two universities) and administered to a stratified random sample of 2,609 academics in eight universities between August and September 1998. A total of 1,041 usable surveys were returned representing a 40 per cent response rate.

Data analysis consisted of descriptive statistics (means, standard deviations) and qualitative comments to describe the work environment perceptions and work attitudes of academics. One-way analyses of variance (ANOVA), *t*-tests and Scheffé post-hoc tests indicated significant differences in overall mean scores at specified levels of significance. Multiple regression analyses were employed to determine significant work attitude predictors. Structural equation modeling techniques were utilised to confirm the factorial structure of survey measures and to examine demographic, work environment-work attitude variable relationships.

### 10.2.4 Sample

Most of the 1,041 respondents were male (65 per cent), aged between 40 and 59 years of age (69 per cent), full-time (91 per cent), tenured/ongoing (68 per cent), employed at the lecturer and senior lecturer levels (30 per cent and 33 per cent respectively), and engaged primarily in teaching and research roles (75 per cent). A majority of respondents indicated they had seven or more employment years at their current university (65 per cent) and in higher education (73 per cent). The sample was representative of the 1998 academic staff higher education population in terms of gender (DETYA, 1998a). By age groups, the sample was under-representative of staff less than 30 years of age and over-representative of staff 50 to 59 years of age. In terms of academic position, the sample included 8 per cent more senior lecturer and 12 per cent less associate lecturer positions compared to the national higher education population.

### **10.3 Summary of Research Findings**

#### **10.3.1 Research Aim 1: Work Environment Perceptions and Work Attitudes of Academics**

##### **10.3.1.1 Work Environment Perceptions**

Respondents perceived low levels of role ambiguity and high levels of job challenge, autonomy and task identity in their current jobs. The majority of respondents rated their immediate supervisor as exhibiting a considerate (supportive) leadership style. Comments indicated the immediate work environment was characterised by friendly and collegiate relationships with colleagues.

Negative (demotivating) perceptions of the work environment included role overload, low levels of job feedback, trivial job tasks, low participation in decision making, and poor promotions and rewards practices. Respondents indicated reduced funding, managerialism in academe, and declining educational standards were negative characteristics of their work environments.

##### **10.3.1.2 Work Attitudes**

Respondents expressed moderate levels of job involvement and organisation commitment. Academics indicated they were very much personally involved in their jobs (i.e., they did not feel alienated from their jobs) but they had personal interests outside their jobs that were not being fulfilled. Academics indicated they were willing to exert a great deal of effort to help the university be successful but did not believe the university inspired them in the way of job performance (i.e., academic effort not matched by university rewards). Respondents expressed value conflict with respect to funding cuts, economic rationalism and the adoption of business-related practices in universities.

#### **10.3.2 Research Aim 2: Significant Demographic Differences in Academic Responses**

##### **10.3.2.1 Age, Gender, Qualifications and Position**

Academics 30 to 39 years of age reported significantly lower levels of participation compared to academics in older age groups. Female academics reported significantly lower levels of participation and formalisation compared to their male counterparts.

Academics holding doctorate degrees reported significantly more participation and job involvement compared to academics holding masters degrees. Associate lecturers, lecturers and senior lecturers indicated significantly higher levels of hierarchy of authority, and lower levels of participation and job involvement compared to academics in professorial positions. Associate lecturers reported significantly lower levels of role conflict compared to lecturers, senior lecturers and professors and lecturers reported significantly lower levels of job challenge compared to academics in all other positions.

#### **10.3.2.2 Contract Hours, Contract Status and Function**

Full-time and tenured staff reported significantly more participation and role stress compared to fractional full-time staff and staff employed on fixed-term contracts. Full-time staff reported significantly more job involvement but significantly less organisation commitment compared to fractional full-time staff. Academics in teaching only roles reported significantly lower levels of role overload, job feedback, job challenge, participation and job involvement compared to academics in teaching and research roles.

#### **10.3.2.3 Discipline Areas and University Type**

Academics from the health sciences disciplines reported significantly more organisation commitment compared to academics from all other discipline areas. Academics in universities of technology reported significantly more role ambiguity and formalisation, and lower levels of job feedback and supervisory consideration compared to staff in sandstone, metropolitan and regional institutions. Staff from sandstone and metropolitan universities reported significantly more organisation commitment compared to staff from universities of technology and regional universities.

### **10.3.3 Research Aim 3: Validity of Survey Measures**

#### **10.3.3.1 Unidimensionality of Measures**

Strong standardised factor co-efficients, squared multiple correlations above .30 ( $p < .001$ ) and low error terms indicated observed variables (measures) loaded adequately on their respective factors. The unidimensionality of measures was

confirmed by significant correlations between factors and references to previous studies.

#### **10.3.3.2 Goodness of Fit of Measures**

Confirmatory factor analysis results for work environment (role stress, job characteristics, supervisory consideration, organisation structure, sectoral changes) and work attitude (job involvement, organisation commitment) measurement models indicated the goodness of fit (validity) of survey measures. All of the models exceeded the Adjusted Goodness of Fit (AGFI) criteria of .90 (Bentler & Bonett, 1980:600) indicating a high degree of model fit relative to the number of parameters estimated. All of the models, with the exception of the organisation structure model, had Root Mean Square Residual (RMSR) indices below .05 indicating sufficient fit based on Jöreskog and Sörbom's (1989) criteria.

### **10.3.4 Research Aim 4: Work Attitude Predictors**

#### **10.3.4.1 Job Involvement**

Significant predictors of job involvement factors were organisation commitment factors and professional demographic variables. In total, 21 per cent of the variance in job involvement was accounted for by organisation commitment factors (9 per cent) and demographic variables (9 per cent). In total, 48 per cent of the variance in job attachment was explained by organisation commitment factors (31 per cent), demographic variables (8 per cent) and job characteristics factors (6 per cent). The three strongest positive predictors of job involvement factors were associate professor and professor demographic variables, and the affective commitment factor. The three strongest negative predictors of job involvement factors were associate lecturer, lecturer, and teaching only demographic variables.

#### **10.3.4.2 Organisation Commitment**

Significant predictors of organisation commitment factors were role stress factors, job involvement factors, and professional demographic variables. In total, 50 per cent of the variance in membership commitment was accounted for by role stress factors (18 per cent), job involvement factors (14 per cent), demographic variables (8 per cent) and job characteristics factors (5 per cent). In total, 38 per cent of the

variance in affective commitment was accounted for by job involvement factors (29 per cent) and demographic variables (4 per cent). The three strongest positive predictors of organisation commitment factors were the job attachment factor, and professor and associate professor demographic variables. The three strongest negative predictors of organisation commitment factors were role ambiguity, hierarchy of authority and the lecturer demographic variable.

### **10.3.5 Research Aim 5: Work Environment and Work Attitude Relationships**

Table 10.1 presents a summary of support for research hypotheses based on correlation, multiple regression, structural equation modeling results and qualitative findings.

#### **10.3.5.1 Work Attitude Relationships**

**Hypothesis 1a** was supported that the more job involvement academics express, the greater their organisation commitment.

Job involvement factors correlated positively and significantly with organisation commitment factors. Job attachment strongly and significantly predicted affective commitment suggesting academics engaged in their jobs also express a strong attachment to their universities (Brown, 1996:239). Structural equation modeling results strongly supported Hypothesis 1a.

**Hypothesis 1b**, the less organisation commitment academics express, the lower their job involvement, received limited support.

Affective commitment strongly and positively predicted job attachment suggesting academics expressing low levels of attachment to their universities would also express a sense of detachment (alienation) from their jobs. This relationship was not strongly supported by structural equation modeling results (negative correlations). Overall results provided limited support for Hypothesis 1b.

**Table 10.1**  
**Support for Research Hypotheses based on Correlation, Multiple Regression, Structural Equation Modeling Results and Qualitative Findings**

Hypotheses <sup>a</sup>	COR <sup>b</sup>	MR <sup>c</sup>	SEM <sup>d</sup>	QF <sup>e</sup>	Comments
More JI, greater OC (H1a)	Support	Support	Support	None	JI strongly and positively associated with OC. SEM showed strong model fit supporting H1a.
Less OC, lower JI (H1b)	Support	Support	No Support	None	Reciprocal JI-OC model unidentifiable thus limited support for H1b.
More RS, lower JI (H2a)	Limited Support	Limited Support	Limited Support	Limited Support	QF indicated role overload lowers JI. SEM showed weak fit to the data thus limited support for H2a.
More RS, lower OC (H2b)	Support	Support	Limited Support	Support	QF indicated role overload, value conflict associated with low OC. RS showed a positive association with OC in SEM thus limited support for H2b.
More JC, greater JI (H3a)	Support	Limited Support	No Support	Limited Support	QF, COR and MR indicated job challenge strongly and positively associated with job attachment. SEM indicated JC directly weaken JI thus limited support for H3a.
More JC, greater OC (H3b)	Support	Support	Support	Support	Strong positive co-efficient in SEM. Results strongly support H3b.

<sup>a</sup> JI = Job involvement; OC = Organisation commitment; RS = Role stress; JC = Job characteristics; SC = Supervisory consideration; HA = Hierarchy of authority;

PD = Participation in decision making; FO = Formalisation; CR = Corporate reforms; AP = Academic pressures.

<sup>b</sup> COR = Correlation results.

<sup>c</sup> MR = Multiple regression results.

<sup>d</sup> SEM = Structural equation modeling results.

<sup>e</sup> QF = Qualitative findings.

Table 10.1 (continued)

## Support for Research Hypotheses based on Correlation, Multiple Regression, Structural Equation Modeling Results and Qualitative Findings

Hypotheses <sup>a</sup>	COR <sup>b</sup>	MR <sup>c</sup>	SEM <sup>d</sup>	QF <sup>e</sup>	Comments
More SC, greater JI (H4a)	Limited Support	No Support	No Support	None	COR and MR showed weak associations between SC and JI. SC negatively associated with JI in SEM. No support for H4a.
More SC, greater OC (H4b)	Support	Support	Support	Limited Support	SEM had good fit to the data. SC reduces OC when including the effects of JC and JI. Overall results provided support for H4b.
More HA, lower JI (H5a)	Support	No Support	No Support	None	COR indicated negative associations between HA and job attachment. SEM showed poor fit to the data. Positive associations between HA and JI in SEM thus no support for H5a.
More HA, lower OC (H5b)	Support	Support	No Support	Support	QF, COR and MR results indicated negative associations between HA and OC. SEM had poor fit to the data. Positive associations between HA and OC in SEM thus limited support for H5b.

<sup>a</sup> JI = Job involvement; OC = Organisation commitment; RS = Role stress; JC = Job characteristics; SC = Supervisory consideration; HA = Hierarchy of authority; PD = Participation in decision making; FO = Formalisation; CR = Corporate reforms; AP = Academic pressures.

<sup>b</sup> COR = Correlation results.

<sup>c</sup> MR = Multiple regression results.

<sup>d</sup> SEM = Structural equation modeling results.

<sup>e</sup> QF = Qualitative findings.

Table 10.1 (continued)

**Support for Research Hypotheses based on Correlation, Multiple Regression, Structural Equation Modeling Results and Qualitative Findings**

Hypotheses <sup>a</sup>	COR <sup>b</sup>	MR <sup>c</sup>	SEM <sup>d</sup>	QF <sup>e</sup>	Comments
More PD, greater JI (H6a)	Support	No Support	No Support	None	Overall results provided no support for H6a.
More PD, greater OC (H6b)	Support	Support	No Support	None	COR and MR indicated positive associations between PD and OC. SEM indicated negative co-efficient thus limited support for H6b.
More FO, lower JI (H7a)	No Support	No Support	Support	None	Weak associations indicated by COR and MR. FO negatively associated with JI in SEM thus limited support for H7a.
More FO, lower OC (H7b)	Limited Support	No Support	No Support	None	Weak, non-significant relationships. No support for H7b.
More FO, greater JI (H8a)	No Support	No Support	No Support	None	A weak relationship. Negative association shown in SEM. No support for H8a.
More FO, greater OC (H8b)	Limited Support	No Support	No Support	None	A weak relationship. No support for H8b.

<sup>a</sup> JI = Job involvement; OC = Organisation commitment; RS = Role stress; JC = Job characteristics; SC = Supervisory consideration; HA = Hierarchy of authority; PD = Participation in decision making; FO = Formalisation; CR = Corporate reforms; AP = Academic pressures.

<sup>b</sup> COR = Correlation results.

<sup>c</sup> MR = Multiple regression results.

<sup>d</sup> SEM = Structural equation modeling results.

<sup>e</sup> QF = Qualitative findings.



Table 10.1 (continued)

**Support for Research Hypotheses based on Correlation, Multiple Regression, Structural Equation Modeling Results and Qualitative Findings**

Hypotheses <sup>a</sup>	COR <sup>b</sup>	MR <sup>c</sup>	SEM <sup>d</sup>	QF <sup>e</sup>	Comments
More CR, lower JI (H9a)	No Support	No Support	Limited Support	Limited Support	COR and MR showed positive associations. SEM indicated a negative co-efficient. Results provided limited support for H9a.
More CR, lower OC (H9b)	Limited Support	No Support	No Support	Support	QF provided strong support, COR indicated negative association and SEM a positive association. Overall results provided limited support for H9b.
More AP, lower JI (H9c)	No Support	Limited Support	No Support	None	Weak and inconsistent relationship. SEM showed poor fit to the data. No support for H9c.
More AP, lower OC (H9d)	Limited Support	No Support	No Support	None	Weak and inconsistent relationship. SEM showed poor fit to the data. No support for H9d.

<sup>a</sup> JI = Job involvement; OC = Organisation commitment; RS = Role stress; JC = Job characteristics; SC = Supervisory consideration; HA = Hierarchy of authority; PD = Participation in decision making; FO = Formalisation; CR = Corporate reforms; AP = Academic pressures.

<sup>b</sup> COR = Correlation results.

<sup>c</sup> MR = Multiple regression results.

<sup>d</sup> SEM = Structural equation modeling results.

<sup>e</sup> QF = Qualitative findings.

### 10.3.5.2 Role Stress and Work Attitudes

**Hypothesis 2a**, the more role ambiguity, role conflict, and role overload academics perceive, the lower their job involvement, received limited support.

Qualitative findings indicated high levels of role overload lowers job involvement. Role ambiguity and role overload factors negatively and significantly predicted job attachment. Modified structural equation model results indicated role stress was moderately and negatively associated with job involvement when not considering the job involvement – organisation commitment relationship. The hypothesised role stress model showed weak fit to the data. Overall results provided limited support for Hypothesis 2a.

**Hypothesis 2b**, the more role ambiguity, role conflict, and role overload academics perceive, the lower their organisation commitment, received limited support.

Qualitative findings indicated role overload and role (value) conflict were associated with low organisation commitment. Significant negative correlations were recorded between role stress and organisation commitment factors. Role stress factors accounted for a significantly large percentage (18 per cent) of the variance in membership commitment. Structural equation modeling results indicated role stress was positively associated with organisation commitment but exerted a direct negative effect on organisation commitment when job involvement was not present. The hypothesised role stress model showed weak fit to the data thus providing limited support for Hypothesis 2b.

### 10.3.5.3 Job Characteristics and Work Attitudes

**Hypothesis 3a**, the more autonomy, task identity, feedback, and job challenge academics perceive, the greater their job involvement, received limited support.

Correlation results and qualitative findings indicated job challenge was strongly and positively associated with job attachment. Regression results showed that job challenge and task identity explained a significant proportion (6 per cent) of the variance in job attachment. However, structural equation modeling results indicated

a strong negative relationship between job characteristics and job involvement. Overall results provided limited support for Hypothesis 3a.

**Hypothesis 3b** was supported that the more autonomy, task identity, feedback, and job challenge academics perceive, the greater their organisation commitment.

Correlation results indicated job challenge, feedback and task identity characteristics were positively associated with organisation commitment factors. Regression results showed job characteristics explained a significant proportion (5 per cent) of the variance in membership commitment. The standardised co-efficient between job characteristics and organisation commitment was strongly positive in three structural equation models. Overall results supported Hypothesis 3b.

#### 10.3.5.4 Supervisory Style and Work Attitudes

**Hypothesis 4a**, the more supportive leadership and considerate behaviour academics perceive, the greater their job involvement, received no support.

Supervisory style factors correlated positively and significantly with job attachment but showed little association with job involvement. Multiple regression results indicated weak and non-significant relationships. Supervisory style was negatively associated with job involvement in two structural equation models. Overall results provided no support for Hypothesis 4a.

**Hypothesis 4b** was supported that the more supportive leadership and considerate behaviour academics perceive, the greater their organisation commitment.

Qualitative findings indicated respondents expressed more motivation and commitment to their universities as a result of considerate supervisory leadership. Supervisory style factors correlated positively and significantly with organisation commitment factors. Regression results showed supportive leadership positively and significantly predicted organisation commitment (other supervision factors showed weak and inconsistent relationships with commitment). In the structural equation models, which exhibited excellent model fit, supervisory style was strongly and

positively associated with organisation commitment. Overall results supported Hypothesis 4b.

#### 10.3.5.5 Organisation Structure and Work Attitudes

**Hypothesis 5a**, the more hierarchy of authority academics perceive, the lower their job involvement, received no support.

Hierarchy of authority correlated negatively and significantly with job attachment but weakly with job involvement. Regression results indicated hierarchy weakly and negatively predicted job attachment but showed little association with job involvement (structural factors explained a non-significant proportion of variance in job involvement). The structural model had poor fit to the data, and hierarchy of authority was positively associated with job involvement. Overall results provided no support for Hypothesis 5a.

**Hypothesis 5b**, the more hierarchy of authority academics perceive, the lower their organisation commitment, received limited support.

Qualitative findings indicated hierarchy of authority associated with managerialism in academe reduced academic commitment. Significant negative correlations and regression co-efficients were recorded between hierarchy of authority and organisation commitment factors. Hierarchy of authority was positively associated with job involvement in the structural model. Results indicated hierarchy has a direct negative effect on organisation commitment but exerts a positive effect on commitment when covarying with participation in decision making. Overall results provided limited support for Hypothesis 5b.

**Hypothesis 6a**, the more participation in decision making academics perceive, the greater their job involvement, received no support.

Participation in decision making correlated positively and significantly with job involvement factors. Negative regression co-efficients were recorded in regression and structural equation model analyses. Overall results provided no support for Hypothesis 6a.

**Hypothesis 6b**, the more participation in decision making academics perceive, the greater their organisation commitment, received limited support.

Significant positive correlations and regression co-efficients were recorded between participation in decision making and organisation commitment factors. Participation was negatively associated with organisation commitment in the structural model. Results indicated participation has a direct positive effect on organisation commitment but exerts a negative effect on commitment when covarying with hierarchy of authority. Overall results provided limited support for Hypothesis 6b.

**Hypothesis 7a**, the more formalisation academics perceive, the lower their job involvement, received limited support.

The relationship between formalisation and job involvement factors was weak and non-significant in the correlation and regression analyses. Formalisation was negatively and significantly associated with job involvement in the structural model. Overall results provided limited support for Hypothesis 7a.

**Hypothesis 7b**, the more formalisation academics perceive, the lower their organisation commitment, received no support.

Formalisation correlated negatively and significantly with membership commitment but correlated weakly and non-significantly with affective commitment. Regression and structural equation model results indicated weak, non-significant associations between formalisation and organisation commitment. Overall results provided no support for Hypothesis 7b.

**Hypothesis 8a**, the more formalisation academics perceive, the greater their job involvement, received no support.

Correlation and regression analyses indicated the relationship between formalisation and job involvement factors was weak and non-significant. In the structural model, formalisation was negatively associated with job involvement. Overall results provided no support for Hypothesis 8a.

**Hypothesis 8b**, the more formalisation academics perceive, the greater their organisation commitment, received no support.

Regression and structural equation model results indicated weak, non-significant associations between formalisation and organisation commitment. Overall results provided no support for Hypothesis 8b.

#### 10.3.5.6 Sectoral Changes and Work Attitudes

**Hypothesis 9a**, the greater the perceived impact of corporate reforms on academic work, the lower the job involvement of academics, received limited support.

Corporate reforms correlated positively and significantly with job involvement in correlation and regression analyses. Qualitative findings provided some support. Corporate reforms were negatively but weakly associated with job involvement in the hypothesised sectoral changes model. However, the model showed poor fit to the data when adjusted for the degrees of freedom relative to the number of variables. Overall results indicated limited support for Hypothesis 9a.

**Hypothesis 9b**, the greater the perceived impact of corporate reforms on academic work, the lower the organisation commitment of academics, received limited support.

The relationship between corporate reforms and membership commitment was negative and significant. Qualitative findings indicated strong support (i.e., motivation and commitment was lower as a result of corporate reforms). In the hypothesised sectoral changes model, corporate reforms was positively associated with organisation commitment. Overall results provided limited support for Hypothesis 9b.

**Hypothesis 9c**, the more academic pressures academics perceive, the lower the job involvement of academics, received no support.

Correlation and regression results indicated the relationship between academic pressures and job involvement was weak and inconsistent. The sectoral changes

model showed a positive association between academic pressures and job involvement. Results provided no support for Hypothesis 9c.

**Hypothesis 9d**, the more academic pressures academics perceive, the lower the organisation commitment of academics, received no support.

Regression and structural equation model results indicated the relationship between academic pressures and organisation commitment was weak and inconsistent. Results provided no support for Hypothesis 9d.

#### **10.3.5.7 Job Characteristics, Supervisory Style and Work Attitudes**

Two models (Job Characteristics, Supervision) were selected as best fitting the data as indicated by absolute, incremental, and parsimony model fit measures exceeding minimum criteria. The best-fitting Job Characteristics–Supervision Integrated Model showed acceptable levels of model fit and accounted for 26 per cent of the variance in job involvement and 66 per cent of the variance in organisation commitment.

Modified model results (i.e., removal of the path between job involvement and organisation commitment) indicated job characteristics and supervision weaken job involvement directly thus moderating the strength of the positive relationship between job involvement and organisation commitment. Job characteristics exert a strong positive direct effect on organisation commitment. Supervision exerts a weak negative direct effect on organisation commitment. Results suggested job characteristics are stronger predictors of work attitudes compared to supervisory style factors.

#### **10.3.6 Summary of Research Findings**

Of the twenty stated research hypotheses (see Table 10.1), three were supported, ten received limited support and seven were not supported. Results indicated job involvement, job characteristics and supportive leadership exert a positive effect on the organisation commitment of academics. Role stress, organisation structure and sectoral change models showed unacceptable levels of fit to the data (relative to the number of parameters estimated) indicating their relative weak predictive power. Results suggested the immediate work environment exerts a more powerful influence

on the work attitudes of academics compared to organisation structure and external higher education sector factors.

#### **10.3.6.1 Work Environment and Job Involvement**

Results indicated job challenge and task identity exert a positive effect on the job attachment of academics. Role stress (role ambiguity, role overload) exerts a negative effect on job involvement if the individual academic is not strongly attached to his/her job. Limited support for hypotheses suggested job involvement is more a function of intrinsic personality variables (e.g., work ethic, self-esteem, locus of control) than extrinsic work environment variables (Brown, 1996).

#### **10.3.6.2 Work Environment and Organisation Commitment**

Support for hypotheses suggested organisation commitment in academe is a function of a person's level of job involvement and immediate work environment characteristics (i.e., job challenge, task identity, supportive leadership). Role overload will weaken organisation commitment if the individual academic is not strongly attached to his/her job.

### **10.4 Discussion of Findings in Relation to Theory and Practice**

The purpose of this discussion is to explain the work environment perceptions and work attitudes of academics. Integrative models and concepts highlight patterns in the data and describe causal mechanisms that may be operating. First, a Person-Environment Model examines the interactive effects of personal and situational characteristics in determining work attitudes and elucidates reasons for weak and strong variable relationships. Second, a typology based on academic positions reveals differences in job challenge, participation in decision making, job involvement and organisation commitment responses. Third, a stress-based framework situates academic responses to corporate reforms, managerialism and work intensification. Fourth, the psychological contract concept reveals reasons for the imbalance in organisation commitment responses across the sample.



### 10.4.1 Person-Environment Model

Work attitude research has drawn heavily on congruency models from person-environment psychology (Walsh, Craik, & Price, 2000) and emphasised the interaction or 'fit' of a person with his/her work environment (Kristof, 1996; Spokane, Meir, & Catalano, 2000; Wolverton, Gmelch, & Wolverton, 2000). Person-environment fit models assume individuals seek out work environments that either fit their personal orientations (Holland, 1985) or provide opportunities for personal growth (Hackman & Oldham, 1980). The more congruence there is between a person's orientations or needs and the work environment, the more likely the person will express work motivation. Regression findings indicated strong levels of person-environment fit at the professorial level (associate professor and professor positions significantly and positively predicted job involvement and organisation commitment) and low levels of person-environment fit at the lecturer level (associate lecturer and lecturer positions significantly and negatively predicted job involvement and affective commitment).

Research results indicated job involvement and organisation commitment is an interactive function of personal (i.e., position), work motivation (i.e., psychological attachment to the job and university) and immediate work environment factors (i.e., job characteristics, supervisory consideration, role overload). Organisation structure and sector models showed unacceptable fit to the data indicating the broader work environment is not a significant determinant of job involvement and organisation commitment for academics.

#### 10.4.1.1 Determinants of Organisation Commitment

Findings from this study suggest organisation commitment in academe is an interactive function of immediate work environment factors (i.e., job characteristics, supervisory consideration, role overload) and an individual's job involvement. Across the sample, academics reported moderate levels of involvement with the job tasks they perform (i.e., tasks are challenging and engaging) and satisfaction with the immediate conditions or climate under which work is performed (i.e., autonomy, supportive leadership, collegiate work relationships). Correlation, regression, and structural equation model findings support the proposition that academics first

become familiar with and involved in their jobs and then develop commitment to the university as their growth (motivation) needs are satisfied over time (Brown, 1996:239). That is, organisation commitment evolves from a state of job attachment (job attachment positively and significantly predicted organisation commitment accounting for 29 per cent of explained variance in affective commitment). The more opportunities for personal growth an academic has in her/his job, the more likely she/he will express commitment to the university (Wu, & Short, 1996). Organisation commitment declines when academics perceive a lack of consultation about change and when work contributions are not recognised or rewarded by university management (see Bryson & Barnes, 2000:171-173; Martin, 1999:76-77).

According to Hackman and Oldham's (1980) Job Characteristics Model, individuals with a high need for personal growth respond positively to enriched jobs (high in autonomy, task identity, skill variety, feedback) in terms of intrinsic work motivation and performance. Structural model and regression results support the proposition job characteristics are a key source of work motivation in academe where individual academics seek personal challenge, feedback and autonomy at work (Bryson & Barnes, 2000:181; Winter et al., 2000:287). When engaged and motivated by job tasks, academics express commitment to their universities.

Supportive leaders, by showing concern for the personal needs of others, provide employees with the psychological support needed to cope with complex, changing job demands (Oldham & Cummings, 1996; Zeffane, 1994). In academe, supportive leaders demonstrate psychological support by resourcing staff development, helping colleagues to learn new teaching skills and encouraging colleagues to learn from each other (Ramsden, 1998c:365). Ramsden's (1998a:83) study of 100 heads of departments in the U.K., Singapore, Hong Kong, New Zealand and Australia revealed that academic heads believed good academic leaders made a concerted effort to understand and support the work of colleagues. Consideration is demonstrated by heads sympathising with the values and behaviours of academics and not simply by reacting to the demands of senior managers and governments. By treating their colleagues in a principled and honourable way, and showing they are willing to forego their own academic work to help and support colleagues, considerate supervisors inspire staff to achieve more than they ever thought they

could (Ramsden, 1998a:82-86). Thus, consideration acts as a powerful work motivator in academe helping to inspire confidence and build organisational commitment.

#### **10.4.1.2 Determinants of Job Involvement**

Findings from this study indicate job involvement in academe is an interactive function of demographic variables (i.e., academic position) and immediate work environment factors (i.e., job challenge, task identity, role ambiguity, role overload). As a single variable, academic position represents a strong predictor of job involvement (staff at professorial levels reported positive involvement, staff at lecturer levels reported negative involvement). Regression findings indicated job challenge and task identity encourages academics to feel psychologically attached to their jobs (job characteristics accounted for 6 per cent of the variance in job attachment).

Brown's (1996:242-243) review of organisational research on job involvement suggests job involvement is more a function of personality variables than demographic variables. In meta-analyses of 51 pairwise relationships involving job involvement, Brown (1996:242) found three personality variables (i.e., internal motivation, work ethic, self-esteem) to be positively and significantly related to job involvement ( $r = .53, .45, .31, p < .01$ ) suggesting involvement will be greater for those academics that hold strong beliefs in their ability to undertake tasks and effect positive outcomes (Bailey, 1999:356). At senior academic levels, where work motivation is high, professors expressed strong levels of job involvement. Here, the immediate work environment is likely to have little influence on job involvement since individuals are self-motivated and committed to the university (over 40 per cent of professors and associate professors expressed high levels of university commitment). At lower academic levels, where work motivation is low, lecturers reported low to moderate levels of job involvement. Here, the immediate work environment is likely to exert a positive influence on job involvement since individuals participate little in university decision making and hence have lower levels of work motivation (Oldham & Cummings, 1996).

### 10.4.2 Typology of Academic Responses

Hierarchies are major elements in the organising structure of universities (Becher & Kogan, 1992:71-74). The executive structure, based on a hierarchy of authority, links the vice-chancellor, deputy vice-chancellors, heads of basic units and individual members of teaching staff. Academic positions reflect entrenched orders of power, authority and patronage (Stroup, 1966). The academic industrial award, through its Position Classification Standard, has legitimised the notion that those at the top of the pay scale (i.e., Professors – Level E) are by definition senior to all other academic positions. Legitimised seniority is assumed in all aspects of the academic role, be it teaching and research, administration or service to the community (Cassidy, 1998:47).

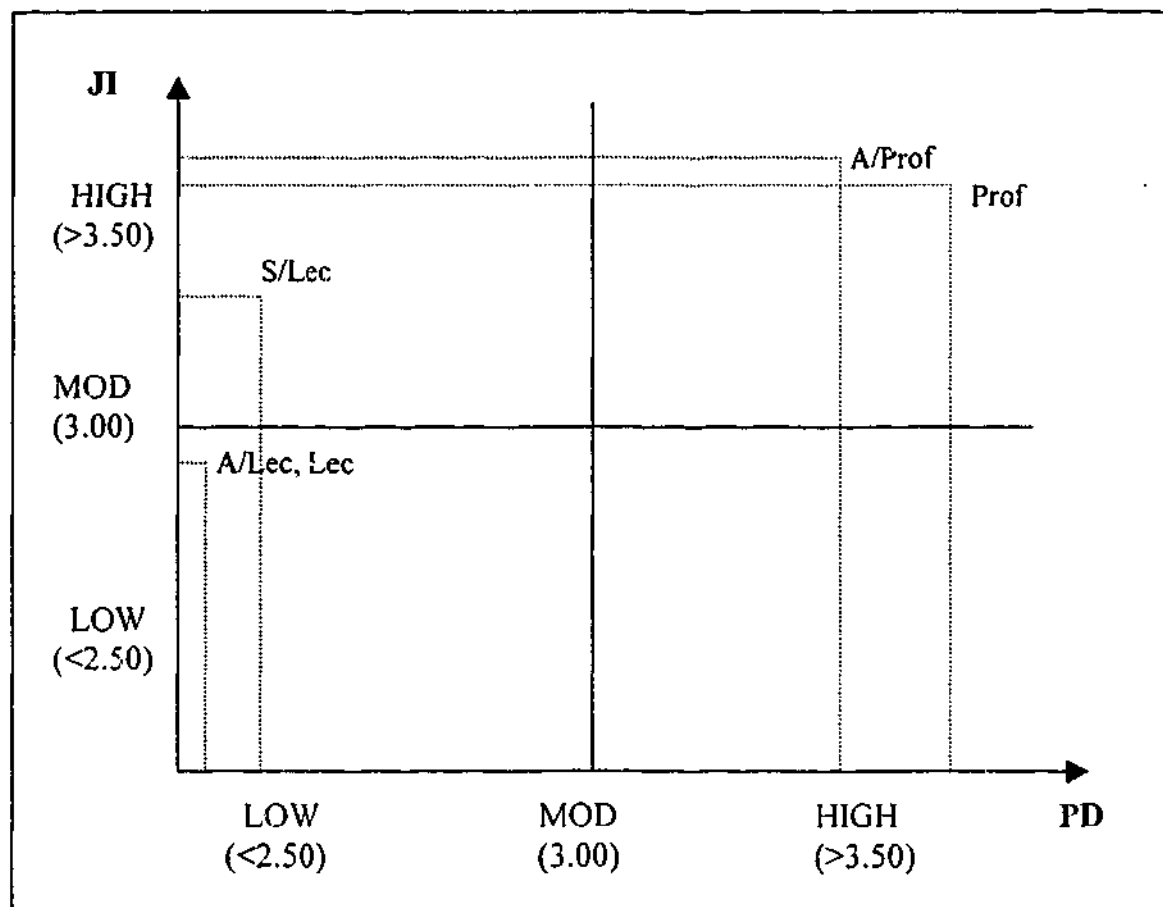
Reflecting positions of relative power, status and authority, Table 10.2 shows how academic responses differ according to academic position. Figure 10.2 illustrates these associations graphically. At the top of the hierarchy are the 'stars' of the academic profession: the professors. Professors often are heads of departments and other basic units. They see very little hierarchy of authority since they exercise managerial authority over individual staff members at lower levels. At the bottom of the hierarchy are the ambivalent members of academe: associate lecturers. Associate lecturers see a burgeoning hierarchy above them and report low levels of participation in decision making (see Table 10.2).

**Table 10.2**  
**Typology of Academic Responses**

Position	Label	JC	HA	PD	Jl	OC
Professor	Stars	High	Low	High	High	High
Assoc./Professor	Rising Stars	High	Low	High	High	Moderate
Sen./Lecturer	Apathetics	Moderate	Moderate	Moderate	Low	Low
Lecturer	Least-valued	Low	High	Low	Low	Low
Assoc./Lecturer	Ambivalents	Moderate	High	Low	Low	Moderate

JC = Job challenge; HA = Hierarchy of authority; PD = Participation in decision making; Jl = Job involvement; OC = Organisation commitment.

High, Moderate, and Low = Level of response relative to other academic positions.



JI = Job Involvement, PD = Participation in decision making.

**Figure 10.2**

**Relationship between Participation in Decision Making and Job Involvement Mean Scores**

**10.4.2.1 Professorial Positions**

At the professorial level, respondents reported high levels of job challenge and job involvement and moderate to high levels of participation in decision making (see Table 10.2). As heads of departments, professors are engaged primarily in administrative roles (a role associated with significantly higher levels of organisation commitment compared to lecturers in teaching and research roles). In carrying out these roles, professors reported they work on challenging tasks and projects, are very much absorbed in their jobs, and participate strongly in university decisions. As can be seen in Figure 10.2, professors reported significantly higher levels of participation and job involvement compared to lecturing staff. It is this participation that increases the job involvement of professors (Spector, 1986).

According to Herzberg's (1966) two-factor theory, job challenge, job involvement and participation represent strong motivators. Motivators are factors that influence job satisfaction based on the fulfilment of high-level needs such as recognition, achievement, responsibility, and opportunity for personal growth. Professors express high levels of participation and involvement suggesting work is central to their self-image (Hirschfeld & Field, 2000) and self-esteem (Tharenou & Harker, 1982). Positive personality traits indicate professors are more likely to exert high levels of task-related effort at work, mentor others and engage in 'extra-role' behaviours to enhance the intellectual climate and institution's academic standing (Sarros, Gmelch, & Tanewski, 1997a:19). From an organisation perspective, these 'institutionalised stars' represent the most valuable members of academic staff.

On a slightly lower pecking order is the position of associate professor. Associate professors share similar motivating responses to professors except in one respect. They do not participate to the same extent as professors in university policy and resource decisions. Consequently, their levels of organisation commitment are lower. As 'rising stars' associate professors act as opportunists, looking for opportunities to make their mark on the institution and its leaders.

#### 10.4.2.2 Lecturer Positions

At the senior lecturer level, academics are engaged in teaching and research roles with some administrative responsibilities. As a consequence, they report moderate levels of job challenge, hierarchy and participation (see Table 10.2). As the most stressed members of academic staff, senior lecturers feel apathetic towards their current position and institution. They are fairly positive about the nature of the work they do but negative in terms of being able to influence policies and practices taken at higher levels. Apathy is revealed in lower levels of job involvement and organisation commitment.

At the lecturer level, academics report lower levels of job challenge, participation and job involvement compared to academics in higher positions (results indicated only 10 per cent of lecturing staff reported very high levels of participation compared to 70 per cent of professors). Unlike professors, lecturers are engaged primarily in teaching and research roles (a role associated with significantly lower

levels of organisation commitment compared to professors in administrative roles). A teaching and research role does not provide for the same degree of job challenge and job involvement as an administrative role. At this level, lecturers participate very little in university decision making (Marginson, 1999; Winter et al., 2000). Since job motivators are low and high-level needs are not being met (Herzberg, 1968), lecturers are not able to derive a vital source of job satisfaction and morale: responsibility and recognition. As a consequence, lecturers are the 'least-valued' members of academic staff.

At the lowest lecturer level, associate lecturers work in teaching teams with other co-workers. Job tasks are clearly defined and moderately challenging (see Table 10.2). As junior members of staff, associate lecturers report higher levels of supervisory consideration and receive moderate levels of university support (e.g., mentoring schemes, research training). However, due to their relative short years of university service and the entrenched nature of the university hierarchy, associate lecturers participate little in university decision making. As a consequence, staff express ambivalent attitudes towards their work environment. Ambivalence is reflected in lower levels of job involvement and moderate levels of university commitment.

### 10.4.3 Work Stress

Lazarus's theory of stress (Lazarus & Folkman, 1984) conceptualises stress as a process in which environmental stressors are mediated by cognitive appraisal, which, in turn, leads to individual coping strategies. Thus, how individuals respond to and cope with a stressful situation will depend on how they appraise or construe it. According to Lazarus and Folkman (1984:31), cognitive appraisal is the process of "categorizing an encounter, and its various facets, with respect to its significance for well-being". Through primary appraisal, individuals evaluate the potential threat of the stressor, and through secondary appraisal individuals evaluate their own capability for coping with the stressor. Hence, both appraisals, in turn, influence a wide range of coping responses ranging from withdrawal and procrastination (fearful responses) to solving problems and taking the initiative (hopeful responses).

For many academics in this study, corporate reforms and managerialism were perceived as threatening (primary response). Value conflict statements indicated academics felt market behaviour and business-related principles and practices were compromising the primary goals of teaching, learning and scholarship and exerting a strong negative effect on academic morale and performance. Associated role stress statements indicated academics felt they did not have the time, and/or the resources to carry out required job tasks to their preferred standards (secondary response). In a state of value conflict and stress, academics responded destructively showing little support for managerialist policies and practices in their institutions (Winter et al., 2000; Winter & Sarros, 2001).

#### **10.4.3.1 Primary Appraisal and Value Conflict**

Corporate reforms represent a fundamental change in the way the university relates to its environment and functions (Blumenthal & Haspeslagh, 1994). Changes to university decision making and reporting structures are driven by the senior university executive intent on achieving strategic targets and improving their competitive position in a global education marketplace (Marginson & Considine, 2000). Universities that embrace corporate reforms tend to do so at a discontinuous rather than an incremental speed (Nadler & Tushman, 1989). Hence, 'frame-breaking' changes occur at both structural and cultural levels within the institution. Market-focused cost-efficiency, quality assurance and accountability decisions impact on the centrality of academic autonomy, professionalism and collegial relations (Buchbinder, 1993; Neave, 1990), cutting at the heart of traditional academic values (Ramsden, 1998a:22-29). University leaders justify corporate changes as a legitimate response to a funding crisis (Coaldrake & Stedman, 1998:176). But commitment from the top to more efficient and flexible business operations is not embraced by academics at lower organisation levels. Academics resent the decline of collegial governance within their institutions and question the educational value of processes that 'dumb down' (Clarke, 1998:56) academic programs or convert them into 'digital degrees' (Crowley, 1999:24). In a state of value conflict, academics respond negatively to corporate reforms and show an unwillingness to support management practices that limit their professional input any further.



Academics express value conflict when they feel they are being 'managed' by others with opposing norms and values (Ellingsen, 1999a; Hill, 2000; Randle & Brady, 1997). Universities are professional organisations (Harman, 1989) in which academics participate in two distinct cultures: the academic and managerial (Ramsden, 1998a:27; Randle & Brady, 1997:232). These two cultures or paradigms (see Table 10.3) reflect fundamental differences in the way academics and managers view and structure academic work. Hence, there exists the potential for value conflict over decisions that impact the immediate work environment (Copur, 1990; Nixon, 1996; Randle & Brady, 1997). For example, in a competitive education environment income generation is often more highly valued by managers than student learning and the teaching process is by academics.

Randle and Brady's (1997) study of the introduction of flexible learning and market-related mechanisms into a large U.K. further education college revealed the conflicting goals and values of academics and managers. Academic staff (400 full-time lecturers) perceived the drive to increase student numbers (an outcome of government funding cutbacks) as responsible for causing a serious decline in educational standards. Approximately 80 per cent of staff "felt that organizational changes had not improved the quality of service to students" and "95% thought that the changes as a whole had not enhanced student learning" (Randle & Brady, 1997:233). Value conflict was also revealed in issues of quality. Interviews conducted with college managers indicated managers perceived quality differently, not in terms of student learning but more in terms of conformance to established budgetary targets. In contrast, academic staff stressed the importance of pedagogical standards and regarded quality assurance measures as "merely fruitless and irksome" (Randle & Brady, 1997:235). Similar findings were reported in this study.

The academic paradigm is based on the established ideas of academic freedom and professionalism (O'Neill & Meek, 1994; Tight, 1988). Academic freedom, in its purest form, implies the absolute right of individual academics to pursue 'truth' unencumbered by academic managers and accountable first and foremost to a community of scholars. Tight (1985:21) provides a more balanced definition referring to the freedom of academics "to study, research, teach, and publish in fields or subjects for which they are judged to possess sufficient competence without undue

**Table 10.3**  
**Academic and Managerial Paradigms**

<b>Academic Paradigm</b>	<b>Managerial Paradigm</b>
<b><u>Goals and Values</u></b>	
Primacy of student learning and the teaching process	Primacy of student through-put, income generation and institutional prestige
Loyalty to students and colleagues	Loyalty to the organisation
Concern for academic standards	Concern to achieve an acceptable balance between efficiency and effectiveness
<b><u>Key Assumptions</u></b>	
Lecturers as funds of expertise	Lecturers as flexible facilitators and assessors
Resources deployed on the basis of educational need	Resources deployed on the basis of market-demand and value for tax-payer's money
Quality of provision assessed on the basis of input	Quality assessed on the basis of output
<b><u>Management Ethos</u></b>	
Scholarship, collegiality, community of practice	Control by managers and the market
Professional autonomy, the trust principle, accountability to peers, tacit knowledge	Management of performance indicators and surveillance systems
Pluralism	Unitarism

Source: Adapted from Randle and Brady (1997:232).

interference from their fellows, peers, funding bodies, employers or any other individual or group". Academic professionalism is based on the established practice of professional training that equips academics with the requisite skills and values to self-regulate their job performance (O'Neill & Meek, 1994). During this process of professional socialisation (Bell, 1985:21), academics inculcate the norms and values of their chosen discipline and/or professional area of expertise (Harman, 1989). Hence, as autonomous professionals, academics express value conflict whenever strong external governance principles threaten established internal professional

norms and values (Copur, 1990; Currie, 1996; Nixon, 1996; Randle & Brady, 1997; Winter et al., 2000).

The negative views of academics towards quality assurance processes and performance indicators in this study reflect academics' deep-rooted fears of external control mechanisms. Study findings indicated many academics regarded corporate work practices as ill-suited to educational institutions and largely responsible for destroying collegiality among academic colleagues (a source of work motivation) and lowering educational standards (a loss of professional status). In a state of value conflict, academics question the benefits of managerialism in academe (e.g., quality assurance mechanisms, performance indicators), express dissatisfaction at the relevance of managerial policies and practices, and cognitively withdraw from the university (across the sample, 40 per cent of staff expressed low commitment to their universities).

Recently, academics have expressed value conflict with respect to declining educational standards (a finding reported in this study). Numerous academics have alleged that students with poor academic performance are passing exams and gaining degrees due to institutional pressures to raise monies, particularly from overseas fee-paying students (Ellingsen, 1999a; Elliott, 2001; Noonan & Contractor, 2001). The Executive-Director of the Australian Vice Chancellors Committee (AVCC) contended "it is not in the interests of universities to engage in this practice – once they lose their reputations for high standards, they have nowhere to go" (Noonan & Contractor, 2001:5).

#### **10.4.3.2 Secondary Appraisal and Role Overload**

Role overload and associated time constraints represent a significant source of occupational stress and personal strain in academe today (Doyle, 1998; Doyle & Hind, 1998; Lease, 1999; Thorsen, 1996; Wolverton, Gmelch, Wolverton, & Sarros, 1999). The evidence of work overload or time pressures as significant sources of academic stress supports the data reported in earlier studies (Gmelch, Lovrich, & Wilke, 1983, 1984; Gmelch, Wilke, & Lovrich, 1986; Shull, 1972). In a study of the dimensions of stress among university faculty in the U.S. (1,920 professors), Gmelch et al. (1986:272-276) identified time constraints (e.g., attending meetings that take

up too much time, paperwork, frequent interruptions) as a significant factor in the substance of faculty distress. Replicating the structure of the Faculty Stress Index (Gmelch et al., 1986), Hind and Doyle (1996) found excessive workloads and associated time constraints were a major source of reported stress for 600 academics working in Psychology departments in the U.K. Similar findings have been reported based on a sample of faculty ( $n=494$ ) in four Ontario universities (Thorsen, 1996).

A major source of overload and stress for academics is the increased time spent on diverse administrative tasks (Currie, 1996; McInnis, 1996; Sarros, Gmelch, & Tanewski, 1997a; Winter et al., 2000; Wolverton et al., 1999). Administrative task stress, such as writing letters and memos and meeting report and other paperwork deadlines, is a significant stressor for both senior (Wolverton et al., 1999:172) and junior (Winter et al., 2000:288) members of academic staff. As 'administrivia' (Currie, 1996) and 'non-core' (McInnis, 1996) job tasks proliferate, academics have less time to engage in teaching and research activities (important sources of intrinsic motivation in academe). Hence, there exists the potential for destructive responses when role demands exceed the amount of time and resources available for their accomplishment (Kahn & Byosiore, 1992). In the present study, academics rated high levels of role overload as a demotivating characteristic of their work environments. Regression findings also indicated role overload negatively and significantly predicted membership commitment to the university (i.e., increased overload, less desire to remain employed in the university).

Studies of academic work roles in Australia between 1994 and 1999 confirm that academics are working longer hours, spending less time on teaching, and more time on administration work (DETYA, 1999c). In a national survey of 2,609 academics from 15 universities across five states, 40 per cent of academics were found to work more than 50 hours a week, 56 per cent reported their job was a source of considerable stress, and 55 per cent believed their hours had substantially increased over the last five years (DETYA, 1999c:1-3). The study also reported a "major decline in a primary source of job satisfaction for academics: the opportunity to pursue their own academic interests" (DETYA, 1999c:2). As work intensification increases and academics engage in tasks not necessarily central to their training, interests or satisfaction, job satisfaction and morale declines. Hence, role stress

manifests in emotional outbursts such as anger, disgust, moral outrage, and cynicism: destructive secondary responses directed at the university (Winter et al., 2000; Winter & Sarros, 2001).

#### **10.4.3.3 Destructive Responses**

Corporate reforms and work intensification exerted negative effects on the emotional and behavioural responses of academics at work in this study. Academics viewed corporate reforms, managerialism and role overload as significant personal threats in terms of professional values and personal health. In a state of value conflict and role stress, academics expressed frustration, job dissatisfaction, and low morale similar to responses in previous studies (Currie, 1996; Hill, 2000; Nixon, 1996; Taylor et al., 1998; Winter et al., 2000). These 'destructive' (Farrell, 1983) responses signify academics are unwilling to co-operate with university management in implementing quality assurance mechanisms and performance appraisal systems.

#### **10.4.4 Psychological Contract**

Qualitative survey findings in this study revealed a strong perceived breach in the psychological contract between academics and their universities (Morrison & Robinson, 1997; Robinson, 1996b). A psychological contract is defined as an academic's beliefs and expectations about the reciprocal obligations between that academic and his/her university (Morrison & Robinson, 1997:229). Contracts can be largely transactional (i.e., pay for service) or relational (i.e., job security for loyalty and support) in nature (Herriot, Manning, & Kidd, 1997; Rousseau & McLean Parks, 1993). Prior research indicates that psychological contract breach is relatively common (Robinson & Rousseau, 1994; Robinson, 1996b) and that it is associated with various negative outcomes such as lowered citizenship behaviour and reduced commitment (Robinson, Kraatz, & Rousseau, 1994; Robinson & Morrison, 1995). Perceived contract violation can also cause potentially valuable employees to exit the employment relationship altogether (Ellingsen, 1999b; Robinson et al., 1994).

In this study, a perceived breach in the psychological contract is represented by managerialism in academe and poor recognition and rewards practices. Comments relating to the managerialist culture in Australian and U.K. universities suggest a

strong antipathy to 'management' and current recognition and rewards practices (Bryson & Barnes, 2000; Martin, 1999; Winter, Taylor, & Sarros, 2000). Winter and Sarros (2001) argue work stress and poor recognition and rewards practices provide evidence of psychological contract violation in Australian universities. In a survey of 1551 higher education staff in the U.K., Bryson and Barnes (2000:173) reported that "over half of the respondents had unmet expectations about consultation about change, promotion opportunities and recognition".

#### 10.4.4.1 Managerialism in Academe

A number of academics indicated academic values were being replaced by corporate values and executive styles of governance in their universities. These changes revealed a breakdown in the relational contract with an associated negative effect on academic morale and productivity:

Managerialism pervades everything. Many of its features actually reduce productivity due to staff alienation eg. resentment, reduced cooperation/communication, feelings of being exploited. The informal side of productivity has been squeezed out. It seems that staff and student morale are not seen as important, yet ought to be, "belief" in the university sinks. Staff loyalty has reduced, as staff openly state their belief that they are "fodder".  
(Senior Lecturer/UOT)

The tide of managerialism is the sickest of all the changes being forced upon us. The principles of managerialism are entirely inconsistent with scholarship. Universities are a community of schools, not a herd of academics under the control of half-witted, poorly educated mean spirited managers, who have no concept of what free thought is. Managerialism acts as a significant open-clipping constraint on creativity and the development of collegiality. (Lecturer/UOT)

The business rhetoric means that any learning and/or research have to be couched in the language of economics. Thus reducing education to the exchange of products. As a result very little learning happens. Despite its corporate and managerial style the university is administratively moribund. Everything is difficult to get done. Academic staff are so overwhelmed with clerical work that we can't concentrate on our teaching and research. This is just inefficient. I no longer see academia as a tenable profession. (Lecturer/Sandstone)

As a consequence of corporate reforms to universities, executive decision making has supplanted collegial forms of governance and subordinated academic identities to the "mission, marketing and strategic developments of the institution and its leaders" (Marginson & Considine, 2000:4-5). Hence, many of the perceived

expectations and obligations held by academics in previous years (e.g., collegiality, job security) have been removed or fundamentally changed without staff being really aware of it and/or giving their consent to it (Tipples & Krivokapic-Skoko, 1996:3). Thus, the psychological contract has been violated and some academics may have reduced their levels of organisational commitment (Bryson & Barnes, 2000; Ellingsen, 1999a; Winter et al., 2000).

In 1995, Tipples and Krivokapic-Skoko (1996) surveyed 238 staff at Lincoln University New Zealand to ascertain changes to their psychological contracts in the period 1990-1996 (a time of significant State Sector reforms). Academics (n=70) commented on the development of an exclusive management style within the university (i.e., more adversarial and less sensitive to staff and student concerns), an increase in individual accountability mechanisms, and greater demands for staff to work more hours with decreased resources and rewards (Tipples & Krivokapic-Skoko, 1996:11-12). Changes associated with the new managerialist culture mostly exerted a negative effect on academic morale and job satisfaction thus indicating the university had violated the psychological contracts of some of its staff (Tipples & Krivokapic-Skoko, 1996:3). A number of senior staff within a comprehensive Australian university also made reference to the managerialist culture as the underlying reason why they felt disconnected from the institution and no longer valued (Winter et al., 2000:291). Faced by conflict in their value systems, academics question the substance of the psychological contract and their relationships with their universities (Bryson & Barnes, 2000:171-173). An adverse behavioural consequence of managerialism in academe seems to be the increased likelihood of psychological contract breach as academics and universities reconsider their mutual obligations (Lawnham, 2001; Patience, 1999; Richards, 1999).

#### **10.4.4.2 Recognition and Rewards**

Comments by individual lecturers in the present study with respect to recognition and rewards revealed a perceived violation in the psychological contract (Rousseau, 1995:9-10). Lecturers indicated they felt their effort and loyalty had not been appropriately recognised and rewarded by the university:

The staff does not seem to be valued, either for intellectual input or personal achievement, by the department administration. The administrators do not have interest in acquiring knowledge about the day-to-day inner workings of my department, in promoting either individual or department development, or in fostering an improved sense of camaraderie within this institution. (Lecturer/Sandstone)

The institution with its ideology of education for its own sake and with its atmosphere of collegiality, has given way to the corporation, where making money and churning out graduates has banished the old institutional ideology. There is no longer any reason for being loyal to one's employer, since loyalty is not reciprocated by management. (Lecturer/Regional)

My experience has been that I receive much greater recognition for my teaching and research efforts from my lay colleagues in the profession of optometry. I find they are willing to spend quite a bit on money attending my courses arranged independently of the university. This seems to reinforce the notion that the problem lies with the university administration rather than the quality of my efforts. (Senior Lecturer/Sandstone)

Despite producing high quality work I feel devalued. I have experienced intense stress due to work overload. I intend to pursue a career outside academia and leave as soon as it is feasible. (Lecturer/UOT)

In the U.K. and Australia, academics have responded in similar ways to higher education sector changes over the past decade (Mahony, 1996; Martin, 1999; Taylor, 1999). Across all positions, academics have voiced similar views with respect to the lack of reward and recognition for academic work (Bryson & Barnes, 2000; Halsey, 1992; Martin, 1999; Ramsden, Margetson, Martin, & Clarke, 1995; Ramsden & Martin, 1996). From a staff-centered perspective, university leadership and management practices are failing to provide appropriate mechanisms for the recognition and reward of academic work, especially teaching at lecturer levels. Martin (1999:76) surveyed 161 academic staff at all levels in the U.K. and Australia during 1995 and 1996 and concluded "staff often believe they have done well to accomplish what they have, yet they also feel that these achievements are unrecognized by their masters and by the system" (in the present study 40 per cent of staff across all positions indicated very low levels of job feedback). According to Hill (2000:67), a lack of perceived trust and confidence in the work of full-time lecturers by management and governing bodies may be construed as a violated psychological contract and exert a depressing effect on lecturers' commitment and



work performance (in the present study only 20 per cent of lecturers expressed very high levels of organisational commitment).

According to Ramsden (1998a:76), the critical factor influencing satisfaction with promotions systems and staff morale in general is the perceived gap between rhetoric ("we reward good teaching performance") and reality ("only refereed publications count") in universities. Often good teaching in Australian universities is unrecognised in promotions decisions despite university pronouncements to the contrary (Ramsden et al., 1995). A DETYA (1999c:14) commissioned study of the work roles of academics in Australian universities (2,609 academics from 15 universities) reported most academics (91 per cent) saw research and scholarly activity, and not teaching effectiveness (44 per cent) as the current priority in the reward system. By contrast, most academics (90 per cent) would prefer that "teaching and research be given close to equal status in promotion criteria" (DETYA, 1999c:14). Faced with large student loads and changing roles and requirements, lecturers often struggle to match their actual work activities (i.e., course development, flexible teaching, administration) with what their institutions recognise and reward as scholarly output (refereed publications, external grants, income generation). Feelings of contract violation might be accentuated by the perceived disproportionate rewards bestowed on active researchers (e.g., promotion opportunities, teaching relief) and senior university administrators (e.g., financial rewards, travel opportunities).

## **10.5 Conclusions**

### **10.5.1 Quality of Academic Work Life: Positive Characteristics**

The study has highlighted some positive aspects of the quality of academic work life in Australian universities. They include continuing high levels of job challenge, task identity, and autonomy. These motivating job characteristics (Hackman & Oldham, 1980) satisfy an academic's need for engaging, meaningful work activities. Meaningful work can be related to important outcomes such as job satisfaction, intrinsic motivation and work effectiveness (Hackman & Lawler, 1971; Hackman & Oldham, 1980; Kiggundu, 1990). Another positive work environment feature for academics is role clarity (i.e., low levels of role ambiguity). Academics know what

their responsibilities are and what is expected of them, indicating universities have in place sufficient policies and systems to guide academic behaviour. The quality of academic work life also benefits from supportive supervisory leadership and collegial relationships among colleagues. A majority of male and female staff indicated their immediate supervisors were friendly and approachable and helped them to solve work related problems. In a similar vein, collegial relationships with departmental colleagues fostered work-group support and encouraged an intellectually stimulating work climate. In a study of the job satisfaction of 1,420 Australian academics, Lacy and Sheehan (1997:318-319) reported the university atmosphere (sense of community, faculty-administration relationship, intellectual atmosphere, clarity of institutional mission, faculty morale) was a significant predictor of academic job satisfaction accounting for 32 per cent of the variance ( $F[5,1346] = 130.56, p < .001$ ).

Positive quality of work life features suggest the core tasks of teaching and research (McInnis, 1996:107), and collegiate relationships (Bryson & Barnes, 2000:168-169; Ramsden, 1998a:22-24) continue to be strong motivators in academe. Academics strongly attached to their jobs, stimulated by clear goals and friendly, supportive relationships with colleagues should continue to express strong levels of affective commitment to their universities.

#### **10.5.2 Quality of Academic Work Life: Negative Characteristics**

Large-scale reforms to the Australian higher education sector included under the ambit of 'managerialism' (Orchard, 1998) have exerted a negative impact on the quality of academic work life. The Enterprise University has emerged in Australia (see Marginson & Considine, 2000) in a climate of reduced government support and 'user-pays' for educational services. Value conflict statements indicated academics felt market behaviour mechanisms, business-related practices and pressures to pass students were compromising the primary education goals of learning and scholarship, and exerting a strong negative effect on their morale and job performance.

Role stress was indicated by high levels of role overload similar to other reports of academic role stress in Australian (Currie, 1996; Sarros, Gmelch, & Tanewski, 1997b, 1998; Winter et al., 2000), U.K. (Doyle, 1998; Doyle & Hind, 1998; Irwin, 1996) and U.S. (Blix, Cruise, Mitchell, & Blix, 1994; Wolverton, Gmelch, Wolverton, & Sarros, 1999; Lease, 1999) universities. In a period of large-scale structural change to the Australian higher education sector, academics reported increased workloads, time pressures, resource constraints, and feeling overworked, stressed-out and demoralised. Role overload directly threatens the health of academics and indirectly the quality of academics' teaching and research activity. It seems that as universities continue to search for efficiencies in a climate of declining public funding, work intensification will become an overriding feature of academic work life.

A negative and pervasive quality of work life characteristic is 'administrivia' (Currie, 1996). Academics resent the imposition of 'makework' activities (Winter et al., 2000:288) that distract them from the core (motivating) activities of teaching and research. Across the academic profession, academics are increasingly spending more time on administrative and money-making tasks not central to their training, interests or satisfaction (DETYA, 1999c:26).

Another negative quality of work life characteristic is job feedback. Academics do not receive timely, informal feedback from supervisors on their job performance (Winter et al., 2000:291). Thus, academics do not know when and how to change their work performance to attain desired outcomes. Academics also reported feeling undervalued at work and indicated they felt their effort and loyalty was not matched by university recognition and rewards. Responses indicated university recognition and rewards systems are demotivating quality of work life characteristics, a finding reported in a number of studies of academic work (Lacy & Sheehan, 1997; Martin, 1999; Ramsden & Martin, 1996; Taylor, 1999).

## **10.6 Implications for Research**

### **10.6.1 Value Conflict Measures in Academe**

Qualitative findings indicated value conflict is a negative source of organisation commitment in academe. However, a shortened version (three-items) of Rizzo, House, and Lirtzman's (1970) role conflict measure had insufficient 'person-role' conflict content to capture value conflict. To assess the extent of value conflict in academe, researchers need to construct measures of value conflict based on the cognitive dissonance construct (Festinger, 1957; Harmon-Jones & Mills, 1999). Academics expressing high levels of value conflict (dissonance) would most likely agree traditional academic values (based on academic autonomy, professionalism and scholarship) are compromised by corporate values (based on market behaviour mechanisms, business-related practices, entrepreneurial activity).

### **10.6.2 Demographic Variables and Work Attitudes**

Demographic (professional) variables showed strong, significant relationships with job involvement and organisation commitment contrary to previous research findings (Brown, 1996:243; Mathieu & Zajac, 1990:180). Lecturers and professors, by virtue of their respective positions in the hierarchy, reported significantly different levels of involvement and commitment (low and high respectively). On the basis of this evidence, researchers should consider professional demographic variables as antecedents rather than correlates of job involvement and organisation commitment. In cross-sectional studies of various occupational groups, there may be prior justification for constructing hypotheses based on demographic-work attitude causal relationships.

### **10.6.3 Job Involvement and Organisation Commitment Relationships**

Regression findings indicated strong positive relationships between job attachment and affective commitment factors. Affective commitment and membership commitment factors accounted for approximately 31 per cent of the variance in job attachment. However, explained variance may be due to common factor variance as shown by the large correlation between job attachment and affective commitment

factors ( $r=.51$ ,  $p<.01$ ). Researchers interested in assessing work motivation outcomes might be advised to select job satisfaction as a global attitudinal measure rather than job involvement given potential multicollinearity problems between job involvement and organisation commitment (Mathieu & Zajac, 1990:176). Selection of the job satisfaction variable would ensure minimal item content overlap with organisational commitment and hence reduce the risk of artificial bias across the measures (Podsakoff & Organ, 1986:535).

A high correlation may also be due to common method variance given variable responses were collected from the same respondents at the same time (Doty & Glick, 1998; Spector, 1987). Analysing the level of common methods bias in all multitrait-multimethod correlation matrices published over a 12-year period (1980-1992), Doty and Glick (1998:374) reported "common methods variance results in a 26% bias in the observed relationships among constructs". To test work attitude relationships more rigorously, researchers could choose a split sample design and use different respondents for reports of the dependent variables (Robinson & O'Leary-Kelly, 1998:662).

#### **10.6.4 Predicting Job Involvement and Organisation Commitment**

The study provided further support for the 'Person-Environment' fit model for predicting work related attitudes and behaviours in organisations (Blau, 1987; Kristof, 1996; Spokane, Meir, & Catalano, 2000; Walsh, Craik, & Price, 2000; Wolverson, Gmelch, & Wolverson, 2000). The study provided little support for 'professional-bureaucratic' conflict models in academe (Bacharach, Bamberger, & Conley, 1991; Copur, 1990). Findings indicated job involvement and organisation commitment are more directly influenced by work environment characteristics relatively proximal to the work of the individual (e.g., job challenge, supportive supervisory leadership, role overload). Organisation structure and industry change characteristics influence the 'psychological climate' (James & Sells, 1981:281-283) of an organisation but are too removed from the immediate job environment to be important predictors of a person's intrinsic motivation and commitment.

### 10.6.5 Future Job Motivation and Organisation Commitment Research

Results of this study suggest future research needs to focus on the immediate work environment (not structural and industry work environment characteristics) to gain a more comprehensive understanding of the factors affecting job involvement and organisational commitment. Researchers are advised to identify positive (e.g., challenging work, supportive leadership, collegial relationships) and negative (e.g., role overload, role conflict, lack of feedback) categories for stimulating and restraining motivation and commitment in various work settings (see Amabile, Conti, Coon, Lazenby, & Herron, 1996). Researchers may include in their conceptual domains the influence of work-group and social environment characteristics. Qualitative findings from this study indicated collegial relationships were an important perceptual domain and a source of motivation for many academics at work. This finding suggests collegial relationships may be an important *intervening variable* between antecedent and outcome variables.

In addition, researchers should consider non-work factors for explaining current levels of job motivation and organisational commitment. That is, academic work may not be a central life activity for all academics.<sup>1</sup> Bryson and Barne's (2000:179) study of the employment relationship of a wide range of higher education staff in the U.K. revealed the importance of "family and relationships outside work" to individual academics. Hence, the degree of work centrality in academe needs to be explored in future job motivation and organisation commitment research (Hirschfeld & Field, 2000).

### 10.6.6 Improving Research Methods

Scales for identifying factors that encourage and discourage job motivation and organisation commitment might be developed based on the critical incidents research technique (Herriot, Manning, & Kidd, 1997; Stitt-Gohdes, Lambrecht, & Redmann, 2000). Interviewees might be asked to describe a recent major change in their organisation and to describe aspects of the work environment that encouraged and constrained the change from occurring. Independent raters could code transcriptions

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<sup>1</sup> Kanungo's (1982) measure of job involvement reflects the dimension 'work as a central life interest'.

of these interviews. The work environment descriptors mentioned most frequently by the interviewees would comprise the conceptual predictor categories in the researcher's model.

## **10.7 Implications for Practice**

### **10.7.1 Cultural Change**

In a static public-funding environment, academic culture will continue to be displaced by corporate culture in Australian universities (Marginson & Considine, 2000; Winter et al., 2000). In addition to their core activities of teaching and research, academics are now working more closely with business, industry and the professions in an effort to raise revenue for their institutions (Ellingsen, 1999a). Increasingly academics are engaged in money-making tasks not necessarily central to their training, interests or satisfaction. Hence, academics with a strong sense of professional identity (Nixon, 1996) may begin to lament the decline of scholarship in their institutions and mock "the soul-destroying commercialisation of [corporate] activities" (Gava, 2001:46).

Incongruent role expectations (i.e., between what the university demands and what the academic desires) means many more academics may not feel as if they are valued members of their universities. As a consequence, leading academics may head overseas for institutions they perceive to value scholarship more highly than they do income generation (Ellingsen, 1999b). Others may engage in 'coping strategies' (Trowler, 1998:122-126) for dealing with the new corporate work environment such as unofficially 'working to rule', avoiding meetings, refusing to get involved in special projects, and withdrawing from coordinative positions. As more and more academics retreat from the 'degree factory' (Crowley, 1998), the education process will be left to those managers who enjoy exercising planning, budgeting and control processes of the university system.

Academics aligned to market-driven university policies should exhibit strong levels of organisation commitment. These future 'academic managers' are more likely to engage in organisational citizenship behaviour (OCB) to preserve their positive self-image (Pierce, Gardner, Cummings, & Dunham, 1989). Hence, academic

entrepreneurs will be increasingly involved in a myriad of marketing, income-raising and promotional activities on behalf of the university. Commercial activities such as these will continue to receive more recognition in the university promotion system (DETYA, 1999c:14). Academics who perceive corporate activities adversely are likely to experience value conflict and exhibit lower levels of organisation commitment (Winter & Sarros, 2001). This group of academics potentially may cognitively withdraw from the university, define themselves as part of the 'outgroup' and focus exclusively on their own professional activities. Some staff may badmouth university management, some may set-up their own consultancies and contract back into universities, and others may leave the university altogether (Ellingsen, 1999a, 1999b).

### **10.7.2 Managerialism in Academe**

Reduced government funding should continue to exert pressures on universities to embrace private-sector solutions to their funding problems. In a tight budgetary environment, the positional status of resource-rich sandstone universities (where academic motivation is high relative to regional universities and universities of technology) is likely to strengthen. In these institutions staff will continue to take a leadership role in research and professional training (Marginson, 1997). In less-resource rich universities, university managers will increasingly rely on managerialist practices to deliver cost-efficiencies and academic flexibility. This increasingly inequitable situation should account for stronger forms of executive control and an accompanying decline in collegiate decision making. In an effort to achieve greater staff flexibility, academic managers may introduce more market incentives (e.g., performance related salary schemes, salary packaging) and actively support the redefinition or abolishment of academic tenure (DeBats & Ward, 1998:32). Activities that contribute to the acquisition of resources by the institution should continue to be highly rewarded (Richardson, 2001:35).

### **10.7.3 Work Intensification**

Corporate work practices are likely to accelerate the demands for staff to work smarter and harder, especially in situations where teaching and research values are high. Academics in teaching and research roles are likely to face multiple and contesting job demands in the future (DETYA, 1999c:63). For example, lecturing



staff will have to prepare technology-rich learning materials and carry regular teaching loads whilst being productive researchers. This situation implies excessive workloads for the majority of lecturing staff and associated role stress (Maslen, 2000). Low institutional commitment to teaching may also contribute to work stress (DETYA, 1999c:16). Work intensification might be reflected in lower levels of membership commitment with tenured academics at lower levels not taking part in 'extra-role' activities such as student award nights and marketing functions. Staff at higher levels may not favour much better. The pressure to secure external grant funding, maintain a quality research profile, raise external revenues, and carry large administrative workloads should continue to be stressful for many senior academic staff (Sarros, Gmelch, & Tanewski, 1997b, 1998).

Excessive accountability measures and the proliferation of non-core work may mean lower levels of job motivation for academics since these activities intrude on research activity: the priority in the academic reward system (DETYA, 1999c:14). Academics should continue to express frustration at the time spent responding to data requirements from those above them (i.e., managers and government bodies). In order to conform to stated and agreed upon yearly research targets, academics are likely to engage in quick and easy replicable research.

#### 10.7.4 Value Conflict

As collegial relations are strained across university campuses and commercial activity intensifies, more and more academics are likely to question the validity of corporate work practices. Recent events in Australian universities suggest academic freedom can be curtailed when academics criticise decisions made by senior university management (Ellingsen, 1999a; Richards, 1999) or voice their concerns about lower academic standards (Elliott, 2001; Noonan & Contractor, 2001). In a state of value conflict and stress, academics are likely to resist reforms that base education on the principles of profit and deny the importance of learning, scholarship and creativity. Without some acceptance of the validity of corporate work arrangements (Hall & Moss, 1998), academics are likely to experience value conflict and express low levels of university commitment.

### 10.7.5 Perceived Contract Violation

Perceived contract violation is likely to exert a negative effect on academic behaviour, causing potentially valuable employees to reduce their contributions to their universities or to exit the employment relationship altogether (Robinson & Rousseau, 1994; Robinson & Morrison, 1995). To minimise the risk of perceived contract negotiation, universities and the National Tertiary Education Union (NTEU) might consider renegotiating the terms of the academic employment agreement to fit changing circumstances. At an institutional level this is already occurring with salary sacrifice and performance-related pay schemes for senior staff. At lower academic levels (Positions A to C), reward and recognition systems may need to be more congruent with the changing work roles of academics at different ages and career stages (McInnis, 2000).

## 10.8 Recommendations for Practice

Work redesign is needed in universities to: (1) reduce value conflict in academe, (2) build trust between academics and university managers, (3) restore the current imbalance in psychological contracts between academics and their universities, and (4) increase academic commitment and university effectiveness. To realise these aims, academic work can be redesigned on the basis of employee involvement principles (Belasco, 1990; Gollan & Davis, 1999; Pfeffer, 1998). University leaders and managers can encourage employee involvement by:

- articulating a shared vision of the future that reflects a trust in staff to redesign core aspects of academic work;
- creating parallel structures as vehicles for learning how to redesign academic work, and for leading the change process;
- empowering lecturers to make effective teaching decisions; and
- rewarding academic staff with revised recognition and rewards practices.

Each of these approaches is now examined in more detail.

### 10.8.1 Leadership and Shared Values

To minimise value conflict in academe, university leaders need to adapt corporate principles and practices to the scholarly values of academics and the educational needs of universities (Gungwu, 2001:44). Importantly, leaders need to be seen in

word and deed to understand the academic value system. A key leadership strategy is the building of academic participation since participation reduces resistance to change, builds ownership of the change, and motivates people to make the change work (Belasco, 1990). Successful change efforts in higher education institutions depend heavily on the active involvement of faculty and staff as collaborators (Wolverton, 1998).

- Senior leaders and heads of departments need to clearly articulate a **shared vision** of the future that is meaningful and acceptable both by academics and managers. A shared vision is one that integrates managerial (university) and academic (individual) values and goals and defines, with appropriate indicators, effective performance levels (Parker, 1990).
- Value integration has to occur within the '**academic heartland**' (i.e., academic disciplines, old and new) since it is here innovations are most likely to fail and the "life of the institution proceeds largely as before" (Clark, 1998:8). Heads of department are placed at a critical point of academic influence. By virtue of their positions they can exert pressure for change on the organisation and its policies as a whole, while also influencing the culture of the work units for which they are responsible (Ramsden, 1998a:12). Thus, a crucial leadership challenge for heads of departments is to encourage innovation and entrepreneurial activity (managerial values) while maintaining the importance of academic autonomy, professionalism and collegial relations (academic values). Walking this tightrope should minimise value conflict in academe provided academic leaders can manage the stress and strain of trying to be an effective administrator while protecting the academic autonomy and independence of academic staff and duties (Gmelch & Burns, 1993; Gmelch & Miskin, 1995; Sarros, Gmelch, & Tanewski, 1997a). Professional development programs could also help departmental heads manage these conflicting directions and thus reduce their fatigue and stress (Sarros, Gmelch, & Tanewski, 1997b).

- Senior leaders and heads of department could conduct **academic forums** and openly discuss and share core beliefs and values of the university with academic staff (Whiteley, 1995). These 'sensemaking forums' (Weick, 1979) would enable academics to address personal issues such as changing identities, roles, and careers associated with institutional change (Taylor, 2000). Time could be spent identifying 'what is wrong with the status quo' before leaders invite academics to join any work redesign or change process. Hence, these forums provide a useful starting point for change, for sharing academic and managerial perspectives, and for promoting trust between academics and managers.
- **Electronic bulletin boards and global e-mails** might also be utilised to share core values and beliefs since they can easily boundary-span levels within the university and hence integrate the top and bottom organisation levels.

#### 10.8.2 Parallel Learning Structures

Top-down attempts to impose values on academics can have deleterious effects on university morale. If values are to be shifted, such as towards a greater commercial orientation, then "this must be done in a way which allows for retention of the original values in parallel" (Easterby-Smith, 1987:51). Parallel learning structures provide such a mechanism. They can facilitate entrepreneurial activity while preserving the scholarly values of academics.

- **Parallel learning structures**, consisting of a steering committee and a number of working groups, could be created to help plan and guide work redesign in Australian universities (Bushe & Shani, 1991; Valentine, 1997).
- Parallel structures might focus on ways to **reduce hierarchy, encourage learning and innovation, and improve recognition and rewards practices** in academe. Working groups could study what changes are needed based on data collection, make recommendations for improvement, and monitor the change efforts. It is advisable for senior leaders to be members of the steering committee to give the parallel structure authority, legitimacy and clout.

### 10.8.3 Empowerment of Lecturers

Empowerment of lecturers means giving individual staff "the authority to make decisions, to contribute their ideas, to exert influence, and to be responsible" (French & Bell, 1999:88). In the current context, empowerment means making teaching possible and rewarding for both the individual lecturer and institution. Lecturers might experience a greater sense of personal control, and begin to trust university management, when they perceive they can influence the university system in which they are embedded. Empowerment of lecturers is facilitated by:

- **Devolving budgets and decision making authority** to teaching development teams lead by a Course Coordinator or designated staff member.
- Providing Course Coordinators with **access to budgetary information** so they can appraise their department's finances and understand the consequences of their course development decisions.

### 10.8.4 Recognition and Rewards

- **More informal feedback on job performance** needs to occur by academic leaders recognising and rewarding the achievements of individual staff members (Ramsden, 1998a:86). **Recognition and support for staff learning** could reduce value conflict and promote organisational commitment.
- Heads of department, or their appointed delegates, might be required to attend **professional development courses** in which recognition and informal rewards are situated as major work motivators (Sarros et al, 1997b:289).
- To allow for more **timely feedback on job performance**, current formal appraisal systems could be conducted on a semi-annual basis. More timely feedback from supervisors should allow academics to adjust their work performance to achieve desired outcomes.

- As noted by the report of the Dearing Committee in the U.K. (NCIHE, 1997: para.14.12), **more flexible criteria for promotion** are needed in higher education to reflect the wider range of roles and tasks academics are required to undertake. As Blaxter, Hughes and Tight (1998b:284) stress, there is a "need to recognise a greater variety of roles within academic life" such as writing innovative course materials, and managing multi-campus overseas programmes. Promotion decisions need to be based on these *actual* roles and work activities, not on an idealised 'checklist' of what academics *should* do to be effective at work (i.e., the threefold division of teaching, research and administration).

### 10.9 Concluding Comment

Corporate reforms to Australian universities present challenges to both managers and academics. A recurrent managerial challenge will be how to achieve more administrative efficiency in academic work environments characterised by value conflict and stress. Gaining the support of 'the managed' may not be an easy task when many academics feel personally threatened by the tenets and practices of managerialism. Academics experiencing value conflict should think very carefully about the relationship they want with their university, and how that relationship might be achieved in the future. Without some individual acceptance of the validity of corporate work arrangements, academic staff may continue to experience value conflict and suffer a decline in their quality of work life.

**Appendix A**  
**Academic Work Environment Survey**

**ACADEMIC QUALITY OF WORK LIFE  
IN AUSTRALIAN UNIVERSITIES**

**ACADEMIC WORK ENVIRONMENT SURVEY**

**1998**

**School of Business and Electronic Commerce  
Faculty of Business and Economics  
Monash University**

## ACADEMIC WORK ENVIRONMENT SURVEY (AWES)

### Directions

The purpose of the Academic Work Environment Survey (AWES) is to obtain a picture of your current Job/University Environment, and your Quality of Work Life (QWL). Specifically, the AWES focuses on your current job environment (i.e. your role, job, supervisor, university structure, higher education sector) and the influence of the job environment on your QWL. To help classify your responses, personal and professional characteristics questions are included. The survey is divided into the following four sections:

1. **Your Profile** - personal and professional classification items;
2. **Your Job** - role, job, supervisor, and university structure items;
3. **Your Job/University** - university structure and QWL items; and
4. **Changes to Higher Education** - twelve large-scale change items.

NOTE THAT EACH SECTION ASKS YOU TO RESPOND USING DIFFERENT RATING SCALES.

Please answer all of the survey questions as frankly as possible. The only 'right' answers to these questions are the ones that reflect how you think, feel or behave at work. All responses will be held in the strictest confidence. If you are interested in obtaining a summary report of the findings, please contact me at: [richard.winter@buseco.monash.edu.au](mailto:richard.winter@buseco.monash.edu.au)

### KEY TERMS

#### QUALITY OF WORK LIFE (QWL)

QWL refers to two work-related attitudes: job involvement and organisational commitment. QWL, as a continuous feeling and behavioural state, can be both positive (i.e. high involvement, high commitment) and negative (i.e. low involvement, low commitment).

#### CURRENT JOB/UNIVERSITY ENVIRONMENT

The day-to-day university social and physical environment in which you currently do most or all of your teaching, research, and administrative/committee work.

#### SUPERVISOR

Your immediate academic supervisor in the university chain of command (i.e. your work group, department, school, faculty head).

#### GROUP

The group of people you regularly interact with and/or exchange information at work. This group might be your immediate teaching/research discipline group, colleagues with whom you share significant teaching responsibilities, and/or group members you work with regularly on specific tasks, projects, or committees.



## Your Profile

Please mark the appropriate boxes with a pen or pencil. Mark one box only for each question.

1. Age ☐ < 25  
☐ 25-29  
☐ 30-39  
☐ 40-49  
☐ 50-59  
☐ 60-64  
☐ 65+
2. Gender ☐ Male  
☐ Female
3. Marital status ☐ Married  
☐ Single  
☐ Other
4. Qualifications (highest degree attained)  
☐ Doctorate (or equivalent)  
☐ Masters (by research or coursework)  
☐ Graduate Certificate/Diploma  
☐ Bachelors/Honours  
☐ Other (please specify) \_\_\_\_\_
5. Position (current position)  
☐ Associate Lecturer  
☐ Lecturer  
☐ Senior Lecturer  
☐ Associate Professor/Reader  
☐ Professor
6. Hours  
☐ Full-time  
☐ Fractional full-time
7. Contract  
☐ Tenured/ongoing  
☐ Fixed-term
8. University Service  
 (employment years in present university;  
 round down to nearest year)  
☐ Less than 3 years  
☐ 3 - 6 years  
☐ 7 - 10 years  
☐ 10 years +
9. Higher Education Service  
 (employment years in higher  
 education in total)  
☐ Less than 3 years  
☐ 3 - 6 years  
☐ 7 - 10 years  
☐ 10 years +
10. Function (please indicate your primary work role) Mark one box only.  
☐ Teaching only  
☐ Research only  
☐ Teaching and Research  
☐ Other (please specify) \_\_\_\_\_
11. Faculty/School (please indicate affiliated academic faculty/department) Mark one box only.  
☐ Science  
☐ Education  
☐ Mathematics/Computing  
☐ Built Environment  
☐ Admin./Business/Economics/Law  
☐ Humanities/Arts/Visual/Perf. Arts  
☐ Engineering/Processing  
☐ Other (please specify) \_\_\_\_\_  
☐ Health Sciences  
☐ Social Studies  
☐ Agriculture/Renew. Resources
12. University (please give the name of your university)  
 \_\_\_\_\_

## Your Job

- Please indicate HOW TRUE the following statements are about your current job environment.

Use the following "How Often True" scale for your responses. Please circle the appropriate number.

	1 Never True	2 Seldom True	3 Sometimes True	4 Often True	5 Always True
1a. In my job, there is the opportunity for me to complete work that I start.					1 2 3 4 5
2a. My supervisor gives advance notice of changes that affect my work.					1 2 3 4 5
3a. I receive feedback from my supervisor on how well I'm doing my job.					1 2 3 4 5
4a. I know what my responsibilities are.					1 2 3 4 5
5a. I participate in decisions that influence departmental policy.					1 2 3 4 5
6a. I have to do things at work that should be done differently.					1 2 3 4 5
7a. My supervisor helps me solve work-related problems.					1 2 3 4 5
8a. I am given enough time to do what is expected of me in my job.					1 2 3 4 5
9a. My job provides the opportunity for independent thought and action.					1 2 3 4 5
10a. My supervisor encourages me to develop new skills.					1 2 3 4 5
11a. The tasks in my work are challenging.					1 2 3 4 5
12a. I participate in decisions on the promotion of academic staff.					1 2 3 4 5
13a. I handle work from beginning to end by myself.					1 2 3 4 5
14a. My supervisor refuses to explain his or her actions.					1 2 3 4 5
15a. I work on unnecessary things.					1 2 3 4 5
16a. Information, about how my job performance will be evaluated, has been directly communicated to me.					1 2 3 4 5
17a. My supervisor keeps informed about how group members think and feel about things.					1 2 3 4 5
18a. I have the freedom to do pretty much what I want in my job.					1 2 3 4 5
19a. My supervisor puts suggestions made by the group into operation.					1 2 3 4 5
20a. My supervisor does little things to make it pleasant to be a member of the group.					1 2 3 4 5
21a. It often seems like I have too much work for one person to do.					1 2 3 4 5
22a. I participate in decisions to appoint new academic staff.					1 2 3 4 5
23a. I am able to exert control over the pace of my work.					1 2 3 4 5
24a. I feel that I am working on important tasks and projects.					1 2 3 4 5
25a. I participate in decisions on the adoption of new university policies.					1 2 3 4 5
26a. I know exactly what is expected of me.					1 2 3 4 5
27a. My supervisor treats all group members as his or her equals.					1 2 3 4 5

→

(continued)

## Your Job

1 Never True	2 Seldom True	3 Sometimes True	4 Often True	5 Always True					
28a.	I feel certain about how much authority I have in my job.				1	2	3	4	5
29a.	The performance expectations for my job are too high.				1	2	3	4	5
30a.	My supervisor encourages group members to speak up when they disagree with a decision.				1	2	3	4	5
31a.	I can act independently of my supervisor in performing my job function.				1	2	3	4	5
32a.	I see projects or jobs through to completion.				1	2	3	4	5
33a.	My supervisor looks out for the personal welfare of group members.				1	2	3	4	5
34a.	The tasks in my work bring out the best in me.				1	2	3	4	5
35a.	My supervisor acts without consulting the group.				1	2	3	4	5
36a.	In my job, there is clear explanation of what has to be done.				1	2	3	4	5
37a.	Clear, planned goals and objectives exist for my job.				1	2	3	4	5
38a.	As I'm working, I am able to find out how well I'm doing my job.				1	2	3	4	5
39a.	My supervisor is friendly and approachable.				1	2	3	4	5
40a.	I am left on my own to do my own work.				1	2	3	4	5
41a.	I participate in decisions on the adoption of new course programs.				1	2	3	4	5
42a.	I receive a task assignment without adequate resources and materials to execute it.				1	2	3	4	5
43a.	My supervisor is willing to make changes.				1	2	3	4	5
44a.	I feel challenged by the work I am currently doing.				1	2	3	4	5
45a.	My supervisor keeps to himself or herself.				1	2	3	4	5

**Comments:**

Please indicate here your feelings towards your current job environment.

[illegible]

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(continued)

## Your Job/University

- Please indicate the extent to which you **DISAGREE** or **AGREE** with the following statements concerning your job and university.

Use the following "Disagree-Agree" scale for your responses. Please circle the appropriate number.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Disagree or Agree	Agree	Strongly Agree
1b.	I talk about this university to my friends as a great place to work.			1 2 3 4 5
2b.	The most important things that happen to me involve my present job.			1 2 3 4 5
3b.	There can be little action taken in this university until someone in authority approves a decision.			1 2 3 4 5
4b.	Most of my personal life goals are job-oriented.			1 2 3 4 5
5b.	I really care about the fate of this university.			1 2 3 4 5
6b.	In this university, academic staff are expected to adhere to a large number of written rules and policies.			1 2 3 4 5
7b.	To me, my job is only a small part of who I am.			1 2 3 4 5
8b.	An academic who wants to make his/her own decisions would be quickly discouraged in this university.			1 2 3 4 5
9b.	For me, this is the best of all possible universities for which to work.			1 2 3 4 5
10b.	I am very much involved personally in my job.			1 2 3 4 5
11b.	The central university administration keeps me informed with bulletins, newsletters, and other publications.			1 2 3 4 5
12b.	Any resource decision I make in this university has to have my supervisor's approval.			1 2 3 4 5
13b.	I find that my values and the university's values are similar.			1 2 3 4 5
14b.	I live, eat and breathe my job.			1 2 3 4 5
15b.	This university stresses to academic staff the importance of following established educational rules and policies.			1 2 3 4 5
16b.	Most of my interests are centered around my job.			1 2 3 4 5
17b.	In this university, I have to ask my supervisor before I do almost anything important.			1 2 3 4 5
18b.	This university really inspires the very best in me in the way of job performance.			1 2 3 4 5
19b.	I consider my job to be very central to my existence.			1 2 3 4 5
20b.	There is a formal orientation program for most new members of the university.			1 2 3 4 5
21b.	I am willing to put in a great deal of effort beyond that normally expected to help this university be successful.			1 2 3 4 5
22b.	Usually I feel detached from my job.			1 2 3 4 5
23b.	I have very strong ties with my present job which would be very difficult to break.			1 2 3 4 5
24b.	In this university, even small matters have to be referred to someone higher up for a final answer.			1 2 3 4 5
25b.	I am proud to tell others that I am part of this university.			1 2 3 4 5
26b.	The university often relies upon rules, procedures and memos to structure and coordinate academic work activities.			1 2 3 4 5
27b.	I like to be absorbed in my job most of the time.			1 2 3 4 5

→ (continued)

## Changes To Higher Education

- Please rate the broad trends listed below in terms of the **SIZE OF THE IMPACT TO YOU** in your current job. Please circle the appropriate number.

	1	2	3	4	5
	Very Small Impact	Small Impact	Moderate Impact	Large Impact	Very Large Impact
1c. Increased emphasis on academic entrepreneurialism and fee-raising activities.					1 2 3 4 5
2c. Decreased public funding and increased private funding of higher education.					1 2 3 4 5
3c. Increased emphasis on academic accountability and institutional efficiency.					1 2 3 4 5
4c. An expansion and diversification of the student population.					1 2 3 4 5
5c. The creation of a unified national system through the merger of previously distinct sectors of universities and colleges of advanced education.					1 2 3 4 5
6c. Increased pressure to use information technology to produce quality courseware.					1 2 3 4 5
7c. Managerialism (i.e. business-related 'managerial' practices) replacing collegiality in the academic community.					1 2 3 4 5
8c. Increased student and employer dissatisfaction with curricula.					1 2 3 4 5
9c. Institutional pressures to increase productivity through quality assurance mechanisms, appraisal systems, and performance indicators.					1 2 3 4 5
10c. The rise of consumerism and a 'user-pays' fees regime.					1 2 3 4 5
11c. The emergence of very large, multi-campus institutions.					1 2 3 4 5
12c. Increased competition between institutions for fee-paying student income.					1 2 3 4 5

**Comments:**

Please indicate here your reactions to these changes.

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Please insert the completed survey in the reply-paid envelope and return to:

Richard Winter  
School of Business and Electronic Commerce  
Monash University Gippsland Campus  
Churchill VIC 3842

**THANK YOU FOR YOUR TIME AND ASSISTANCE**

Appendix B  
Ethics Approval Letter

M O N A S H U N I V E R S I T Y



MEMO

27 November, 1996

A/Professor J Sarros  
Business Management  
PENINSULA CAMPUS

Mr R Winter  
25 Walker Drive  
DROUIN 3818

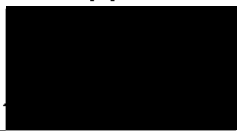
Re: Project 96/320 - Academic morale in Australian universities

I write in reference to the approval procedure of the above project. Thank you for forwarding the information as requested by the Standing Committee on Ethics in Research on Humans (SCERH). A copy of the information has been placed on the project file.

The Committee has approved the project as confirming to NHMRC Guidelines. This approval is of the project as submitted and if any changes are subsequently made, the Committee should be advised. Please quote the project number above in any further correspondence.

Institutional Ethics Committees are required by the NHMRC to monitor research projects until completion to ensure that they continue to conform with approved ethics standards. The Committee undertakes this role by means of annual progress reports and termination reports. Please ensure that the Committee is provided with a brief summary of the outcomes of your project when the project has concluded.

The Chief Investigators of approved projects are responsible for the storage and retention of original data pertaining to a project, for a minimum period of five years. You are requested to comply with this requirement.

  
Lyn Gash  
Secretary  
Standing Committee on Ethics  
in Research on Humans

## Appendix C

### Pennington University Classification

#### GROUP 1 (n = 9)

##### *Sandstone research universities*

Traditional 'sandstone' universities, often referred to colloquially as the 'Gang of Eight' (actually nine when the university of Tasmania is included). This group exerts a significant amount of influence at a policy level since they attract approximately 70 per cent of competitive research grants. This informal association of large research universities argues for a concentration, not a dispersal or dissipation, of research resources and research infrastructure.

- University of Sydney
- University of Melbourne
- University of NSW
- Australian National University
- University of Adelaide
- University of Western Australia
- University of Queensland
- Monash University
- University of Tasmania

#### GROUP 2 (n = 10)

##### *Regional universities*

Multi-function universities situated in regional locations.

- University of Ballarat
- James Cook University of North Queensland
- University of New England
- Newcastle University
- Charles Sturt University
- Central Queensland University
- University of Southern Queensland
- Northern Territory University
- Southern Cross University
- University of Wollongong

### **GROUP 3 (n = 11)**

#### *Generalist metropolitan universities*

Universities with broad research/teaching objectives and profiles situated in city locations.

- University of Canberra
- University of Western Sydney
- Edith Cowan University
- Deakin University
- La Trobe University
- Flinders University of South Australia
- Griffith University
- Macquarie University
- Murdoch University
- Australian Catholic University
- University of South Australia

### **GROUP 4 (n = 6)**

#### *Universities of Technology*

City universities with a strong applied, technical and/or vocational teaching base.

- RMIT
- Curtin University of Technology
- Queensland University of Technology
- University of Technology, Sydney
- Victoria University of Technology
- Swinburne University of Technology



**Appendix D**  
**Survey Cover Letter**

(Date)

Dear (Insert Surname including Title)

**Academic Quality of Work Life in Australian Universities**

As a Monash academic staff member, I seek your help in progressing a PhD-related research project that examines the Quality of Work Life (QWL) of academics across Australia's 36 publicly funded universities. The purpose of the project is to pinpoint which aspects of the job/work environment relate to high/low states of academic job motivation and organisational commitment.

Please give me some insights into your current job/work environment by completing the enclosed Academic Work Environment Survey. Pilot testing suggests the survey should take about 20 minutes to complete.

Your responses will remain completely confidential. Ethics approval has been granted subject to no findings identifying yourself, or your university affiliation, being published. Return envelopes have been precoded for the sole purpose of improving response rates. Should you have any complaint concerning the manner in which this research is conducted, please contact: The Secretary, The Standing Committee on Ethics in Research on Humans, Monash University, Clayton VIC 3168 or Telephone (03) 9905 2052.

I encourage you to participate by completing and returning the survey in the enclosed reply-paid envelope. To obtain a summary of the study's findings, please contact me at the following e-mail address: [richard.winter@buseco.monash.edu.au](mailto:richard.winter@buseco.monash.edu.au), or alternatively, on (03) 5122 6703. Thank you for your time and your assistance.

Yours sincerely

Richard Winter  
Lecturer in Management  
Monash University Gippsland

**Appendix E**  
**Pre-Test Participants (August 1996 to June 1997)**

Code	Campus <sup>1</sup>	Discipline	Rank	Interview	Date	Time <sup>2</sup>
RJ	M	Centre for H/E <sup>3</sup>	Res/Fellow	Yes	9/8/96	N/T <sup>4</sup>
SY	G	Marketing	Lec	No	17/3/97	N/T <sup>4</sup>
VR	G	Marketing	A/Lec	No	17/3/97	16
PM	G	Law	Lec	No	17/3/97	15
JBP	G	Management	Lec	No	31/3/97	N/T <sup>4</sup>
JR	G	Management	Lec	No	31/3/97	N/T <sup>4</sup>
PF	C	Marketing	Prof	Yes	24/4/97	13
MF	P	Management	Lec	Yes	1/5/97	20
GK	G	Economics	S/Lec	Yes	6/5/97	30
JG	G	Education	Lec	Yes	6/5/97	20
MZ	G	Accounting	A/Lec	Yes	7/5/97	35
YA	G	Marketing	Lec	Yes	7/5/97	31
CJ	G	Economics	A/Lec	Yes	8/5/97	24
DH	G	Education	A/Prof	Yes	8/5/97	30
GS	G	Nursing	S/Lec	Yes	9/5/97	20
KW	G	Tourism	A/Lec	Yes	9/5/97	35
LH	G	Accounting	A/Lec	Yes	16/5/97	20
ME	C	Centre for H/E <sup>3</sup>	S/Lec	No	12/6/97	N/T <sup>4</sup>

<sup>1</sup> Campus refers to participant's home campus (C = Caulfield, G = Gippsland, M = Melbourne, P = Peninsula).

<sup>2</sup> Time refers to AWES completion time as reported by pre-test participant (minutes).

<sup>3</sup> H/E refers to a Centre for Higher Education.

<sup>4</sup> N/T refers to Not Tested.

**Appendix F**  
**Pre-Test Letter**

(Date)

**Quality Of Work Life in Australian Universities**

Dear Colleague            [insert surname and title]

I seek your participation in a work-related research project. The project will examine the relative importance of personal, professional, and work environment factors to academics' Quality of Work Life across the higher education sector (i.e. Australia's 36 public universities). The project is part of my PhD thesis under the supervision of Dr James Sarros, Associate Professor in the Department of Management at Monash University Peninsula Campus.

An important component of the project is the pre-testing of the Academic Work Environment Survey (AWES), an instrument designed to assess academics' work environment perceptions, Quality of Work Life, and personal/professional characteristics.

I seek your help in providing answers and reactions to the AWES. With your consent, I would like to observe you completing the AWES, and to ask you questions regarding your interpretation and understanding of the survey items. The interview will take no more than 45 minutes of your time. Please note that the information you provide will be kept in strictest confidence; no findings which could identify yourself, or your institution affiliation, will be published.

Should you have any complaint concerning the manner in which this research is conducted, please do not hesitate to contact The Standing Committee on Ethics in Research on Humans at Monash on: (03) 9905 2052 or Fax (03) 9905 1420.

I will contact you by e-mail shortly to arrange a date and time that is convenient with you. Thank you for your cooperation. I expect that the results of the survey will be important to future work redesign strategies in our universities.

Yours sincerely

Richard Winter  
Lecturer in Management  
Monash University Gippsland

**Appendix G**  
**Pre-Test Results**

Date	Code	Name	Position	Institution	Interview	Time
9/8/96	RJ1	Richard James	Research Fellow	Centre for Higher Education Melbourne University	Yes	1 hour
<b>Comments:</b> Interview/Lunch with Richard regarding the proposed study. Received letter dated the 16 August 1996 giving feedback on the survey. Richard suggested the idea of eliminating the overlay of theoretical constructs by splitting the survey up into sections titled 'Your Workplace' and 'Your Morale'.						
17/3/97	SY2	Shahid Yamin	Lecturer/Marketing	Monash University Gippsland	No	N/A
<b>Comments:</b> Shahid suggested item g: 'I have to do things that should be done differently' was a "bit ambiguous"; item h: 'I receive an assignment...' was problematic since assignment can have dual connotation (amended to read 'task assignment'). Similarly, item j: 'I receive an assignment' amended to 'task assignment'. Shahid commented on item l: 'The performance standards on my job are too high' ("are performance standards in existence in this university?"). Suggested changing the alphabetic items to numbered items - new numbering system for each section.						
17/3/97	VR3	Vaughan Reimers	A/Lecturer Marketing	Monash University Gippsland	No	N/A
<b>Comments:</b> Vaughan questioned item 7 'Your Workplace': "I have to do things that should be done differently" (omitted response). Commented on the difficulty of "having to work in a non-Australian work environment" and yet be judged by Australian work standards, norms. "I often fight a running battle between my own self driven motivation and various university policies and actions that dampen my enthusiasm." "I often find that what my students want and what the uni wants me to provide are points that could be plotted at opposite ends of the same spectrum."						

Date	Code	Name	Position	Institution	Interview	Time
17/3/97	PM4	Philip Moore	Lecturer/Law	Monash University Gippsland	No	N/A
<b>Comments:</b> "Pressure due to state of economy, education funding etc". "Some uncertainty about future which also affects others beside me."						
31/3/97	JBP5	John Brown-Parker	Lecturer/Management	Monash University Gippsland	Yes	40 mins
<b>Comments:</b> Suggested in 'Your Profile' section an indication of how to mark the boxes (i.e., tick, cross, pencil/pen). John questioned the value of the "truth" scale since it does not fit all questions. Scale subsequently changed to an 'accurate-inaccurate' scale for Job/Work items. John commented on the "enormous bureaucracy in universities - centralised with little trust of abilities, ethics or professionalism of staff." "Rather than a 'community of scholars', a university is an amalgamation of self-interested individuals."						
31/3/97	JR6	John Rodwell	Lecturer/Management	Monash University Gippsland	No	N/A
<b>Comments:</b> John made comments on 'Your Profile' section, particularly Q11 'Work activities' (too imprecise). Question changed to Role Orientation.						

Date	Code	Name	Position	Institution	Interview	Time
24/4/97	PF7	Peter Fitzroy	Professor/Marketing/HOS Acting Dean	Monash University Caulfield	Yes	50 mins

**Comments:** Peter had problems with Profile Q.11: "Is the Question referring to a required role/have I to do, or is it in the category personal want/role I like to fulfil/do?" Suggested changing the wording of this question to read: 'please indicate which role you find most fulfilling at work'. Peter suggested the benefits of a semi-structured survey, to allow academics to voice their opinions with respect to the restructuring of higher education. Gives some "fix in time" on their attitudes towards the current system (i.e., qualitative statements may reject survey scale items or support them - triangulation of data). Good idea to ask academics for their reactions to "the major higher education changes over the past 10 years", or perhaps to prioritise/rank suggested issues in terms of their level of importance, for example: (1) not at all important; (2) not so important; (3) neutral; (4) fairly important; (5) very important.

1/5/97	MF8	Marilyn Fenwick	Lecturer/Management	Monash University Peninsula	Yes	45 mins
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**Comments:** Marilyn commented on the wording 'obtain an accurate picture' in the Instructions section. This purposeful statement implies an evaluation (i.e. don't be inaccurate; but paragraph below makes it clear that the survey is descriptive, not evaluative. Suggested removing the word accurate from purpose statement. **Your Profile** Q1 (Age), Marilyn found a bit intimidating; suggested going straight into **Your Job** questions. Q8 (Yrs in Present University) Marilyn responded "where do I fit 6.5 yrs" in question. Suggested including a statement here 'please round-down to nearest year'. **Your Job** Q1, Marilyn suggested including 'for me' here to read: 'In my job, there is the opportunity for me to complete work that I start'. Q32, item has a senior level inference (i.e., authority over staff/resources) Suggested omitting this item. **Your Supervisor** Q8, Marilyn thought 'clear' to the group was problematic - attitudes may not be clearly communicated but still be known... "perhaps it would be better to replace clear with known.

Date	Code	Name	Position	Institution	Interview	Time
6/5/97	GK9	Gennadi Kazakevitch	S/Lecturer Economics	Monash University Gippsland	Yes	45 mins

**Comments:** **Your Job** Q3, Gennadi thought there needed to be a positive/negative distinction here. Gennadi didn't receive any negative feedback on his job performance since it is not given in this "culture". Qs 5,14, 22, 27, 42, Gennadi thought that 'often' should be removed from these participation items since 'often' provides an unnecessary quantitative component. In the original rating scale, Aiken and Hage (1967) asked respondents to quantify the frequency (Never-Always) with which they participated in decision making. In this scale I'm asking respondents to state if they feel an 'often' participation statement is an accurate/inaccurate reflection of their job environment. Q18 Gennadi was confused with this role ambiguity item.

**Your University/Workplace** Q13, Gennadi had problems with the 'anything important' component. Item had changed when JBP5 suggested that 'important' be added to item to make it more evaluative. Q18, "What if I didn't have to make a choice?" Question may be irrelevant if only one job offer was being considered. Q20, Gennadi perceived this question to be too general/or of limited use in academe. May be better to remove this item and replace it with: 'This university keeps a complete written record of each staff member's research expertise'.

Gennadi filled out the Supervisor/Supervision section incorrectly because he mistook the direction of the scale (negative to positive). The previous accurate/inaccurate scale was positive to negative, and so is the final agree/disagree scale; suggest changing this scale to (1) Always to (5) Never. Gennadi also mentioned the importance of ensuring all of the items are "phrased in the same direction" for SPSS statistical analysis purposes.

Date	Code	Name	Position	Institution	Interview	Time
6/5/97	JG10	John Gough	Lecturer/Education	Monash University Gippsland	Yes	50 mins

**Comments:** **Your Profile** Q11, John suggested that 'most fulfilling' should be either underlined or in bold. **Your Job/Work** Q7, my job duties are 'repetitious'; better to say repetitive? Q4 & Q28 - what is the distinction between these items? Q40 & Q43 - what is the distinction between these items? **Your Supervisor** - John made the comment regarding this section: "is it important to know how long the supervisor has been in place?" I don't feel so, but I get his point; a new supervisor might be more task directive, or his/her style less obvious. **Your University/Workplace** Q6, John stated the question needed to be more focused... 'An academic who wants to make his/her.....'

John thought it a good idea to stress research expertise/knowledge in the personal letter to respondents (i.e., reassure respondents you have the research skills to conduct the data collection/analysis and report results). John thought the actual process of completing the survey was somewhat therapeutic since it forces you to quantify your feelings about issues affecting your work, and attitudes. It "might jog some respondents into action."

An issue for consideration in the changes to higher education section might be the effects of "administrivia" (plenty of research support here). John, Tony, and Val made the mistake of ignoring this issue and it came out as a source of job dissatisfaction in their survey of staff morale.

John thought it a good idea to provide a short space at the end of each section so that respondents could add some brief comments. For example, "Please provide comments on job/supervisor/organisation issues/factors you feel are not highlighted here and warrant mentioning." A larger space at the end of the survey should be provided for lengthier comments/observations; a note could say add a page if desired.



Date	Code	Name	Position	Institution	Interview	Time
7/5/97	MZ11	Mike Zarb	A/Lecturer Accounting	Monash University Gippsland	Yes	45 mins

**Comments:** Mike, a 64 year old man, found it difficult to read/interpret the survey; survey right up to his face (poor eyesight-glasses). Mike was very conscious of giving me the "right" impression of how he felt at work. At times he wanted me to tell him the meaning of the items; he felt uncomfortable at times. He said it was important for him not to contradict himself.

**Your Job/Work** Q26, Mike felt that this question needed a reference point; he suggested teaching tasks and projects. I disagree. It should apply to a range of non-teaching tasks too. Q31, Mike felt that 'in my job' was clearer than 'on the job'.

**Your University/Workplace** Q9, Mike thought this question needed more conciseness/focus. Perhaps it should be changed to: 'Any important decision I make in this university.' Q11, "is 'formal' necessary here?" Q18, Mike didn't make a choice between universities; only one offer. Question is irrelevant if no choice activity.

7/5/97	YA12	Yunus Ali	Lecturer/Marketing	Monash University Gippsland	Yes	30 mins
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**Comments:** **Your Job/Work** Q3, Q17, Q18 Yunus found it difficult to say how accurate this was because it happens sometimes and others not; no timescale given so he is unsure of how to respond to questions.

Date	Code	Name	Position	Institution	Interview	Time
8/5/97	CJ13	Carol Jeffs	A/Lecturer Economics	Monash University Gippsland	Yes	45 mins

**Comments:** Carol found the bold upper-case instructions hard to read and suggested they be made lower-case and bold. **Your Job/Work** Q30, Carol found this negatively phrased question hard to comprehend. Q36, Carol found this question perplexing; there is no "source" or reference point for the explanation.

**Your Supervisor/Supervision** - Carol found this section difficult since she has no immediate supervisor. The department has an Acting Head who has been in the role a short period of time. So, how many academics have an immediate supervisor? Perhaps also the style dimensions are too broad; the Supportive Supervision (8) and Controlling Supervision (4) items by Oldham and Cummings (1996) are more focused and reflective of the climate of managerialism.

8/5/97	DH14	David Harvey	A/Professor Education	Monash University Gippsland	Yes	40 mins
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**Comments:** **Your Profile** Q6, Does this question need the word 'contract'? David, a tenured Professor, thought initially that this didn't apply to him. Q7, similar problem, perhaps it should be just headed Tenure? **Your Job/Work** Q9, David found that question a bit confusing. Yes, he has enough time to do what is expected of him, but that doesn't mean he has enough time to carry out what he personally wants to do or work on. Q14, David omitted the word 'often' since over a semester/year it's not often, but is perhaps regarded the 'norm' in terms of participation. **Your Supervisor/Supervision** Q5, David qualified this question by adding 'acts on advice'. Yes, his supervisor decides what shall be done but only after consulting others.

Date	Code	Name	Position	Institution	Interview	Time
9/5/97	GS15	Gurpal Sandhu	S/Lecturer Health Sciences	Monash University Gippsland	No	N/A

**Comments:** **Your Profile** - Gurpal marked four of the boxes in Q4 and all of the boxes in Q11. Responses suggest that 'Mark one box only' may have to be bigger (12 point). Gurpal also missed out questions 5, 7 and 9.

**Your Job/Work** - Gurpal thought the 'accurate-inaccurate' scale inappropriate and suggested changing this to a frequency scale. Gurpal wrote comments to the side of some items in an effort to make them more focused; this suggests the need for space to add qualitative comments. Q1, Gurpal found this question too broad (it's a task identity item). Q30, Gurpal found the second part 'as a result of the type of work that I do' did not apply to all situations at work.

**Your University/Workplace** Q6, Gurpal mentioned here "depends on who the person is". Item is changed to read: 'An academic who wants to make his/her own decisions....' Gurpal commented that she "didn't know how appropriate the formalisation questions were" and perhaps such a "heavy emphasis on policy was not necessary."

Date	Code	Name	Position	Institution	Interview	Time
9/5/97	KW16	Karin Weber	Associate Lecturer Tourism	Monash University Gippsland	Yes	45 mins

**Comments:** **Your Profile** Q4, What about Honours? Put in 'Other' or 'Bachelors'? Q5, Query on Associate; at Gippsland it's referred to as Assistant (Carol Jeffs made this comment, another A/L). Q9, Karin was unsure if this meant worked in higher education, or worked and studied in higher education (she did her degree at Gippsland).

**Your Job/Work** Q36, Karin unclear/perplexed as to the meaning of this question; referent point unclear so difficult to focus (but isn't this the objective? The lack of explanation and goal guidance may emanate from a number of sources). Suggest changing to: 'In my job, there is clear explanation of what has to be done'. Karin thought the accurate-inaccurate scale should be scaled differently. She suggested that 'slightly accurate/inaccurate' was not as precise as accurate, and didn't anchor so well between (1) very accurate and (3) neither accurate or inaccurate. She suggested just leaving (2) as Accurate and (4) as Inaccurate.

**Your Supervisor/Supervision** - Karin has no immediate supervisor so she found it difficult to answer these questions. We decided together that it was better if she didn't then complete this section.

Date	Code	Name	Position	Institution	Interview	Time
16/5/97	LH17	Les Hardy	A/Lecturer Accounting	Monash University Gippsland	Yes	50 mins

**Comments: Your Profile** - Les commented on the need to indicate how the boxes are to be filled in (i.e., with a tick/cross etc.).

**Your Job/Work** Q18, Les found it difficult to answer this question in relation to the 'accurate-inaccurate' scale. Q25, Les found this hard to answer; maybe yes, maybe no. Q29, Yes, because the "goal posts" keep changing.

**Your University/Workplace** Q7, Les found this commitment question difficult since he has only worked in one university so couldn't make an evaluation.

Les mentioned that the single biggest thing that impacts on his attitude towards the university is "the way that the contractual system of employment operates." That is, the required goals for maintaining a contract are not made explicit, yet when contracts are renewed (or not!) specific performance in "often arbitrarily defined areas" is referred to. For example, if an A/L's performance is judged primarily in terms of research targets (as a prerequisite for maintaining/renewing contracts), then workloads/commitments should be directed towards this goal, and not teaching. John perceived the university values research on a long-term basis, but in the short-term stresses the importance of teaching, and making money from fee-paying programs. It is this "tension" that John finds the most difficult to come to terms with. John comments, "I can be satisfied - day by day, but what about the long term!"

Maybe the formalization items can be replaced (since bureaucracy is being tapped by hierarchy of authority, participation in decision making) by items which may cause academic dissatisfaction, such as the lack of clear performance targets/goals, the feedback of goals to academics, and the increasing presence of 'administrivia' (documented in Jan Currie's studies and mentioned by JG10 as a significant source of low academic morale).

Date	Code	Name	Position	Institution	Interview	Time
12/6/97	ME18	Malcolm Eley	Director/Centre for Higher Education Development	Monash University Clayton	No	N/A

**Comments:** Dr Malcolm Eley is Director of the Centre for Higher Education Development at Monash University. As an educational consultant, his principal role is to advise academic colleagues on their teaching and related research activities. Malcolm found the use of 'qualifiers' (e.g., often, usually, any...) throughout the survey "gave some logically sourced difficulties in responding". That is, his response to the precise logical meaning of the item was sometimes different to the general gist or intention of the item. These qualifiers however are integral to the intended meaning of the items. If they are removed, the item may not be stable (note the item and qualifier is trying to gauge a general opinion or perception not a precise definition).

**Your Job/Work** - Malcolm suggested a frequency or consistency based scale be used to measure **Job/Work** responses instead of an accurate scale. A frequency scale, he suggested, "would have significantly improved my rate of responding sensibly." Dr James Sarros also commented on the efficacy of a frequency scale. On the basis of this expert advice, it was decided to review the original work environment scale measures and revise the **Job/Work** scales accordingly.

Inspection of the work stress measures (i.e., role ambiguity, role conflict, role overload) revealed the scales were originally 7-point and 4-point frequency 'truth' scales respectively. The Job Challenge measure (Amabile & Gyskiewicz, 1989) also consisted of a 4-point frequency 'truth' scale (never or almost never, sometimes, often, always or almost always). Amabile et al. (1996) used this four-point scale in order to more accurately capture the frequency with which a variety of respondents experience each aspect of their current work environment - defined as "the day-to-day social and physical environment in which you currently do most or all of your work" (Amabile et al., 1996:1165). Stogdill's (1963) Consideration measure and Aiken and Hage's (1966) Participation in Decision Making measure also consisted of a 5-point frequency scale (never, seldom, occasionally, often, always).

Date	Code	Name	Position	Institution	Interview	Time
12/6/97	ME18	Malcolm Eley	Director/Centre for Higher Education Development	Monash University Clayton	No	N/A

**Comments:** All of the **Job/Work** items that were originally measured using a frequency scale were examined to see if they were more consistent using a 'how often true' frequency scale (1 = Never True; 2 = Seldom True; 3 = Sometimes True; 4 = Often True; 5 = Always True). Items did seem to be more consistent and meaningful. Miller's (1967) and Mottaz's (1981) Self-Estrangement items were moved to the 'Your University/Workplace' section of the survey since they were originally measured using an 'agree-disagree' scale as was Mowday et al's (1979) Organizational Commitment measure. **Your Job/Work** - In keeping with a frequency scale, the instruction now reads: 'Please indicate HOW FREQUENTLY the following statements apply to your current job/work environment. Use the following "**How Often True**" for your responses'. Q24a, Malcolm indicated that this Skill Variety item could be read as either positive or negative. He noted "there is too much variety in my job." The item was replaced by Agarwal and Ramaswami's (1993) reverse-scored item: 'In my job, I do the same things over and over'.

**Your University/Workplace** - Malcolm commented that a number of questions here did not fit well with a Likert SD/SA scale i.e., they are more a matter of 'how often is this true?' I inspected the items again in a combined format with the eight Self-Estrangement items. They did not seem to me not to reflect an underlying attitude or value towards the university and work. The items remained in their original format. The instruction was changed from a question to the following request: 'Please indicate the extent to which you **DISAGREE** or **AGREE** with the following statements concerning your university workplace'.

**Changes To Higher Education** - Malcolm interpreted this section to mean "which of these (changes) has had an **impact** (+ve or -ve) on my work?" That is, he found the importance scale ambiguous since he interpreted it as **IMPACT**. The scale was subsequently changed to a **SIZE OF THE IMPACT** scale (1 = Very Small Impact; 2 = Small Impact; 3 = Moderate Impact; 4 = Large Impact; 5 = Very Large Impact). The instruction changed to reflect an impact purpose: 'Please rate the following broad trends listed below in terms of the **SIZE OF THE IMPACT** on you in your current job and workplace'.

## **Appendix H**

### **Electronic Mail Pilot**

#### **Synopsis**

Between 11 October 1997 and 27 October 1997 an electronic mail pilot of the Academic Work Environment Survey (AWES) was conducted. The pilot was based on a representative sample of 305 academics in a west coast Australian university. In total, the electronic mail pilot yielded 12 responses for an overall response rate of 4 per cent.

#### **Electronic Platform**

Choice of platform is an important consideration in electronic mail pilots. Since organisations often have different e-mail systems, it cannot be assumed all users can easily encode or decode attached files (two colleagues at the target university were unable to open the attached survey and return it successfully). Hence, a decision was made to convert the AWES (Word 6.0 format) into Hypertext Mark-Up Language (HTML) so that it could be located on a World Wide Web (WWW) site.

#### **Survey Design**

Over a period of three months, the AWES was re-designed and developed into a WWW document using the services of an external multimedia developer (clivem@sympac.com.au), and the support of colleagues as survey respondents. The survey was designed so that respondents could view the survey items and respond by clicking on one of five circles called radio buttons. As a response is made, the circle fills in. Clicking on another circle has the same effect so that it is impossible to mark two responses for the same item. Responses were then captured in the Survey Results section of the document and via a university server, diverted to the researcher's e-mail address. The electronic version of the AWES can be located at: [www-mugc.cc.monash.edu.au/~cmurden/richard.html](http://www-mugc.cc.monash.edu.au/~cmurden/richard.html).

The survey's introductory page was re-designed into two sections: 'Consent For Research Participation' and 'Directions'. This format has been used previously by a team of researchers from the Department of Psychology at Northern Illinois University (U.S.) to



elicit responses to their Work Environment Perceptions Questionnaire (Parker, Altmann, Baltes, Huff, LaCost, & Young, 1997). The Consent Section gave respondents a description and rationale for the study and appealed for respondent participation. To elicit a positive response, the importance of diagnostic data to understanding academic motivation and commitment was stressed, anonymity was assured, and finally, a process for respondents accessing overall results was provided. The Directions Section assured potential respondents that there were no 'right' answers to the survey questions, provided definitions to key terms in the survey, and generally steered respondents toward completing the survey as quickly as possible.

Initial comments from users highlighted the problem of scales being forgotten as users scrolled through the survey (scale identifiers disappeared off the screen). To rectify this problem, the three response scales were reconfigured so that they could be identified easily at the beginning of each section, and at any position in the survey document. Hypertext links were added to each scale so that when the respondent double-clicked on the scale it would appear at the top of the screen (no matter which position in the survey the respondent was located). As is common practice in HTML, the hypertext links appeared in the standard double-line format and flashed on and off. To help respondents focus on the rating scale for each section, scale anchors were added to the ends of each survey item. For example, for the Job/Work 'how often true' items, the anchors 'never true' and 'always true' were added. Appropriate scale anchors were also added to the 'disagree-agree' and 'size of impact' scales.

Minor formatting changes included instructions to respondents to "check on one of the five circles" for each item, and to "submit the survey, click here". Scroll bars were also created for the qualitative comments sections of the survey, including the 'Your Profile' section at the end. A final "thank you for participating" message was also added to the end of the survey and to a survey submit farewell screen.

### **Electronic Mail Letter**

To elicit a positive response from academics, an e-mail letter was designed and tested with the help of colleagues (see Appendix I: Electronic Mail Letter). The e-mail letter, containing the survey's web site address, stressed the researcher's background (as an ex-

staff member and postgraduate student) and the importance of understanding the factors that contribute to academic motivation. As an inducement to survey completion, a summary of report findings was offered to interested participants.

### **Sampling Frame**

A sampling frame of 305 academics, stratified by current position and discipline area, was constructed using staff records contained in the 1997 University Calendar. Staff members were assigned a four-digit code based on their respective position, discipline area, and respondent number. For example, code number 3124 refers to a Senior Lecturer (position = 3), in the Humanities discipline area (discipline = 1), and respondent number 24. The University Phonebook (<http://www.curtin.edu.au/cgi-bin/ph>) was accessed on the web to locate each staff member's current e-mail address. A number of staff, mainly at the associate lecturer and professorial levels, did not have e-mail addresses and were replaced with staff that had current e-mail addresses.

### **Survey Response**

The survey pilot was conducted on Saturday 11 October 1997. A Saturday was chosen to ensure e-mails would be delivered to all staff by the start of the working week, Monday 13 October 1997. In total, 305 e-mail letters were sent to sample recipients. Twenty-two (22) messages were returned as undeliverable (7 per cent). Additional names and e-mail addresses were created and 22 e-mails sent to ensure the sample was maintained at 305. Two (2) responses were received on the 11 October 1997. No more responses were received the week beginning the 13 October 1997.

To improve response rates, follow-up e-mail letters were sent to all 305 sample recipients on Saturday 18 October and Monday 27 October (one and two weeks respectively after the initial e-mail). Eighteen (18) messages were returned as undeliverable (4 per cent) and three (3) responses were received. The second follow-up e-mail letter included a brief note to users on how to access their Web browsers from their e-mail. Eleven (11) messages were returned as undeliverable (4 per cent) and seven (7) responses were received. In total, the electronic mail pilot yielded 12 responses for an overall response rate of 4 per cent.

### **Reasons For Poor Response Rate**

Baruch (1999:422) stated there are "two principal reasons why people do not return questionnaires: At the first instance, they simply did not receive the questionnaire, and in the second, they did not wish to respond". Both reasons provide plausible explanations for the non-response of paper mail questionnaires but do not adequately encompass some of the technical reasons associated with the non-response of electronic mail surveys. Poor response rates may be because at the time of the pilot, e-mail and the Internet were still relatively new technologies for questionnaire use. Consequently, many academics were not using it and exploiting its full potential (Illing, 1998b:35).

Bryson and Barnes (2000) reported a response rate of 8.2 per cent in their Web-based survey of 1,551 higher education staff in the United Kingdom. In summarising the disadvantages of using the Web form over a paper questionnaire, Bryson and Barnes (2000:153) identify possible reasons for low electronic survey response rates:

- access difficulties to respondents, email is clearly superior but not always readily available (because email addresses cannot be obtained);
- access of respondents to appropriate software and hardware, and smoothness of the survey 'design' (respondents may not have the technical expertise to access survey; survey may not be user friendly); and
- survey length and design (long surveys lower the response rate; surveys split into separate web forms creates technical problems).

To ascertain specific reasons for the poor response rate, six e-mails were sent to colleagues at the target university. Three responses were obtained. One colleague commented that she "didn't know how to open the attached file". Another referred to "PhD study and other workload pressures". This respondent commented that their e-mail Banyan system was not connected to users' Web browsers. Hence, e-mail recipients may not have the required technical skills, and/or the motivation to leave their present application and access the Internet to complete a survey.

Researchers interested in electronic mail studies are advised to familiarise themselves with the recipient's e-mail platform and browser configuration. For high response rates, users should be able to easily access the survey using their browsers and return quickly to their current application(s).

**Appendix I**  
**Electronic Mail Letter**

Dear Colleague

As an ex-Curtin staff member and postgraduate student, currently lecturing and researching Organisational Behaviour and Work Design issues in the Department of Management at Monash, I seek your participation in a PhD related research project. The project examines the Quality of Work Life (QWL) of academics, and the work environment factors associated with low/high QWL, across Australia's 36 publicly funded universities.

As you know, the current 'West review of higher education' is underway. Its focus is primarily one of funding the sector. It has no terms of reference that take account of the intrinsic motivation, commitment, and productivity of academic staff - a surprising oversight given the sector employs approximately 31,000 academic staff. This project will contribute to the debate on the future direction of higher education by providing various stakeholder groups with data that diagnoses the causes of low/high QWL, and productivity of academic staff.

An important component of the project is the piloting of the Academic QWL National Survey - an instrument designed to assess academics' job/work environment perceptions, QWL, and personal/professional characteristics (for cross sample analysis purposes). Please contribute to the project by completing and returning the Academic QWL Survey at the following WWW address:

<http://www-mugc.cc.monash.edu.au/~cmurden/richard.html>

Your responses will provide an indicator of the current work environment and QWL in one Australian university, as well as help assess the psychometric integrity of the instrument's items and scales. If you are interested in obtaining the overall results of the pilot study, please contact me at the following e-mail address: [richard.winter@buseco.monash.edu.au](mailto:richard.winter@buseco.monash.edu.au)

Thanks for your time and your help!

Richard Winter  
Lecturer in Management  
Department of Management  
Monash University Gippsland

## **Appendix J**

### **Survey Mail Pilot**

#### **Synopsis**

Between 5 November and 7 November 1997, the Academic Work Environment Survey (AWES) was distributed via internal mail to 301 academic staff stratified by level (five positions) and faculty/school (five discipline areas) across three campuses of a comprehensive, east coast Australian university. In total, 189 usable surveys were returned for an effective return rate of 63 per cent.

#### **Survey Returns**

After four days, 71 surveys had been returned completed, an effective response rate of 24 per cent. After ten days 96 surveys had been returned (32 per cent response rate), and after fourteen days 114 surveys (38 per cent response rate). To improve response rates, a follow-up was conducted on the 26 and 27 November 1997, three weeks after the initial mailing. A letter of encouragement, and a copy of the survey, was sent to all non-respondents (all respondents had been assigned a four-digit number for the sole purpose of improving response rates). On 11 December 1997, 180 surveys had been returned (60 per cent response rate).

#### **Sample**

The majority of respondents were male (62 per cent), tenured (63 per cent), aged between 40 and 59 (74 per cent), held a doctorate (45 per cent), and were employed at the lecturer (38 per cent) and senior lecturer (26 per cent) levels. Approximately 26 per cent of respondents were in humanities and social sciences, 23 per cent in sciences, 23 per cent in business, 12 per cent in health sciences, 10 per cent in engineering, and 6 per cent in other discipline areas. The majority of staff at the Lecturer level (86 per cent) were based at the regional campus (an ex-college of advanced education that amalgamated with the city campuses in 1992/1993). Staff at other levels were distributed across all campuses.

### **Self-Estrangement**

For the survey pilot, the AWES included self-estrangement as a work attitude criterion variable. Self-estrangement items were not included in the main survey instrument after pilot testing indicated they exhibited low reliabilities and poor construct validity in an academic work context (this finding was later disconfirmed after reverse-scoring of selected measurement items). Self-estrangement items were subsequently replaced with Kanungo's (1982a) ten-item job involvement measure, a measure considered by Kanungo (1979) to be the polar opposite of self-estrangement.

Self-estrangement refers to a lack of intrinsic pride or fulfilment in work (Miller, 1967; Mottaz, 1981; Seeman, 1959). Self-estrangement is evident when work is viewed as an instrumental activity, a means to satisfy extrinsic needs such as pay and job security. Self-estrangement has been used previously as an indicator of academic morale (Miller et al., 1992), and as a measure of professional-bureaucratic conflict across a variety of organisational contexts (e.g., Greene, 1978; Hoy et al., 1983; Miller, 1967; Ramaswami et al., 1993).

The AWES included Miller's (1967) five self-estrangement scale items (see items 1 to 5, Table A1.1). Miller's (1967) self-estrangement scale was constructed using initial data gathered from 419 science and engineering professionals (all subjects held higher degrees) employed in two different work units of a major US aerospace company. Using a dichotomous scoring procedure, scale items yielded a Guttman scale with a coefficient of reproducibility of .91 (Miller, 1967:759). Studies of professionals in formal organisations using Miller's (1967) scale have reported similarly high reliability co-efficients (e.g., Organ & Greene, 1981; Podsakoff et al., 1986; Ramaswami et al., 1993) in excess of the conservative criterion of .70 set by Nunnally (1978). To complement Miller's (1967) five-item measure, two items (see items 6 and 7, Table A1.1) were selected from Mottaz's (1981) seven-item self-estrangement scale on the basis of their face validity and negative (self-estrangement) characteristics. Mottaz (1981:519) reported an alpha reliability co-efficient of .88 for the self-estrangement scale based on a sample of 1,313 employees across seven occupational groups, including university faculty (n=169).

**Table A1.1**  
**Self-Estrangement Scale Items<sup>a</sup>**

Self-Estrangement ( $\alpha = .80$ )

1. I really don't feel a sense of pride or accomplishment as a result of the type of work that I do.
2. My work is my most rewarding experience.<sup>b</sup>
3. I very much like the type of work that I am doing.<sup>b</sup>
4. My job gives me a chance to do the things that I do best.<sup>b</sup>
5. My work gives me a feeling of pride in having done the job well.<sup>b</sup>
6. My work is often routine and dull, providing little opportunity for creativity.
7. I have little opportunity to use my real abilities and skills in the type of work I do.

<sup>a</sup> Respondents answered on five-point scales: 1 = strongly disagree, 2 = disagree, 3 = neither disagree or agree, 4 = agree, 5 = strongly agree.

<sup>b</sup> Reverse-scored items.

The seven self-estrangement items are shown in Table A1.1. Respondents answered on a five-point 'disagree-agree' scale (1 = strongly disagree to 5 = strongly agree). Items ( $\alpha = .80$ ,  $n = 189$ ) were averaged to produce a scale score.

### **Factor Analysis<sup>1</sup>**

An exploratory principal-components factor analysis (varimax solution rotation) was conducted to assess the underlying dimensionality of the AWES scales (Tabachnick, & Fidell, 1996). The factor analysis was based on a sample of 177 subjects using the listwise procedure in SPSS to delete cases with missing observations. In deciding how many factors to extract and to assess overall fit, eigenvalues and communalities were computed respectively for each variable (De Vaus, 1995:257-267). The eigenvalue is a measure that indicates the amount of variance in the original variable that the factor explains. A common test is to check for the number of factors that have eigenvalues greater than 1 by examining a factor scree plot (Coakes, & Steed, 1997:183-195). Once factors had been extracted, communalities (i.e., the proportion of variance in the original variable explained by the combination of extracted factors) were examined to see if they were at least above .45 (i.e., 45 per cent of the variable is explained by the extracted factors). To help interpret the extracted factors, correlation co-efficients in the final rotated factor matrix were examined. A factor score of .40 was determined to be significant at  $\alpha = .01$  (Stevens, 1996:371), and therefore any item representing a loading of  $\geq 0.40$  was included in the analysis.

<sup>1</sup> Material in this section was published in the refereed proceedings of the 1<sup>st</sup> International Work Psychology Conference, University of Sheffield U.K. (see Winter et al., 1998a).

Inspection of the rotated factor matrix correlation co-efficients revealed moderate to high empirical commonality for the Role Ambiguity (.68 to .84), Role Conflict (.71 to .77), Role Overload (.76 to .79), Autonomy (.56 to .77), Skill Variety (.55 to .83), Task Identity (.74 to .81), Feedback (.74 to .77), Job Challenge (.73 to .85), Consideration (.43 to .83), Hierarchy of Authority (.65 to .83), Participation (.69 to .87), Formalisation (.49 to .81), Organisational Commitment (.54 to .80), and Self-Estrangement (.48 to .71) scale items. Inspection of the individual scale items suggested they did belong together conceptually and were unidimensional (i.e., they measured a common factor). Two change factors were identified in the Sectoral Characteristics scale: (1) System Change (.41 to .85), and (2) Academic Pressures (.44 to .76). For all AWES scales, mean inter-item correlations were greater than their respective mean off-diagonal co-efficients indicating moderate to high degrees of convergent and discriminant validity (Dewar et al., 1980:123).

### **Reliabilites and Descriptives<sup>2</sup>**

Table A1.2 presents reliabilities, means, standard deviations, and correlation co-efficients for all work environment and work attitude scales. Thirteen of the sixteen scales exceeded or approximated Nunnally's (1978) .70 criterion for adequate reliability. Three scales showed moderate internal consistency: Formalisation (.59), Role Conflict (.62), and Feedback (.62). The reliability co-efficients for Self-Estrangement, Skill Variety and Consideration scales ( $\alpha = .43, .31, .71$  respectively) improved substantially after the reverse-scoring of selected items ( $\alpha = .80, .75, .88$  respectively).

Correlations, and their respective signs, indicate the strength and direction of variable relationships. For example, significant negative correlations between self-estrangement and job characteristics (-.43, -.47, -.27, -.32, -.61,  $p < .01$ ) indicate the more autonomy,

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<sup>2</sup> Material in this section was published in the refereed journal *Studies in Higher Education* (see Winter et al., 2000:286).



Table A1.2

Reliabilities, Means, Standard Deviations, and Correlation Co-Efficients for Work Environment and Work Attitude Variables<sup>a</sup>

Variable	$\alpha$	M	S.D.	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16
<b>Role Characteristics</b>																			
Role Ambiguity - F1	.83	2.62	0.74	1.00															
Role Conflict - F2	.62	3.02	0.68	.40	1.00														
Role Overload - F3	.66	3.44	0.81	.13	.37	1.00													
<b>Job Characteristics</b>																			
Autonomy - F4	.69	3.69	0.57	-.42	-.23	-.33	1.00												
Skill Variety - F5	.75	3.50	0.62	-.25	-.12	-.00	.27	1.00											
Task Identity - F6	.67	3.98	0.62	-.42	-.26	.20	.56	.04	1.00										
Feedback - F7	.62	2.64	0.81	-.52	-.26	-.11	.24	.18	.17	1.00									
Job Challenge - F8	.79	3.67	0.63	-.43	-.22	.00	.38	.56	.29	.33	1.00								
<b>Supervisory Characteristics</b>																			
Consideration - F9	.88	3.01	0.71	-.42	-.34	-.13	.22	.16	.13	.51	.24	1.00							
<b>Structural Characteristics</b>																			
Hierarchy of Authority - F10	.79	3.10	0.84	-.30	.33	.12	-.32	-.25	-.06	-.28	-.22	-.29	1.00						
Participation - F11	.85	2.74	0.96	-.34	-.02	.16	.20	.38	.06	.33	.40	.22	-.35	1.00					
Formalisation - F12	.59	3.20	0.66	.12	.15	.24	-.18	-.03	-.02	-.10	-.02	-.08	.41	-.07	1.00				
<b>Sectoral Characteristics</b>																			
Changes 1 - F13	.76	3.93	0.71	.05	.24	.31	-.05	.08	.04	-.11	.11	-.14	.05	.18	.27	1.00			
Changes 2 - F14	.69	3.32	0.86	.11	.28	.28	-.03	.10	-.07	.01	.04	.04	.10	.09	.29	.40	1.00		
<b>Work Attitudes</b>																			
Org. Commitment - F15	.83	3.09	0.73	-.45	-.44	-.22	.30	.21	.22	.34	.41	.36	-.32	.27	-.18	-.11	-.15	1.00	
Self-Estrangement - F16	.80	2.30	0.64	.51	.41	.14	-.43	-.47	-.27	-.32	-.61	-.33	.49	-.39	.29	.08	.17	.20	1.00

<sup>a</sup> N = 189. Note: If  $r \geq .15$ ,  $p < .05$  (2-tailed);  $r \geq .20$ ,  $p < .01$  (2-tailed).

skill variety, task identity, feedback and job challenge academics experience, the lower their levels of alienation at work. A full-description of work environment-work attitude relationships, including the positive and negative features of academic work life within a comprehensive Australian university, is reported elsewhere (see Winter et al., 2000).

**Appendix K**  
**Significant Demographic Variable Differences in the Work Environment**  
**Responses of Academics**

Demographic Variable	Work Environment Categories	Significant Differences <sup>a</sup>
Age	Role Ambiguity (RA)	60+ academics less RA compared to academics aged 30-49.
	Role Conflict (RC)	60+ academics less RC compared to academics aged 40-49.
	Role Overload (RO)	60+ academics less RO compared to all academics except those aged less than 30.
	Hierarchy (HA)	40-49 academics more HA than 60+ academics.
	Participation (PD)	30-39 academics less PD than older aged academics.
Gender	Participation (PD)	Females less PD than males.
	Formalisation (FO)	Females less FO than males.
Qualifications	Participation (PD)	Academics holding doctorates more PD than masters and graduate degree staff.
	Sectoral Changes (SC)	Doctoral and masters academics report stronger SC responses than 'other degree' staff.
Position	Role Ambiguity (RA)	Lecturers more RA than Professors.
	Role Conflict (RC)	A/Lecturers less RC than Lecturers, S/Lecturers, Professors.
	Role Overload (RO)	A/Lecturers less RO than S/Lecturers.
	Job Challenge (JC)	Lecturers less JC than all other positions.
	Hierarchy (HA)	A/Lecturers, Lecturers more HA than A/Professors, Professors. Lecturers more HA than S/Lecturers. S/Lecturers more HA than A/Professors, Professors.
	Participation (PD)	Professors more PD than all other positions. A/Lecturers, Lecturers less PD than A/Professors.

<sup>a</sup> Scheffé test indicated significant differences at the .05 level of significance.

Demographic Variables	Work Environment Categories	Significant Differences <sup>a</sup>
Contract Hours	Role Conflict (RC) Role Overload (RO)	Full-time academics more RC, RO than fractional full-time staff.
	Participation (PD)	Full-time academics more PD than fractional full-time staff.
	Sectoral Changes (SC)	Full-time academics stronger responses to SC than fractional staff.
Contract Status	Role Conflict (RC) Role Overload (RO)	Tenured academics more RC, RO than fixed-term staff.
	Participation (PD)	Fixed-term staff less PD than tenured staff.
	Sectoral Changes (SC)	Tenured academics stronger responses to SC than fixed-term staff.
University Service	Participation (PD)	Staff with 10 + years service more PD than staff with less years service.
Higher Ed. Service	Role Ambiguity (RA)	Staff with 10 + years service less RA than staff with 7-10 years service.
	Participation (PD)	Staff with 10 + years service more PD than staff with less years service.
Function	Role Overload (RO)	Teaching only staff less RO than teaching and research staff.
	Feedback (FB)	Teaching only staff less FB than teaching and research staff.
	Job Challenge (JC)	Teaching only staff less JC than teaching and research, admin. staff. Teaching and research staff less JC than admin. staff.
	Participation (PD)	Teaching only staff less PD than teaching and research, admin. staff. Teaching and research staff less PD than admin. staff.

<sup>a</sup> Scheffé test indicated significant differences at the .05 level of significance.

Demographic Variables	Work Environment Categories	Significant Differences <sup>a</sup>
Function	Sectoral Changes (SC)	Teaching and research staff stronger SC responses than research only, admin./other staff.
Discipline	Task Identity (TI)	Health science academics more TI than engineering/architecture staff.
	Job Challenge (JC)	Health science academics more JC than business, engineering and architecture staff.
	Sectoral Changes (SC)	Health science academics weaker SC responses than humanities, sciences, and business staff.
University Type	Role Ambiguity (RA)	UOT staff more RA than sandstone, metropolitan, regional staff.
	Role Conflict (RC)	UOT staff more RC than sandstone, metropolitan academics.
	Feedback (FB)	UOT staff less FB than sandstone, metropolitan academics. Metropolitan staff more FB than regional staff.
	Job Challenge (JC)	UOT staff less JC than sandstone, metropolitan academics.
	Consideration (CS)	UOT staff less CS than staff in other university types.
	Hierarchy (HA)	UOT staff more HA than sandstone, metropolitan academics.
	Formalisation (FO)	UOT staff more FO than staff in other university types.
	Sectoral Changes (SC)	Sandstone and metropolitan staff weaker SC responses than UOT and regional staff.

<sup>a</sup> Scheffé test indicated significant differences at the .05 level of significance.

## Appendix L

### Significant Demographic Variable Differences in the Work Attitudes of Academics

Demographic Variables	Work Attitudes	Significant Differences <sup>a</sup>
Qualifications	Job Involvement (JI)	Academics holding doctorates more JI than masters degree academics.
Position	Job Involvement (JI)	A/Lecturers, Lecturers, S/Lecturers less JI than A/Professors, Professors.
	Organisation Commitment (OC)	Lecturers less OC than A/Professors, Professors. S/Lecturers less OC than Professors.
Contract Hours	Job Involvement (JI)	Full-time staff more JI than fractional full-time staff.
	Organisation Commitment (OC)	Full-time staff less OC than fractional full-time staff.
Function	Job Involvement (JI)	Teaching only staff less JI than all other functions.
	Organisation Commitment (OC)	Teaching only and teaching and research staff less OC than admin.staff.
Discipline	Organisation Commitment (OC)	Humanities and science staff less OC than health sciences staff. Health sciences staff more OC than business and engineering staff.
University Type	Organisation Commitment (OC)	Sandstone and metropolitan staff more OC than UOT and regional staff.

<sup>a</sup> Scheffé test indicated significant differences at the .05 level of significance.

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