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**Are HRM practices related with patient mortality
in NHS hospitals? A study examining the
underlying reasons for such an association.**

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Summary

This thesis will report details of two studies conducted within the National Health Service (NHS) in the UK that examined the association between HRM practices related to training and appraisal with health outcomes within NHS Trusts. Study one represents the organisational analysis of 61 NHS Trusts, and will report training and appraisal practices were significantly associated with lower patient mortality. Specifically, the research will show significantly lower patient mortality within NHS Trusts that: a) had achieved Investors in People accreditation; b) had a formal strategy document relating to training; c) had tailored training policy documents across occupational groups; d) had integrated training and appraisal practices; e) had a high percentage of staff receiving either an appraisal or updated personal development plan. There was also evidence of an additive effect where NHS Trusts that displayed more of these characteristics had significantly lower patient mortality. Study one in this thesis will also report significantly lower patient mortality within the NHS Trusts where there was board level representation for the HR function. Furthermore, details of analysis will be presented that illustrates the associations between training and appraisal practices and patient mortality was contingent upon board level representation for the HR function within NHS Trusts.

Study two will report details of a study conducted to examine the potential reasons *why* HR practices may be related to hospital performance. Details are given of the results of a staff attitudinal survey within five NHS Trusts. This study examined will show that a range of developmental activity, the favourability of the immediate work environment (in relation to social support and role stressors) and motivational outcomes are important antecedents to citizenship behaviours. Furthermore, the thesis will report that principles of the demand-control model were adopted to examine the relationship between workplace support and role stressors, and workplace support, influence, and an understanding of role expectation help mitigate against the negative effects of work demands upon motivational outcomes.

Key words: training and appraisal; training effectiveness, demand-control, environmental favourability, citizenship behaviour.

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Chapter one: The organization, management and effectiveness in NHS Trusts research project.

1.1 Introduction to the thesis

There is an increasing body of research that has established an association between Human Resource Management (HRM) and organisational performance (Wood, 1999a). However, this research has largely been conducted in organisations in the manufacturing and service sector. In contrast, research that has examined the impact of HRM practices upon organisational performance within a health service sector is still extremely rare. The research reported in this thesis relates to a research project conducted within the UK National Health Service (NHS). The NHS was chosen as a research arena for a number of reasons. The NHS is the largest employer in the UK, and yet research that has examined the impact of HRM practices within this environment is extremely rare. Dyer & Reeves (1995) identify performance can be measured in relation to a variety of outcomes: a) *human resource* outcomes, b) *organisational* outcomes, c) *financial* outcomes and d) *market* outcomes. One of the few studies to examine performance within an NHS setting was conducted by Guest & Peccei (1992, 1994). They report that there was a weak association between personnel effectiveness and *human resource* outcomes (i.e. labour turnover and absenteeism) within 303 healthcare organisations. However, there is less understanding of whether HRM practices have impact upon the outcomes of health provision. The studies reported in this thesis attempt to address this current gap in research findings.

The research reported in this thesis expands on the work of Guest & Peccei (1992, 1994) with a focus on *organisational* level outcomes. Performance of NHS hospitals is context specific, and traditional measures of *organisational outcomes* (i.e. productivity and quality) would not be readily collectable and/or relevant in this context. Instead the focus of this thesis was upon health outcomes. In addition, the research reported in this thesis has practical significance because of the raft of policy documents aimed at people management that have attempted to modernise healthcare organisations, and the provision of healthcare introduced since the election of the New Labour in 1997.

Previous research (Wood, 1999a) in non-health service sectors has reported an association between *progressive* HRM practices (including: *comprehensive selection, training, and appraisals procedures, non-monetary benefits and financial incentives, and the re-designing of jobs to include job enrichment, team-working, and participation in decision-*

making) and organisational performance. However, this is currently no empirical based research that has investigated the impact of such practices on health outcomes of patients.

1.2 The research opportunity

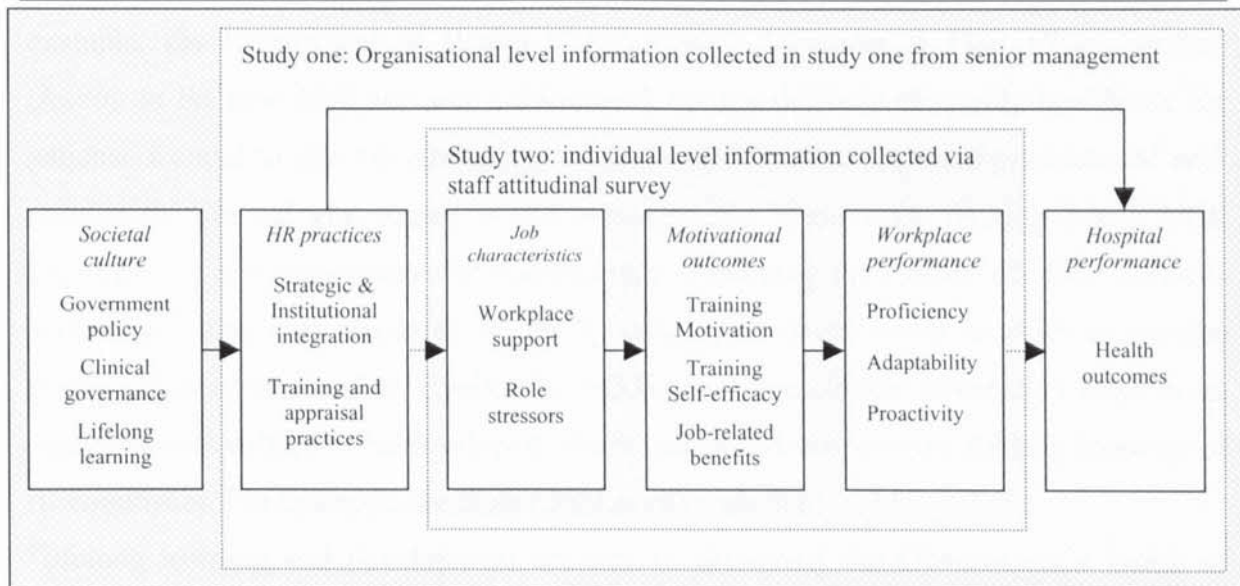
The studies reported in this thesis were part of the research project '*Organization, management and effectiveness in NHS Trusts*' conducted by the Aston Centre for Health Services Organisation Research (ACHSOR). The project was conducted between 1999 and 2001. The stated objectives of the research project were:

- Establishing whether a link exists between the management of employees in Trusts and quality of care, as well as financial indicators.
- Establishing whether human capital management practices most influence quality of care and financial performance (as well as under what circumstances).
- Identifying the extent of the contribution to quality of care and other aspects of Trust performance made by human resource management.
- Identifying the human resource management practices likely to have the greatest impact upon the quality of care and other measures of Trust performance.
- Clear recommendations for practices which Trusts can implement to improve quality of care and other measures of Trust performance.

The focus of the '*Organization, management and effectiveness in NHS Trusts*' research project was to examine the association between HRM systems or *bundles* of HR practices and hospital performance. This was narrowed for the two studies reported in this thesis, by focusing specifically on the association between HRM practices relating to the development of the knowledge, skills and abilities (KSAs) of the workforce (i.e. *training* and *appraisal* practices) and health outcomes (i.e. patient mortality) at the organisational level of analysis. And a more in-depth analysis of the potential underlying mechanism that link HRM practices to organisational outcomes (see figure 1.1).

Hence, the specific focus of the two studies reported in this thesis was to:

- a) Examine the linkage between HRM practices relating to *training* and *appraisal* and performance outcomes (i.e. health outcomes) of NHS Trust hospitals (study one), and
- b) Investigate the mechanisms by which HRM practices may influence the performance of the workforce within NHS hospitals (study two).

Figure 1.1: The link between study one and study two reported in the thesis

Study one will comprise of collecting information from relating to HRM practices from either the Chief Executive or Director of Human Resource of NHS Trusts. Stage two of the research project comprised the intensive analysis (via staff attitudinal survey) of a sub-sample of NHS Trusts that had participated in the study one of the research project. It is intended that stage two of the research project would be an extension of the stage one. That is, study one would identify *trends* that would be investigated in further detail in study two with an in-depth review of a much smaller number of trusts. The criteria for those included in stage two was based upon an initiative adopted by the Trusts which was innovative, or alternatively a generally first class approach to people management.

1.3 Why focus on training and development?

Figure 1.1 illustrates that study one reported in this thesis examined the association between HRM practices relating to the development of the KSAs of the workforce (i.e. *training* and *appraisal* practices) and health outcomes (measured as patient mortality) of NHS Trust hospitals at an organisational level of analysis. Secondly, to examine why the association(s) reported in study one between HRM practices and health outcomes may exist, study two reported in this thesis conducted in-depth work (via a staff attitudinal survey) within a sub-sample of NHS Trusts that had participated in study one. As illustrated by figure 1.1, this focused upon the association between job characteristics, motivational disposition and subsequent workplace behaviours of respondents who had participated in a range of development activities (c.f. Kopelman, Brief & Guzzo, 1990).

The research also has practical significance because of recent government documents. For example, the Department of Health (DoH) (1997) document *A First Class Service: Quality in the new NHS* sets out a framework for the delivery of quality healthcare for patients. Central to this are *clinical governance*, *lifelong learning*, and *professional self-regulation*. Clinical governance would represent the “framework through which NHS organisations are accountable for continuously improving the quality of their services and safeguarding high standards of care by creating an environment in which excellence in clinical care will flourish” (DoH, 1997,p.33). However, clinical governance requires an organisational culture to be developed which values and nurtures the *lifelong learning* of its employees. For example, the DoH (2001,p.vii) state that:

“lifelong learning and development are key to delivering the Government’s vision of patient centred care in the NHS. Our main aim is to ensure that the NHS, working with its partners and related sectors, develops and equips staff with the skills they need to:

- support changes and improvements in patient care;
- take advantage of wider career opportunities, and;
- realise their potential.

This is not simply a good thing in itself. There is increasing evidence that lifelong learning, as part of good employment practice, lies at the heart of effective organisational performance”.

1.4 Structure of the thesis

Having established the reasoning behind why the reason was conducted, and the focus of the thesis, the following section will provide an overview of the structure of this thesis. The thesis can be split in to three broad sections. Firstly, chapter one to four provide a review of relevant literature to the studies reported in this thesis. In the remainder of this chapter a review of literature is provided of studies that have reported an association between HRM practices and organisational performance (i.e. productivity and profitability) (see: Wood, 1999a). This will then precede to focus upon HR practices related to the development of an employees KSAs. Becker, Huselid, Pickus & Spratt (1997) refer to an unexplored *black box* as to *why* HRM practices should influence performance. Hence, a more detailed focus will be given to examine *how* and *why* training practices could influence performance.

In chapter three it will be shown that the effectiveness of training can be effectiveness can be improved by the systematic process of *training needs analysis*, *training design*, and *training evaluation* (Goldstein, 1991). In chapter four details of empirical research is reported that has established that the transfer of KSAs learnt in training back to the

workplace (Baldwin & Ford, 1988; Noe, 1986) is contingent upon *situational* (organisational climate, social support, role stressors) and *individual* (ability, motivation, personality) factors (Colquitt, LePine & Noe, 2000). Typically, existing training research has examined post-training behaviours in relation to performance of core task requirements or in-role behaviours (Campbell, McCloy, Oppler & Sager, 1993). In chapter four details will be outlined of research that has differentiated between *in-role* or *task performance* (Campbell et al, 1993) and *extra-role* or *citizenship* type workplace behaviours that are important for the functioning of an organisation (Borman & Motowidlo, 1993, 1997; Smith, Organ & Near, 1983). From this three types of workplace behaviours relating to intensity and persistency with which an individual carries out their core task requirements (*task proficiency*), adapts to changes in their core task requirements (*task adaptability*), and initiates changes to their core task requirements (*task proactivity*) (Griffin, 2001). A theoretical model is then presented which attempted to draw together the various strands of literature reported in chapter three and four.

The second section of the thesis (chapters five to seven) provides details of the two studies reported in this thesis. In chapter five details are given of the study one, which examined the association between HRM practices relating to training and appraisal and performance outcomes (i.e. patient mortality) within a sample of 61 NHS Trust hospitals. This includes details of how this study relates to the '*Organization, management and effectiveness in NHS Trusts*' research project, and an overview of how organisational performance was to be measured in the research project. In chapter six, details are given of study two, which attempted to examine the underlying reasons *why* HRM practices relating to training and appraisal may be related with performance at the organisational level. This focused upon a range of potential antecedents to workplace behaviours (*proficiency, adaptability* and *proactivity*) via the analysis of data collected from staff attitudinal surveys. These relate to potential training related antecedents (workplace support, role stress, job-related attitudes and motivational outcomes). Then the final section (chapter seven) will explore the main research findings, links with existing theoretical research and policy implications of the research findings, and limitations of the research are provided. This will include a theoretical model to cover the main research findings of the two studies, and suggestions for future research arising from the empirical findings reported in this thesis.

Chapter two: Is there a link between HRM practices and organisational performance?

2.1 Overview of chapter

In this chapter the existing body of research which has examined the relationship between Human Resource Management (HRM) and organisational performance will be reviewed. The chapter will examine the evolution from perceived cost centre to strategic partner (Becker et al, 1997), and source of potential competitive advantage (Becker et al, 1997). Reference will be made to the debate within the existing body of research (Delery & Doty, 1996; Wood, 1999a) relating to whether there is one best way (*universalism*) to deploy human resources, or the configuration of HRM practices is optimised when there is alignment between HR practices and with business strategy (*contingency*). This will be discussed in relation to *key* studies that have reported organisations that adopt systems or *bundles* of HRM practices outperform other organisations. The research reported within this thesis focused upon HRM practices relating to the acquisition and development of skills (i.e. training and appraisal). Hence, the chapter will review literature that has specifically examined the relationship between training and appraisal and performance outcomes. The chapter will then conclude with the identification of a number of research questions drawn from the review of the literature presented in this chapter.

2.2 Theoretical background

There are many different definitions of what Human Resource Management (HRM) actually represents (Beer, Spector, Lawrence, Quin Mills, Walton, 1984; Guest, 1987, 1991; 1997, 2001; Keenoy, 1990; Legge, 1995; Miller, 1987, 1989; Noon, 1992; Sisson, 1995; Storey, 1995; Walton, 1985). For example, Guest (1987) differentiates between personnel management (characterised as providing *short-term*, *reactive*, and *ad hoc* solutions) and HRM (characterised as *proactive*, *strategic* and *integrated*, with a focus on maximum utilisation of its human assets). Indeed, Becker et al (1997, p.37/8) state that:

“the HRM function that traditionally focused on transactions, practices, and compliance was, and is, appropriately considered a cost centre. In contrast, the HRM system that develops and maintains a firm’s strategic infrastructure should be considered an investment”.

However, Storey (1992,p.40) warns that “the demonstration of a causal link between HR practices and performance is fraught with immense difficulty because of the vast range of confounding variables”. Indeed, Becker & Gerhart (1996,p.782) refer to *causal ambiguity*

that occurs because “it is difficult to grasp the precise mechanisms by which the interplay of HR practices generate value”. However, Huselid (1995,p.638) proposed that HRM practices may influence firm performance via “organisational structures that encourage participation among employees and allows them to improve how their jobs are performed”. This can be seen in theoretical models developed by Becker, et al (1997), Guest (1987) (see figure 2.1).

Figure 2.1: A model of the HR-shareholder value relationship: Becker, Huselid, Pickus & Spratt (1997)



Becker et al (1997,p.40) indicate that “to date there is very little research that ‘peels back the onion’ and describes the processes through which HRM systems influence the principal intermediate variables that ultimately affect firm performance”. HRM practices may impact upon organisational performance via an employee’s knowledge, skills and discretionary effort (Becker et al, 1997; Wright, McCormick, Sharman & McMahon, 1999); commitment (Patterson, West, Lawthom, Nickell, 1997), satisfaction (Benkhoff, 1997; Patterson, et al, 1997; Wagner, 1994) and organisational citizenship behaviours (Tsui, Pearce, Porter & Tripoli, 1997). These in turn, impact on a firm’s performance in terms of lower labour turnover and greater productivity. Indeed, Becker et al (1997) argue that:

“although organisational and intellectual capital may well be ‘invisible,’ the sources of this capital are not. They are found in a skilled, motivated, and adaptable workforce, and in the HRM system that develops and sustains it... The result is an HRM system that produces employee behaviours that are focused on key business priorities, which in turn drive profits, growth, and ultimately market value” (p.37).

A firm's human resources are frequently under-utilised as employees often perform below their full potential (Bailey, 1993). Therefore, attempts to elicit discretionary effort from employees are likely to provide returns in excess of costs (Bailey, 1993; Huselid, 1995), and developing employees is better than acquiring them (Lepak & Snell, 1999). Indeed, as Boudreau & Ramstad (1997,p.347) argue: “there is convincing evidence that workers

respond in predictable ways when they are selected, paid, evaluated and trained; and managers who understand these patterns can improve their ability to achieve goals through people". This is based on the *resource-based* theory (Barney 1986, 1991, 1995, 2001), which would propose the effective management of human capital (as well as physical capital), can have a significant impact upon firm performance. This approach would suggest that firms can develop competitive advantage via its human resources (i.e. employees) when four basic requirements are met (see: Barney 1986, 1991, 1995, 2001; Barney & Wright, 1998; Koch & McGrath, 1996; Lado & Wilson, 1994; Lepak & Snell, 1999; Wright & McMahan, 1992). These being:

- a) They must add value to the firms production process;
- b) The skills required by the firm must be rare;
- c) The combined human capital expenditure a firm's employees represent cannot be easily imitated;
- d) A firm's human resources must not be subject to replacement by technological advances or other substitutes.

This is supported by MacDuffie (1995), who proposed that HRM practices contribute towards improved performance when: a) employees possess knowledge and skills that managers lack; b) employees are motivated to apply this skill and knowledge through discretionary effort, and c) the firm's business or production strategy can only be achieved when employees contribute discretionary effort. MacDuffie (1995) propose the three conditions are *mutually* dependent. An employee may be motivated, but may lack the necessary knowledge and skills, hence this effort has little impact on performance. While the HRM practices must be integrated with strategy so that this increased discretionary effort is appropriately channelled. Hence, as Delery (1998) argues this source of competitive advantage may not be "from HRM practices, per se, but from the human resources that the firm attracts and retains" (p.290).

The seminal model presented by Guest (1987) proposed four goals associated with HRM (see table 2.1). Firstly, Guest (1987) proposed *the goal of integration*, where there is the need for the integration of HRM policies with business policy or *external fit* and HRM practices that complement each other or *internal fit* (c.f. Baird & Meshoulam, 1988; Becker et al, 1997; Becker & Huselid, 1988; Lepak & Snell, 1999; Tichy, Fombrum, & Devanna, 1982; Wood, 1999a; Wright & McMahan, 1992; Wright, McMahan & McWilliams; 1994; Wright & Snell, 1991; 1998). Guest (1987) also highlights the HR

function should be an integral component of the strategic planning process (c.f. Guest & Peccei, 1992, 1994; Purcell, 1995; Purcell & Ahlstrand, 1994; Torrington & Hall, 1996).

Table 2.1: Policies for identifying human resource and organisational outcomes: Guest (1987)



Secondly, Guest (1987) proposed *the goal of employee commitment*, where the goal of HRM is “to develop in individual employees a feeling of commitment to the organisation. The rationale behind this case can be found in the assumption that committed employees will be more satisfied, more productive and more adaptable” (p.512). Guest (1987) proposed that having a workforce with a range of flexible skills promotes *functional flexibility*, this represents that HRM can promote *the goal of flexibility and adaptability*. This results in the organisation having the capacity to respond quickly and effectively to changes, and ensuring human resources are fully utilised. Finally, Guest (1987) identifies *the goal of quality*. This is characterised by HRM policies that attempt to recruit, develop and retain staff with high levels of ability, skills and adaptability. Hence, Guest (1987) identifies a range of practices (such as *job design, recruitment, appraisal, training, compensation systems*) designed to impact organisational outcomes, such as enhanced job performance, low labour turnover and absenteeism (see table 2.1).

2.4 Internal and external fit

The research presented in this chapter (Arthur, 1992, 1994; Delery & Doty, 1996; Guest & Hoque, 1994; Hoque, 1999; Huselid, 1995; Ichniowski et al, 1997; MacDuffie, 1995; Youndt et al, 1997) will illustrate that rather than being concerned with the label attached

to HRM practices, the critical factor is that an organisation must *tailor* HRM practices to form a coherent *bundle* of practices (Appelbaum, Bailey, Berg, & Kelleberg, 2000; Delaney & Huselid, 1996; Delery, 1998; Delery & Doty, 1996; MacDuffie, 1995), with the effect on performance being more pronounced than the sum of the individual effects of each practice alone (Ichniowski et al, 1997). This represents *internal* or *horizontal* fit (Baird & Meshoulam, 1988; Delery & Doty, 1996) or internal consistency between a range of HR practices, that mutually reinforce one another (Baron & Kreps, 1999; Barney & Wright, 1998; Becker & Huselid, 1998). For example, Delaney & Huselid (1996) report that when HRM practices relating to *training*, *incentive compensation*, and *selective staffing* were *bundled* together they were related with perceived organisational performance and organisational effectiveness. However, were insignificant predictors when considered as individual policies.

Delery (1998) refers to an *additive* relationship, where there is an overlapping effect, so that when there is synergy amongst these HRM practices then performance is enhanced. While Becker et al (1997) make reference to a *powerful combination* when HR practices are in complementary bundles (however, there can also be a *deadly combination*, where performance can be adversely effected). Wood (1999a,p.368) argues that:

“certain HR practices blend better than others do, and it is sensible to select practices in conjunction with and not in isolation from each other. Consequently, when they are found together, the pay-offs will be greater than the sum of those from their individual elements”.

There is a growing body of research that would propose the effectiveness of HRM is contingent upon achieving *external* or *vertical* fit (Baird & Meshoulam, 1988) between business strategy and HRM practices (Arthur, 1992, 1994; Baird & Mesoulsam, 1988; Butler, Ferris, & Napier, 1991; Becker & Huselid, 1998; Delery & Doty, 1996; Guest, 2001; Hoque, 1999; Jackson & Schuler, 1995; Jackson, Schuler, & Rivero 1989; MacDuffie, 1995; Miles & Snow, 1984; Schuler, 1989; Schuler & Jackson, 1987; Wright & Snell, 1991; Youndt et al, 1997) and/or the *ideal-type* of market system (Delery & Doty, 1996; Doty, Glick & Huber, 1993; Doty & Glick, 1994). For example, Miles & Snow (1984) proposed Type A (*defender*), Type B (prospector) and Type A/B (*analyser*) firms would be expected to adopted different types of HRM practices (see Table 2.2). Similarly, MacDuffie (1995) emphasised that “an HR bundle or system must be integrated with complementary bundles of practices form core business functions (and thereby the firm’s overall business strategy) to be effective” (p.198).

Table 2.2: Business strategies and Human Resource Management systems: Miles & Snow (1984)



However, Huselid (Becker & Huselid, 1998; Delaney & Huselid, 1996; Huselid, 1995; Huselid & Becker, 1997) reports comparatively little support for competitive advantage to be obtained from a link between HRM and business strategy. Indeed, Becker & Huselid (1998,p.58) argue that:

“because these approaches imply such a limited range of strategy-HRM matches, there is little difference in their implications for HRM as a source of competitive advantage... It is not clear why fit between HRM and two or three strategic typologies would provide sufficient inimitability to generate a sustainable source of competitive advantage”.

Instead, Becker & Gerhart (1996, p.786) refer to the *architecture* of the system, as:

“there may be a best HR system architecture, but whatever the bundles or configurations of policies implemented in a particular firm, the individual practices must be aligned with one another and be consistent with the HR architecture if they are ultimately to have an effect on firm performance”.

Becker et al (1997) suggest there needs to be a *firm-specific* element, as “HPWS are idiosyncratic and must be tailored carefully to each firm’s individual situation to achieve optimum impact” (p.41), and it is this which forms the basis of its inimitability. This would be consistent with Becker et al (1997), who estimate the utilisation of HRM practices has a non-linear effect upon performance outcomes. They indicate the adoption of HRM practices can have an effect up until a point, however, full benefit occurs when there is linkage so practices are “directly aligned with business priorities and operating initiatives most likely to create economic value” (Becker et al, 1997, p.42). This section has shown that it is important for there to be both internal between HR practices, and external fit between HR practices and wider business strategy for HR to be effective.

2.4 What type of practices should represent HRM?

There is now a growing body of research that has examined the association between *high commitment*, *high involvement*, or *high performance* HRM practices and performance (Appelbaum & Batt, 1994; Arthur, 1992, 1994; Becker & Huselid, 1998; Delery & Doty, 1996; Guest & Hoque, 1994; Guthrie, 2001; Hoque, 1999; Huselid, 1995; Huselid & Becker, 1996; Ichniowski, Shaw & Prennushi, 1997; Kalleberg & Moody, 1994; Koch & McGrath, 1996; Lawler, Mohrman, & Ledford, 1995, 1998; MacDuffie, 1995; Osterman, 1994; Patterson et al 1997; Pfeffer, 1994, 1998; Vanderberg, Richardson & Eastman, 1999; Welbourne & Andrews, 1996; Wood, 1999b; Wood & Albanese, 1994; Wood & Menezes, 1998; Wright, et al, 1999; Youndt, Snell, Dean, Lepak, 1996). However, Becker & Gerhart (1996) note a degree of variability in the *type* of practices used to measure HRM practices within these studies, which may reflect the subtle differences.

For example, Wood (1999a, p.370) suggests that *high commitment* management (Walton, 1985) represent “a particular orientation on the part of employers to their employees, based on the underlying conception of them as assets to be developed rather than as disposable factors of production”. In contrast, Pfeffer (1998) identified *high-performance* practices or a *High Performance Work System* (HPWS). Specifically, such HRM practices could include: a) employment security; b) selective hiring of new personnel; c) self-managed teams and decentralisation of decision-making; d) compensation systems based on organisational performance; e) extensive training; g) reduced status distinctions and barriers, and h) extensive sharing of financial and performance information. Huselid (1995,p.635) proposed that these “can improve knowledge, skills and abilities of a firm’s

current and potential employees, increase motivation, reduce shirking and enhance retention of quality employees”.

Other researchers (Arthur, 1992, 1994; MacDuffie, 1995; Walton, 1985; Wood & Albanese, 1994) have focused upon the impact of practices such as *job design, job flexibility and team working* on employee’s organisational commitment and motivation. Lawler (Lawler, 1986, 1992, 1996; Lawler et al, 1995, 1998) indicates that such *high involvement* management practices may impact upon performance outcomes via enhanced innovation and employee motivation. Vanderberg et al (1999) identify this relationship can be explained by mutually reinforcing four attributes, representing *power, information, knowledge and rewards* (c.f. Galbraith, 1973; Lawler, 1986, 1992, 1996). Lawler (1986) proposed that:

“Power without knowledge, information, and rewards is likely to lead to poor decisions. Information and knowledge without power leads to frustration because people cannot use their expertise. Rewards for organizational performance without power, knowledge, and information lead to frustration and lack of motivation because people cannot influence the rewards. Information, knowledge, and power without rewards for organizational performance are dangerous because nothing will ensure that people will exercise their power in ways that will contribute to organizational effectiveness” (p.42).

This is supported by Vandenberg et al (1999), who report that these reinforcing attributes mediated the effects of *high involvement* HRM practices on enhanced *individual morale* (intention to quit, job satisfaction, and commitment) and *organisational effectiveness* (labour turnover and return on equity).

2.5 The link between HRM and performance

In the following section the existing body of research will be examined in greater detail. Dyer & Reeves (1995) identify that across studies, performance has been measured in relation to a variety of outcomes including:

- a) Human Resource outcomes (i.e. absence, labour turnover);
- b) Organisational outcomes (i.e. productivity and quality);
- c) Financial outcomes (i.e. return on assets and profitability) and,
- d) Market outcomes (i.e. stock market price, or growth on returns)

One of the most widely cited studies was conducted by Huselid (1995), who reports details of research conducted with 968 US firms representing all major industry sectors. Huselid (1995) differentiated between HR practices that influence *employee skills and*

organizational structure and *employee motivation*. HR practices representing employee skills and organizational structure included: a) formal information sharing programs, b) formal job analysis, c) internal recruitment, d) regular employee attitude surveys, e) employee participation, f) incentive based compensation schemes, g) extensive training, and g) formal grievance procedures. Whereas the HR practices influencing employee motivation related to performance appraisal and promotion. Huselid (1995) reports a one standard deviation change in HRM practices was associated with a 7.05% decrease in labour turnover, an average increase in turnover equal to \$27,044 in sales revenue, an increase equal to \$3,814 in profits, and an increase in market value (Tobin's *q*) equal to \$18,641 per employee. In later work, Becker & Huselid (1998) categorised firms according to HR practices, *strategic fit* and *strategic insight*. Strategic insight represented "the role of the senior management in recognizing the intrinsic value of organizational resources" (p.6), and strategic fit represented a) the fit between HR strategy and business strategy and b) the role which the HR function played in strategic planning (c.f. Guest, 1987). Using cluster analysis, Becker & Huselid (1998) propose four types of HR system:

- a) *Personnel* HR system represented by the utilisation of few HR practices that are not aligned;
- b) *Alignment* HR system represented by the utilisation of comparatively few HR practices, but these are integrated;
- c) *Compensation* HR system represented by the utilisation of more HR practices but these were not aligned,
- d) *High-performance* HR system represented by the utilisation of high number of HR practices and which are also aligned.

Overall, Becker & Huselid (1998) report the high-performance organisations outperform all other organisations. The alignment and compensation organisations outperformed the personnel organisations, and compensation organisations slightly outperform those in the alignment organisations. Becker & Huselid (1998) report HR systems varied across industries. For example, *high performance* HR systems were most prevalent within retail, financial services and manufacturing, and less likely within the service sector and mining.

Unlike the Huselid studies (Becker & Huselid, 1998; Delaney & Huselid, 1996; Huselid, 1995; Huselid & Becker, 1996), the majority of the studies in the existing body of research focus on a single industry sector – for example, banks (Delery & Doty, 1996); steel plants (Arthur, 1992, 1994; Ichniowski et al, 1997); car manufactures (MacDuffie, 1995); metal work plants (Youndt et al, 1996); manufacturing firms (Guest & Hoque,

1994; Paterson et al, 1997); and hotels (Hoque, 1999). For example, Arthur (1992, 1994) examined whether *strategic choice* was related to differences in the type of industrial relations practices adopted within 54 US steel plants. Arthur (1992) reports 89% of the plants adopting a cost leadership business strategy had industrial relations practices representative of a *cost reduction* strategy. Arthur (1994) refers to this as a *control* based HR system, as they focused on reducing labour costs, maintaining formalised rules and procedures, and offered incentives based on output and provided minimal training. In contrast, Arthur (1992) reports 60% of steel plants adopting differentiation (versatile, specialised or customised) strategies, had *commitment management* based HRM systems (see Table 2.3).

Table 2.3: Two systems of workplace industrial relations: Arthur (1992)



Arthur (1994) suggested that *commitment management* based HR systems could be characterised by: a) decentralisation where employees monitor quality, costs, productivity and scrap; b) provision of general training for employees; c) a high percentage of training staff; d) high average employment cost and e) a high percentage of wages attributable to bonus or incentive payments. Arthur (1994) reported that within a sample of 30 steel plants, *commitment* HR systems were associated with better manufacturing performance measured in relation to lower labour hours and scrap rates than steel plants with control HR systems, and labour turnover was twice as high in the mills with control HR systems. This would offer support the *universalistic* hypothesis. Finally, Arthur (1994) reports the negative association between labour turnover and manufacturing performance was moderated by the HR system adopted (support for the *configurational* hypothesis).

A similar finding was reported by Ichniowski et al (1997). They examined seven HR practices (relating to multi-attribute incentive based compensation, extensive selection, skills training, job design and security, labour relations and communication) within 36 steel production lines. Cluster analysis identify four types of HR systems. HR system one (*traditional*) was characterised by close supervision, strict rules, narrow responsibilities, incentive pay based on performance, no training and little team-working and communication. While HR system four (*innovative*), was characterised as using all identified HR practices – and would be representative of a high involvement management system. In between these were HR system two that had introduced worker involvement and team-working, and HR system three that was similar to the innovative HR systems, but were lacking on either selection, job design and security or incentive pay practices. Ichniowski et al (1997) report there was hierarchical pattern, with plants with *innovative* HR systems having the highest *uptime* or the percentage of operating time the line ran. They calculated that movement towards a *innovative* HR system four could be associated with increased operating profits of \$1,171,800 per annum.

Similar results were reported by Guthrie (2001), where high-involvement HRM practices were associated with employee retention rates and firm productivity. Guthrie (2001) calculated within firms that adopted a high number of high-involvement HRM practices, a one standard deviation change in employee retention equated to an increase of \$43,520 in productivity. In contrast, within firms with a low number of high-involvement HRM practices, a one standard deviation change in employee retention equated to a decrease of \$25,600 in productivity.

Similar results were reported by Guest & Hoque (1994). With a sample of 119 non-unionised establishments, they measured the use of 26 practices associated with high involvement management (HIM), and the degree to which these were integrated with business strategy. From this they differentiated between *good*, *lucky*, *ugly* and *bad* firms. The *good* firms had a clear HRM strategy and made extensive use of a range of HRM practices, they also classify as representing a ‘full utilisation high involvement model’. The *lucky* firms did not have a HRM strategy, but made extensive use of HRM practices. Guest & Hoque (1994) argue these firms were “fortunate in the sense that they have stumbled on what some observers believe to be the best contemporary practice, perhaps with guidance from elsewhere, perhaps by copying others or perhaps by following fads” (p.3). In contrast, the *ugly* firms did have a clear HRM strategy, but made little use of

HRM practices and were considered to be 'efficiency driven'. Finally, *bad* firms had no HRM strategy and low use of HRM practices. Guest & Hoque (1994) report the *good* firms performed best on outcome measures relating to labour turnover, disputes, and quality. Levels of commitment and quality of staff were highest in *good* and *lucky* firms, whereas *good* and *ugly* firms were better on measures of mobility of labour and productivity, however, absenteeism was at its highest in *ugly* firms.

However, Guest & Conway (1999) propose that union recognition could actually *assist* HRM practices in creating a psychological contract among its workforce (Guest, 1999). They examined the priority placed on HR and industrial relations, and on a two-by-two matrix differentiate between *new realism*, *individualised HRM*, *traditional collectivism*, and the *black hole*. *New realism* reflected organisations with union recognition and progressive HRM practices, in contrast *black hole* organisations neither have HRM practices or recognised trade unions. Guest & Conway (1999) report employees from both *new realism* and *individualised HRM* organisations favourable management-worker relations, and job attitudes relating to satisfaction, commitment, trust and fairness. However, there were significant differences when compared with employees from *black hole* organisations, where employees were most likely to look for another job, possibly due to unfavourable management-worker relations, and job attitudes relating to satisfaction, commitment, trust and fairness.

A similar study of 512 US metalwork plants was reported by Youndt et al (1996). They differentiated between *administrative* or *human-capital-enhancing* HR systems on the basis of staffing, training, performance appraisal, and compensation practices (see table 2.4). Youndt et al (1996) report *human-capital enhancing* (but not *administrative*) HR systems, where related with employee productivity, customer alignment (product quality, on-time delivery) and equipment efficiency (equipment utilisation, scrap minimisation). This was deemed to offer initial support for the *universalistic* hypothesis that an internally consistent system of HR practices would be positively related with organisational performance. Youndt et al (1996) propose the benefits of such practices would be "further enhanced when practices are matched with competitive requirements inherent in a firm's strategic posture" (p.853). That is, the manufacturing strategy adopted by the plants would moderate the relationship between HRM practices and performance (c.f. Jackson et al, 1989; Miles & Snow, 1984; Schuler & Jackson, 1987; Wright & McMahan, 1992).

Table 2.4: Summary of administrative and human-capital-enhancing HR practices: Youndt, Snell, Dean & Lepak (1996)



They identified three types of strategy, representing:

- a) *cost* strategies (i.e. customer value created by reducing costs or increasing benefits);
- b) *quality* strategies (i.e. solving customer problems immediately, meeting customer expectations and product performance); and,
- c) *flexibility* strategies (on both *scope* i.e. adjusting product mix, handling non-standard orders, making small orders and *delivery* i.e. new products, making deliveries on time, scaling up or down production quickly).

Youndt et al (1996) report significant interaction effects, where adoption of a quality manufacturing strategy moderated the relationship between human-capital and employee productivity, customer alignment and equipment efficiency. Hence, they argued that caution should be taken when interpreting the main effect between the *human-capital enhancing* HR system and performance, as this may predominately reflect the interaction effect. Youndt et al (1996) also report enhanced employee productivity was evident when *administrative* HR systems were matched with strategies that emphasise reducing costs and eliminating unwanted behaviours. This would indicate that in some situations high-commitment HRM practices are not necessarily required. A similar pattern is reported by Wood & De Menezes (1999). They differentiated between 2061 establishments that adopted low, low/medium, medium/high and high high-commitment practices. Wood & De Menezes (1999) report establishments with high-commitment practices performed better than establishments with medium high-commitment practices. However, they *did not* perform better than establishments with low usage of high-commitment practices. Hence this would indicate that within this sample, firms who adopted low usage of high-commitment practices performed equally as well. These establishments *may* have adopted

a Tayloristic management approach (i.e. *external fit*). However, it was not possible to investigate this, as Wood & Menezes (1999) did not collect data relating to the type of strategy adopted by the establishments.

Perhaps the strongest support for internal *and* external fit is provided MacDuffie (1995), and his study of 62 car assembly plants. MacDuffie (1995) examined the impact of internally consistent *bundles* of HR practices upon organisational outcomes, and whether there were influenced by *organisational logic* (or fit) with production practices. MacDuffie (1995) differentiated between *work systems* (teams and staff involvement or suggestion schemes), and *high-commitment HR practices* relating to selection criteria, compensation systems, status barriers, and training (induction and ongoing) that affect the psychological contract between an employer and employee (c.f. Osterman, 1994; Paterson, et al, 1997). MacDuffie (1995) also examined the use of production *buffers* such as Kaizen and Just-In-Time to minimise stock inventory levels. He conducted cluster analysis to formulate a *production organisation index* (POI) representing three types of plants (*mass*, *transition* and *flexible* production systems). A *flexible* production system was represented by low use of buffers (i.e. lean production), a multi-skilled workforce and usage of high-commitment HRM policies. In contrast, the mass production system was characterised by high buffered production system, a specialised workforce and low-commitment HRM policies, while the transition production system was located between these to extremes.

MacDuffie (1995) report significant differences between production systems on measures of productivity and quality. Specifically, the flexible production system was related with lower average number of hours to produce a car, and the number of defects per car. In addition, MacDuffie (1995) also examined the relative strength of individual composite measures (for *buffers*, *work systems* and *HRM practices*). He reported direct effects (however, the variance explained by the POI was substantially higher than coefficients for the three separate indices) and two- and three-way interaction effects where lean production processes, work systems and high commitment HR practices were associated with the enhanced productive (i.e. fewer hours to produce a car). MacDuffie (1995) reports use of buffers had little effect on quality, while both work systems and HRM practices were associated with higher quality, and only one of the interaction effects was significant.

A similar pattern was reported by Delery & Doty (1996). With a sample of 1025 US banks, they report HR practices accounted for 12.5% of the variance in return on average assets (ROA), and 9% of the variance in return on equity (ROE). Specifically, results-oriented appraisals, profit sharing schemes based on firm performance and employment security were related with ROA, while results-oriented appraisals, and profit sharing schemes based on firm performance were also related to ROE. This would offer initial support for the *universalistic* hypothesis. Delery & Doty (1996) also report support for the *contingency* hypothesis (Schuler & Jackson, 1987; Miles & Snow, 1984) as there were interaction effects between HRM practices and strategy. Specifically, banks with a *prospector* strategy recorded higher ROA and ROE when they employed results-oriented appraisals, and offered greater internal career opportunities. However, for banks with a *defender* strategy, higher ROA and ROE was recorded when they *did not* have results-oriented appraisals, or offer internal career opportunities. While, banks with a *defender* strategy which allowed participation in decision-making reported higher ROA. Finally, Delery & Doty (1996) examined whether the employment system of the bank represented the *ideal-type* as determined by the type of strategy the banks adopted (see Table 2.5).

Table 2.5: Characteristics of employment systems and HR practices: Delery & Doty (1996)



The ideal employment system for a bank with the *analyser* strategy was classified as middle-of-the road, hence this was calculated from the mean score on the seven HR practices. The market-system was deemed ideal for a bank with a *prospector* type strategy, and this was calculated by the score for each HR practice at one standard deviation above the mean. While the internal-system was deemed appropriate for a *defender* type strategy, this was calculated by the score for each HR practice at one standard deviation below the mean. Delery & Doty (1996) report superior performance (higher ROA and ROE) for banks that closely resembled the *market-type* employment systems, that is they were likely to have results-oriented appraisals, profit sharing schemes, and less job security, less defined job descriptions and fewer internal career opportunities. However, they offer a note of causation as the variance explained was less than when they examined the individual HRM practices collectively, hence the “interpretation of configurational results are the most speculative” (p.827).

A similar study was reported by Valle, Martin, Romero, & Dolan (2000) of 65 Spanish industrial companies. They focused specifically upon training practices, and via cluster analysis identified two training specific related factors: *training content* (training seeking specialisation and oriented towards the individual vs. training that seeks multi-skills, and oriented toward group work), and *training context* (training planned and oriented towards future needs and/or an immediate improvement of productivity). They report business strategy had little impact upon *training content*. However, firms with *prospector* and *analyser* strategies adopted a more *mechanistic* approach oriented towards future training needs and immediate performance improvement.

Further evidence that HR practices may be influenced by the type of strategy adopted is provided by Osterman (1994). He reports that firms were more likely to adopt innovative work practices (*teams, job rotation, quality circles, and TQM*) for core staff members, when firms had a) a highly skilled workforce; b) when firms expressed responsibility for employee (social and economic) welfare; c) when firms were part of a larger enterprise; c) when firms sold products in international markets and, e) when firm adopted a *high road* strategy (based on high quality, variety or service) rather than *low road* strategy (based on cost). A follow-up study by Osterman (2000) reports a dramatic increase in the use of flexible work practices (c.f. Wood & Albanese, 1995). However, Osterman (2000) reports utilisation of flexible work practices were associated with a higher probability of layoffs in subsequent years (although firms still grow in size) and no gains in wage levels

for employees. Osterman (2000) speculates, this may reflect the financial position of the plant, where plants (may) have adopted flexible work practices to address problems, hence the layoffs reflect the restructuring within the firm.

This is supported by Hoque (1999). With a sample of 232 British Hotel's, Hoque (1999) examined how 22 HR practices (relating to *recruitment and selection, terms and conditions, training, job design, quality circles, communication, and pay systems*) were related with Hotel performance. Hoque (1999) examined whether HR outcomes could be enhanced by a "synergistic package of mutually supporting practices" (p.428). She differentiated between *strategic* (14 or more HR practices strategically integrated), *non-strategic* (14 or more HR practices not strategically integrated), and *low-HRM* (fewer than 14 HR practices), and reported that hotel's with more HR practices reported higher organisational commitment, job satisfaction, staff flexibility, a greater ability to move staff as work demands, high quality of both work and staff, higher labour productivity, quality of service and enhanced financial performance – there were also additional gains when HR practices were strategically integrated, and there was *internal fit* between HR practices. Hoque (1999) also examined for external fit between HR practices, the type of business strategy adopted and HR outcomes. She differentiated between 3 strategies based on the classification of *cost-reducers, quality-enhancers, and others* (mixture of both strategies) (Porter, 1980). HR practices had little impact on the HR outcomes for hotels classified as being *cost-reducers* – indeed, Hoque (1999) argued that "there is absolutely no evidence that the adoption of HRM leads to improved performance where hotels put a premium on cost control within their business strategies" (p.432). However, hotels that adopted a *quality-enhancers* strategy and had more HR practices were associated with better HR outcomes (such as high job satisfaction, and organisational commitment, enhanced staff flexibility, ability to move staff between jobs, higher quality of both work and staff, enhanced labour productivity, quality of service and financial performance).

The pattern of results reported by Hoque (1999) is consistent with the research findings reported by Patterson, et al (1997) of HRM practices within UK manufacturing firms. They identified two clusters of practices representing the *acquisition and development of employee skills* (selection, induction, training and appraisal) and *job design* (skill flexibility, job responsibility, variety and teamwork). Collectively, Patterson et al (1997) report that HRM practices accounted for 19% of the variance in labour productivity (ratio

of sales over number employed in the firm, divided by a ratio of sales over number employed in industry) and 18% of the variance in profits per employee. Patterson et al (1997) collected details of the firms business strategy (cost leadership vs. differentiation), emphasis on quality, focus on R&D and use of advanced manufacturing technology. They report only HRM practices were significantly related with profitability and productivity.

This study may give an insight into why HR practices may impact upon organisational performance, as Patterson et al (1997) asked employees to rate their organisation on 11 dimensions of organisational climate. From this, Patterson et al (1997) report that *human relations* climate, which represented a focus on a concern for employee welfare and training, allowing autonomy in work, and supervisory support, significantly predicted either productivity or profitability, accounting for 29% of the variance in productivity and 10% in profitability. Using the data collected from the study reported by Patterson et al (1997), Neal, West & Patterson (2000) differentiate between a *climate for well-being* (supportive leadership, participation in decision-making and autonomy) which was similar to the *general psychological climate* proposed by James, James & Ache (1990), and *climate for performance* which included items relating to the emphasis placed on production, customer service and employee effort. Neal et al (2000) report evidence of a two-way interaction effect where the effects of increased use of HR practices on future productivity was strongest where there was a poor climate for well-being. They refer to this as a *compensation effects* where HR practices and *climate for well-being* can be used as substituted for each other. However, firms were unable to gain substantial gains in productivity from HR practices when they also had a favourable (rather than a poor) *climate for well-being*.

Neal et al (2000) report a three-way interaction effect where productivity was highest when there were HRM practices *and* positive climates for both performance and well-being. When there was a poor climate for well-being, but positive climate for performance, increased use of HRM practices was associated with noticeably higher productivity. However, when there was a negative *climate for performance*, but positive *climate for well-being*, the increased use of HRM practices was associated with a less pronounced increase in productivity. This would indicate evidence of *enhancement effects* where the synergistic benefits of HRM practices are enhanced where there was a positive climate for well-being *and* performance. This would be consistent with theoretical models (Becker et al, 1997; Kopelman et al, 1990; Ostroff & Bowen, 2000) that propose *high*

commitment, high involvement, or high performance practices influence organisational performance, via a range of intermediate variables. For example, Patterson et al (1997) report that once the effects of prior performance were controlled for, job satisfaction accounted for 5% of the variance in profitability, and 16% of the variance in productivity. A similar pattern was evident for organisation commitment, where 5% of the variance in profitability, and 7% of the variance in productivity were accounted for.

This section has illustrated that a) the effectiveness of HRM is influenced by the extent to which there is alignment between individual HR practices, and with wider business strategy, and b) that HRM practices may influence organisational performance via intermediate factors such as employee knowledge, skills, motivation and workplace behaviours. This section has focused on research that has included a wide range of HR practices, however, the focus of the studies reported in this thesis is upon HR practices relating to training and appraisal.

2.6 The impact of training

The research presented in this chapter has viewed training and appraisal as part of a HRM system (Ichnowski et al, 1997; Vandenberg et al, 1999; Delaney & Huselid, 1996; Delery & Doty, 1996; Shaw, Delary, Jenkins & Gupta, 1998; Wright et al, 1999). Tharenou (in press) reports that most studies that have examined the relationship between training and organisational effectiveness, have reported a positive relationship with a variety of outcome measures. This is constant with other research that has reported a link between training and organisations outcomes (Dyer & Reeves, 1995), including measures of profitability (Bassi & Van Buren, 1998; Birley & Westhead, 1990; Daleney & Huselid, 1996; Delery & Doty, 1996; Harel & Tzafrir, 1999; Kalleborg & Mooney, 1994; Lawler et al., 1995, 1998; Wright et al, 1999) and productivity (Kalleberg & Moody, 1994; Holzer Block Cheatham & Knott, 1993; Ichniowski et al, 1997), sales per employee (Bartel, 1994, 1995; Bassi & McMurrer, 1998; Russell, Terborg & Powers, 1986), value added per worker (d'Arcimoles, 1997; Lyau & Pucel, 1995), sales turnover (Birley & Westhead, 1990), and quality (Bassi & Van Buren, 1998; Johnsen, 1996; Russell et al, 1986; Wiley, 1991; Wong Marshall, Alderman & Thwaites, 1997). However, a small number of studies have reported training was either not or negatively related with outcomes such as sales per employee (Holzer et al, 1993; Koch & McGrath, 1994; Lyau & Pucel, 1995), customer satisfaction (Kalleborg & Moody, 1994) and performance (Martell & Carroll, 1995). The following section will examine these in more detail.

Bartel (1984) examined the impact of HRM practices (formal training, job design, performance appraisal, employee involvement) on productivity gains within 495 US businesses. Firstly, productivity at time one was calculated to represent the extent to which outputs deviated from what would be expected considering the level of input and industry sector. Bartel (1994) reports that for an under-performing business, the introduction of formal training programs was associated with a 6% annual increase in productivity. However, this productivity gain was not evident for other HRM practices. This was supported by Holzer et al (1993), who report details of study within 36 steel finishing lines. They report that the provision of training grants were associated with 13% less scrap rate, which equated to between \$30,000 to \$50,000 sales output per year. Further, Holzer et al (1993) calculated that a 50% increase in training grants for employees would result in a 7% reduction in scrap rate, which equated to approximately \$15,000 per year. However, there was evidence of diminishing returns in the second year.

Bartel (1995) reports a study that examined the return on investment (ROI) for training in management skills, communications skills, and technical skills for 19,000 professional employees in large manufacturing companies. Training was associated with an increase in resultant wage levels and job performance ratings. Bartel (1995) estimated productivity gains attributable to training – this was based upon cost of training (cost of training session and time away from work). Rate of return for training was calculated according to the rate at which skills depreciate per year (either 5, 10 or 20%). A 5% depreciation resulted in a 49.7% rate of return, while a depreciation rate of 20% was associated with a return rate of 26.1%. This illustrates the relative value of training.

Bishop (1991) reports details of estimated productivity for newly hired employees during the first two years of employment. Bishop (1991) estimated that the average marginal return of providing 100 hours of training ranged from between 11% (linear relationship) to 38% (logarithmic) increase in productivity. While a study by Lyau & Pucel (1995) of 237 Taiwanese car-part manufacturers reports that with an increase of ten per cent in training and development expenditure, firms could expect an increase in labour productivity of between 1.0 and 1.2 per cent measured as *value added per worker* (or \$ value of products sold minus cost of materials divided by number of workers). However, training and development expenditure was unrelated with *sales per worker*. Krueger & Rouse (1998) report return on training investment may be contingent upon organisational sector, as manufacturing firms were more likely to report a return on training, while there

was no effect in the service sector. While, Koch & McGrath (1996) report training was related with productivity within high rather than low capital-intensity industries

Other researchers (Boudreau, 1983; Cascio, 1982; Gattiker, 1995; Loewenstein & Spletzer, 1998; Marrow, Jarrett, Rupinski, 1997; Mathieu & Leonard, 1987; Schmidt, Hunter & Peralman, 1982) have attempted to calculate the economic value of training. For example, Schmidt et al (1982) proposed that training was a function of:

$$\Delta U = T N d_t S_d - N C$$

where

- ΔU = the dollar value of a training program,
- T = the duration, in number of years, of a training program's effect on performance,
- N = the number of individuals trained,
- d_t = the true difference in job performance between the average trained and the average untrained employee in units of standard deviation,
- S_d = the standard deviation of job performance in dollars of the untrained group,
- and C = the cost of training per individual.

This would illustrate that the initial cost of setting up a training intervention should be set off against improvements in performance (for the individual and organisation) attributed directly to the training. Mathieu & Leonard (1987) slightly revised this equation (see below) to account for the costs incurred of developing a training program, and the likely period of effectiveness for the training session.

$$\Delta U_k = \sum_{g=1}^{G_k} (N_{gk} S_d d_{t gk} - C_k)$$

where

- k = the number of years over which the utility estimates are calculated,
- ΔU_k = the marginal utility gained in year k ,
- G_k = the total number of groups trained through year k ,
- N_{gk} = the number of trainees in group g in year k adjusted for turnover,
- $d_{t gk}$ = the effect size estimate for training group g in year k ,
- S_d = the standard deviation of performance in dollar units,
- and C_k = the costs incurred in year k .

They propose that the initial cost of training may be greater than the benefits in the early years of the training program (due to development costs incurred). However, at a certain point the organisation should derive benefit from the program. In addition, it is likely that the cumulative effects of the effectiveness (i.e. increase in knowledge, skills and abilities) will decrease over time. That is, the benefits of training may be more pronounced in the first years after training. Mathieu & Leonard (1987) report estimate the training utility analysis of a supervisory skills training program for bank employees. If training effectiveness held constant, the raw benefit was \$78,483 after the first year; \$421,427

after five years, and \$750,883 after twenty years. When this was adjusted to indicate a 25% yearly decrease in training effectiveness, the raw benefits of training was \$78,483 after the first year; \$264,836 after five years, and \$300,704 after twenty years. The utility estimates were adjusted to take into account economic considerations for them to reflect the benefits of increased productivity. Mathieu & Leonard (1987) report once economic considerations, and a 25% yearly decrease in training effectiveness were considered, the benefits of training equated to \$34,627 after the first year; \$99,298 after five years, and \$105,852 after twenty years.

However, Tharenou & Burke (2002) argue training may be more readily associated with HR outcomes (Dyer & Reeves, 1995), such as individual performance, labour turnover and absenteeism (Hillage & Moralee, 1996; Hamkin, Hillage, Cummings, Bates, Barber & Tackey, 2000; MacDuffie, 1995; Shaw et al, 1998; Tannenbaum, Mathieu, Salas & Cannon-Bowers, 1992; Vandenberg et al, 1999; Wright, et al 1999), rather than organisational outcomes such as profitability and productivity. For example, Vandenberg et al (1999) report that within a sample of 49 North American life insurance companies (n=3570), *training opportunities* was positively related with employee morale (c.f. Bassi & Van Buren, 1998; Kalleberg & Moody, 1994; Lawler et al., 1995, 1998; Wright et al, 1999), and negatively to labour turnover rate in 49 life insurance companies. However, Shaw et al, (1998) report frequency of training was positively related with discharge rates within a sample of 227 firms in the trucking industry. However, they propose that firms with a high discharge may initiate training programs in a response to having a poor quality work force.

Recent research in the UK by Hillage (& Moralee, 1996; Hamkin, et al, 2000), has reported the motivation, satisfaction and commitment of a workforce is enhanced within organisations that have obtained Investors in People (IiP) accreditation. Investors in People is a competency based national quality standard introduced by the UK government to provide a framework to measure the sophistication of training practices (see appendix one). Organisations that wish to obtain the IiP accreditation are required to display evidence against 12 performance indicators relating to:

- a) Commitment to train and develop employees;
- b) Formal planning for training and development of all employees;
- c) Action taken to provide training and development opportunities for employees, and
- d) The evaluation of training and development investments.

Hillage (& Moralee, 1996; Hamkin, et al, 2000) also report that IiP accreditation was associated with other performance outcomes including the quality of good & services, customer satisfaction, and productivity gains.

This section has illustrated that training related practices are associated with a variety of performance outcomes. However, there is variability in how training has been measured with studies recording either training expenditure (Bassi & McMurrer, 1998; Bassi & Van Burren, 1998; d'Arcimoles, 1997; Lyau & Pucei, 1995), hours spent on training (Holzer, et al , 1993; Shaw et al, 1998; Wong, et al 1997) or frequency with which training occurs (Holzer, et al 1993; Russell et al, 1985; Wong et al, 1997). However, Ziari (1999) conducted a review of *best practice* with the HR literature, and identified a checklist by which a healthcare organisation could examine its focus toward employee development, in order "to design and deploy the most pioneering approach for developing employees' knowledge-base and equipping them with adequate skill levels so that they can perform to an optimum level both in the short and the in the long term". Specifically, Ziari (1999) proposed this should include:

- a) A regular approach is used to analyse skill needs and job requirements on a regular basis;
- b) A strategy is produced that is based on corporate strategy for employee training and development to address both short-term and long-term business imperatives;
- c) Employees are involved as far as practically possible in identifying their training needs and for managing their own developmental portfolio;
- d) There is use of various innovative means to extend the notion of employee training and development, through formal and informal mechanisms;
- e) Adopt depth and breadth for producing a balanced dictionary of skills and the necessary mix for supporting organisational goal requirements;
- f) Encourage employee feedback on the appropriateness and effectiveness of training programmes.
- g) Evaluate employee training/ development programme effectiveness including aspects of cost-effectiveness.

2.7 Relevance to the NHS

The focus on training and appraisal practices has practical relevance to the NHS, and would offer evidence based findings to support the philosophy of promoting sound people management practices that attempt to *recruit, retain* and *develop* a high quality workforce (DoH, 1997, 2002). Key mechanisms identified to promote such outcomes relate to the lifelong learning and continuing professional development of employees. Ultimately, these may be influenced by the people management practices. For example, the *Working Together – Training Together* (DoH, 2001) outlined key characteristics of an NHS learning organisation. These include:

- A coherent, well researched learning strategy:
 - Led strongly and consistently;
 - Explicitly linked to the roles and skills needed to deliver local service improvements for patients, and to the needs of staff;
 - Forming part of a high quality, evidence based HR framework; reflecting robust partnerships with patients and carer representatives, education providers, staff, trade unions and other organisations;
- A system of appraisal and personal development planning for all staff – linked to organisational and individual needs, regularly reviewed;
- Demonstration that education and training, and access to learning and library resources is available on an equitable, non-discriminatory and increasingly flexible basis to all staff groups;
- Provision of a learning infrastructure that is accessible in terms of time and location – with adequate space within the workplace for study and sharing of knowledge with others, access to personal computers with facilities for web browsing and internet access. Increasingly, the learning infrastructure should be provided and supported on a shared basis with other NHS organisations and social services;
- Holding ‘practice stage’ Improving Work Lives and Investors in People (IiP) status;
- Demonstration of strong links between education, training and development, career progression and reward for all staff;
- Use of a variety of development methods – coaching on-the-job, mentorship, learning sets, job rotation, secondments, project work, sabbaticals, as well as formal education and training – aimed at enabling staff to progress their careers and build on their skills and expertise;
- Regular publication, evaluation and monitoring of learning activity.

This section has shown that the research reported in this thesis is closely related with government policy, and is the first research project that has attempt to gather evidence based findings relating to the characteristics identified by *Working Together – Training Together* (DoH, 2001). The following section will outline current the current gap in research, and identify how this thesis has attempted to address this gap.

2.8 Gap in the literature

Typically, researchers have investigated the impact of HRM practices on a range of performance outcomes. For example, Dyer & Reeves (1995) identify performance can be measured in relation to a variety of outcomes: a) human resource outcomes (*absence, labour turnover*), b) organisational outcomes (*productivity and quality*), c) financial outcomes (*return on assets and profitability*) and d) market outcomes (*stock market price, or growth on returns*). However, performance measurement should be concerned with *what* an organisation does, and *how* this has been accomplished (Ballentine, Brignall & Modell, 1998). Hence, the majority of the outcomes identified by Dyer & Reeves (1995) are not relevant to the performance of an NHS hospital.

One of the few studies to examine performance within an NHS setting was conducted by Guest & Peccei (1992, 1994). They identified personnel effectiveness was related to three key factors, these being a) the extent of policy formation across key areas such as equal opportunities, recruitment, training, industrial relations and communication; b) the efficiency of the personnel practices and c) the influence the personnel department had over major organisational decisions. However, Guest & Peccei (1992, 1994) report that there was only a weak association between personnel effectiveness and *human resource* outcomes (i.e. labour turnover and absenteeism) within 303 healthcare organisations.

The research reported in this thesis expands on the work of Guest & Peccei (1992, 1994) with a focus on *organisational* level outcomes. Performance of NHS Trust hospitals is context specific, and traditional measures of *organisational outcomes* (i.e. productivity and quality) would not be readily collectable and/or relevant in this context. The NHS Executive (1999) state that the underlying aim of a healthcare organisation is the improvement of health outcomes of its patients. However, there is currently little research evidence that has established a link between people management and health outcomes. However, one study in the United States (Aiken, Smith & Lake, 1994) examined the relationship between the nursing care and health outcomes (mortality rates). This reported that *magnet* hospitals – that is these hospitals were able to attract and retain good nurses – reported patient mortality was 4.6% lower than in other hospitals. The focus of this study was not people management practices, indeed (the authors) report that differentiation between hospitals was based upon the reputation gained for being a magnet hospital rather than any more objective data rather than specific people management practices.

However, adopting the logic of Becker et al (1997), it could be that these magnet hospitals are able to attract and retain 'good' nurses because of sophisticated people management practices (i.e. selection, appraisal, and training).

2.9 Research questions

The research reported in this thesis was conducted within the NHS. Government policy over the past five years has attempted to modernise the services provided for patients and the work conditions of its employees (DoH, 1997). The focus on training and appraisal practices has practical relevance to the NHS, and would offer evidence based findings to support the philosophy of promoting sound people management practices that attempt to *recruit, retain and develop* a high quality workforce (DoH, 1997, 2002). Key mechanisms identified to promote such outcomes relate to the lifelong learning and continuing professional development of employees. Ultimately, these may be influenced by the people management practices. For example, the *Working Together – Training Together* (DoH, 2001) document sets out a number of characteristics that could engender the facilitation of a *learning* environment within NHS Trust hospitals. These include the Trust having a coherent learning strategy, a system of appraisal and personal development planning, access to training resources, and Investors in People (IiP) accreditation.

Research question one: Training and appraisal related practices will be associated with improved health outcomes (i.e. lower patient mortality) within NHS Trust hospitals.

There is a body of research which has stressed the importance of *internal* fit or internal consistency between HR practices that mutually reinforce each other, where there is an *additive* effect (Baird & Meshoulam, 1988; Baron & Kreps, 1999; Barney & Wright, 1998; Becker & Huselid, 1998; Delery, 1998). That is, it could be that where Trusts display more of the identified characteristics of a *learning* environment, there could be an *additive* effect in addition to the effect which such characteristics have individually.

Research question two: There will be evidence of an additive effect, where NHS Trust hospitals that display a high number of training and appraisal related practices will display improved health outcomes (i.e. lower patient mortality).

There is a body of research which has stressed the importance of *external* fit between HRM and business strategy (Baird & Meshoulam, 1988). Guest (1987) differentiated between HRM (*proactive, strategic and integrated*, with a focus on maximum utilisation of its human assets), and personnel management (providing *short-term, reactive, and ad*

hoc solutions). While, Wood (1999b) reports that the adoption of high-commitment HR practices was associated to the extent HR practices were related to the business strategy adopted (*institutional integration*) and whether there was board level representation (*strategic integration*). External fit may also impact upon performance outcomes – for example, Becker & Gerhard (1996) propose that there is a non-linear relationship between HRM practices and organisational performance, and the full effects of HRM are not seen unless there is a link between HRM and business strategy.

Research question three: There will be evidence that the institutional integration of Human Resources with overall Trust strategy will be positively related with improved health outcomes in NHS Trust hospitals.

Board representation may impact upon initial strategy formulation, and role adopted by people management in the implementation of strategy (Sisson, 1995; Torrington & Hall, 1996). For example, Guest & Peccei (1992, 1994) identify board level representation as an important facet of HR effectiveness. Hence, it could be that there is a main effect – that is, it could be that Trusts with board representation will take a more active role in the formulation *and* implementation of practices relating to management of its human capital.

Research question four: There will be evidence that the strategic integration of the HR/Personnel function will be positively related with improved health outcomes (i.e. lower patient mortality) in NHS Trust hospitals.

Alternatively, it could be that board level representation for the HR/personal function will influence the effectiveness of HR practices. For example, board representation could signal the relative importance of HR within the Trust (c.f. Audit Commission, 2000), possibly via taking a more active and visible role in the implementation of practices relating to management of its human capital (c.f. Guest & Peccei, 1992). For example, in the document *Working Together – Training Together* (DoH, 2001) it is identified that an important characteristic of a *learning* organisation is the presence of a person to act as *champion*. Hence, it could that although a Trust has a range of HR policies and practices in place, these are not properly implemented unless there is a person to act as a *champion* (DoH, 2001) to ensure that they are effectively implemented.

Research question five: There will be evidence that the strategic integration of the HR/Personnel function will influence the association between training and appraisal practices and health outcomes in NHS Trust hospitals.

2.10 Overview of chapter

The literature reviewed in this chapter would indicate that there is now sufficient empirical evidence to conclude that HRM practices are related to a variety of performance outcome measures (see: Wood, 1999a). Typically, research has examined the association between HRM practices and performance outcomes at the organisational level of analysis. However, there is currently a gap in this literature, where little research has examined whether this association holds within a healthcare setting. One study by Guest & Peccei (1992) of 303 NHS healthcare organisations reported only a weak association between ratings of personnel effectiveness and measures of labour turnover and absenteeism. In contrast, there is now compelling empirical evidence that would indicate there should be an association with other measures of performance. Hence, one of the main research questions posed in this thesis was to examine the association between HRM practices and a measure of health outcomes. The research presented in the previous section has established there is an association between training related practices and a range of performance outcome measures. However, this does not illustrate the conditions under which training may contribute to such performance outcomes. Research (Baldwin & Ford, 1988; Salas, Cannon-Bowers, Rhodenizer & Bowers, 1999; Tharenou, in press) has proposed that the effectiveness of training is dependent upon whether training is relevant, well designed and transferred to the workplace. Furthermore, Goldstein (1991) argues for the adoption of a systematic approach to *training needs*, *training design* and *training evaluation* (this will be discussed in more detail in chapter three). Hence, the following chapter will discuss research that has examined the potential factors which could explain *how* and *why* training and appraisal could be related with performance improvement.

Chapter three: The evolution from models of training evaluation to training effectiveness.

3.1 Overview of the chapter

In this chapter research will be discussed that has examined the potential factors which could explain how and why training could be related with performance improvement. In this chapter the Instructional Systems Design (ISD) approach to training (Goldstein, 1991) is examined. This proposed that the effectiveness of training is dependent upon a systematic approach towards training needs analysis (TNA), training design and training evaluation. It will be shown, however, that the effectiveness of a training intervention will be influenced by external factors such as trainee characteristics and the prevailing work environment (Baldwin & Ford, 1988; Noe, 1986). It will be shown that there has been a movement toward multifaceted models of training effectiveness that utilise the Kirkpatrick training evaluation model (Kirkpatrick, 1976) as a basis, but which also consider the effect of trainee characteristics and work environment upon training effectiveness.

3.2 Theoretical background

Typically, training research has focused upon the impact of the provision of *formalised* training. Goldstein (1991,p.508) defines training as

“the systematic acquisition of attitudes, concepts, knowledge, rules, or skills that result in improved performance at work”.

McGehee & Thayer (1961,p.3) defined training as

“the formal procedures which a company uses to facilitate employees’ learning so that their resultant behaviour contributes to the attainment of the company’s goals and objectives”.

A similar definition is provided by Noe, Wilk, Mullen & Wanek (1997,p.156), who argue training represents:

“a planned effort by a company to facilitate the learning of specific knowledge, skills, or behaviour that employees need to be successful in their current job”.

These definitions reflected formalised training intervention, rather than a wider range of development activities (see: Noe et al, 1997). The following section will examine the dominant theoretical model which identifies a range of factors that could influence the effectiveness of formalised training interventions.

Goldstein (1991) advocates a systematic approach to training interventions known as the *Instructional Systems Design (ISD)* approach to training. Goldstein (1991) stresses that the effectiveness of formal training is dependent upon a logical progression involving “careful needs assessment, precisely controlled learning experiences designed to achieve instructional objectives, and use of performance criteria and evaluation information” (p.514). Indeed, Salas et al (1999) suggest that the ISD approach to training represents a “methodological and rational approach to training that begins with the identification of targeted knowledge, skills and abilities (KSA’s) and development of training objectives” (p.126). This can be seen in figure 3.1. Goldstein (1991) proposed that the (ISD) approach would be characterised as consisting of the three main stages. These being:

- Analysis of training needs i.e. to decide if training is required;
- Design and delivery of training i.e. to address the identified training need(s), and;
- Evaluation of training i.e. to examine if the stated objectives have been achieved.

Figure 3.1: An instructional technology model of training systems: Goldstein (1991)



Figure 3.1 illustrates that the ISD approach to training begins with analysis of training needs. This will identify what training is required, and who within the organisation requires such training. As the needs assessment process has identified what training is required, this will influence the stated objectives of the training intervention i.e. person x will be able to achieve y at the end of the training session. Once objectives have been

established this will impact upon the design and delivery of training. That is, determining the type of methods (such as lecture, role play, simulation etc.) best suited to achieve stated objectives. This should then lead to the evaluation of whether the training intervention has accomplished its stated objectives. Finally, Goldstein (1991) identifies four types of validity that measure the effectiveness of training intervention. Specifically, these reflect:

- *Training validity: Did trainees learn during training?*
- *Transfer validity: Is what has been learned in training transferred as enhanced performance in the workplace?*
- *Intra-organisational validity: Is the performance of a new group of trainees in the same organisation that developed the training program consistent with the performance of the original training group?*
- *Inter-organisational validity: Has a training program developed in one organisation been successfully used in another organisation?*

However the ISD approach to training (Goldstein, 1991) is not without criticism. Salas et al (1999) argue that there appears to be a simplistic assumption that the adoption of the ISD approach will ensure that training will be successful. However, Dipboyne (1997) proposed that within many organisations there is a failure to conduct adequate needs assessment prior to training, that consideration is not given to factors which impact upon training design (i.e. employee characteristics), and neither is post training evaluation of its effectiveness conducted. Dipboyne (1997,p.37) argues that “the failure to implement the ISD model is most closely shown in the prevalence of unplanned, informal, and non-systematic on-the-job training in organisations. The popularity of on-the-job training probably reflects its clear relevance to the job, and the fact that the trainee is producing while learning”. Such criticism notwithstanding, the principles invoked within the ISD approach to training represent the dominant framework within training research. Hence, the following section will examine in more details each of three main stages (needs analysis, training design and evaluation) of the ISD approach to training.

3.3 Analysis of training needs

The starting point of the ISD approach to training is *needs assessment*. Kozlowski & Salas (1997) describe needs analysis as a diagnostic process which occurs prior to training – with the objective of deciding what KSAs are to be trained, how KSAs are to be taught in training, and whom will receive training. The dominant approach needs assessment

was developed by McGehee and Thayer (1961). They advocate three forms of needs analysis: a) Organisation analysis; b) Task analysis, and c) person analysis.

3.3.1 Analysis of training needs – organisational analysis

Tannenbaum & Yukl (1992) indicate that the original purpose of organisational analysis was to provide information about *where* and *when* training was needed within an organisation (c.f. McGehee & Thayer, 1961). This could examine whether there was a linkage between organisational strategy and training (Holton, 1996; Kozlowski & Salas, 1997; Kozlowski, Brown, Weissbein, Cannon-Bowers, & Salas, 2000; Schular & Jackson, 1987; Tannenbaum & Yukl, 1992). Indeed, Goldstein & Ford (2002) argue that when organisational goals are not clearly established, then the design and implementation of training is made difficult, as it is not possible to specify the training criteria and subsequent evaluation of training interventions. In addition, Goldstein (1991) argues that organisational analysis represents the “examination of systemwide components that determine whether the training program can produce behaviour that will transfer into the organisation” (p.524).

That is, it should investigate whether learning will be supported back in the workplace. Alternatively, this should investigate whether learning will be supported within a training environment *and* back in the workplace – as Tannenbaum & Yukl (1992,p.420) argue, “elements of the post-training environment can encourage (e.g., rewards, job aids), discourage (e.g., ridicule from peers), or actually prohibit the application of new skills and knowledge on the job (e.g., lack of necessary equipment)”. This represents the prevailing work environment (Fleishman, 1953; Kozlowski & Farr, 1988; Kozlowski & Hult, 1987; McGehee & Thayer, 1961; Noe, 1986), which could impact upon motivation (Colquitt, et al, 2000; Seyler, Holton, Bates, Burnett and Carvalho 1998), post-training behaviours (Baumgartel & Jeanpierre, 1972; Baumgartel, Reynolds & Pathan, 1984; Baumgartel, Sullivan, & Dunn, 1978; Colquitt et al, 2000; Facticeau, Dobbins, Russell, Ladd, Kudisch, 1995) and organisational performance (Rouiller & Goldstein, 1993; Tracey, Tannenbaum & Kavanagh, 1995).

3.3.2 Analysis of training needs – task or operations analysis

The second element of the ISD model is task analysis. This involves the identification of the tasks required for a particular job or family of jobs, and the knowledge, skills and abilities (KSA's) required to perform them. Goldstein (1991) suggests that this produces

“a statement of the activities or work operations performed on the job and the conditions under which the job is performed. It is not a description of the worker, but rather a description of the job” (p.525). Figure 3.2 depicts the various stages required to arrive at the task analysis statement.

Figure 3.2: Stages of task analysis in the training needs assessment process: Goldstein (1991)



The task analysis statement should then play a significant role in the ‘blueprint’ for the design of the training intervention (Ford & Wroten, 1984; Baldwin & Ford, 1988), and the criteria used for evaluation of trainee performance within training (Goldstein, 1991). Salas et al (1999,p.132) indicate that it is important to “carefully select those skills that should be trained. Not all of the skills revealed during a task analysis should be trained. Training should focus on those skills which are used frequently and are necessary for successfully performing the task.” The implication of task analysis for training can be seen in the framework presented by Baldwin & Ford (1988), who argue that training effectiveness is determined by the design of training interventions (see figure 3.6).

Campbell & Kuncel (2002,p.284) argue that training needs should be directly translated into training objectives that subsequently influence the content of training. These “objectives identify what the learner should know or be able to do after finishing the program that he or she could not do before”. Baldwin & Ford (1988) refer to the *generalisation* of trained behaviours, accordingly task analysis can provide a baseline for a) how often and b) in what situations the behaviour is expected to occur. They argue that techniques such as task analysis and critical incidence provide a *taxonomy of situations* which “provide a baseline for determining how often one should expect trained behaviours to be exhibited on the job” (p.95). Ultimately this would have a detrimental effect upon the value and outcomes of training (Baldwin & Ford, 1988). Indeed, Salas et al (1999,p.133) highlight, this “can lead to the development of ineffective, or use of inappropriate, training programs. Most notably, trainees may not learn skills required to successfully perform their job”.

3.3.3 Analysis of training needs – person analysis

Goldstein (1991) suggests that the person analysis phase of the ISD model should focus on a) identify whether employees need training, and b) what kind of training they require. Accordingly, the previous stages of the training need process will play a significant role in the identification of who needs training, and what training is required. For example, Ford & Kraiger (1995,p.10) argue that “to identify performance deficiencies, one must first determine the performance standards or performance criteria relevant to the requisite tasks and KSA’s.” Campbell & Kuncel (2002,p.282) argue that “by our definition, training needs reflect current or anticipated deficiencies in determinants of performance that can be remedied, at least in part, by a training intervention”. They identify that training needs can reflect a) deficiency in current job holders performance, b) eligibility for future promotion, c) identifying components of performance critical when new equipment or procedures are introduced in the future, and/or d) totally new environments. While Tannenbaum & Yukl (1992) suggest person analysis “can be used to assess whether employees have the prerequisite attitude, knowledge, and motivation to benefit from training” (p.420). The person analysis stage has an impact upon the effectiveness of a training intervention. As Tannenbaum & Yukl (1992,p.420) argue, “inadequate person analysis can result in training targeted to an inappropriate level or to the wrong people”.

3.4 Criticism of the training needs assessment

Ford & Kraiger (1995) criticise training needs assessment because it adopts a reductionist approach by attempting to breakdown elements of a job into individual tasks or elements. They advocate a 'cognitive orientation' that includes "the co-performance of tasks, the combination of job elements and the interconnections of tasks and KSA's in the development of knowledge and skills. It implies a more holistic approach to understanding jobs and the knowledge and skills required for developing expertise in a particular job" (p.x). While Taylor & O'Driscoll (1999) draw attention to a potential alternative to TNA, known as 'performance analysis'. This involves the investigation of potential causes of discrepancies between expected and actual performance (i.e. Mager & Pipe, 1984), or exemplary and average performance (i.e. Gilbert, 1978). However, this type of analysis would indicate that a training need exists *only* when an individual does not possess the requisite level of knowledge and skills.

Kozlowski et al (2000) argue that the basic assumption of TNA is that organisational objectives will be achieved if there is an improvement in individual level outcomes. However, "this assumption will hold when vertical transfer occurs through a composition process so that individual and higher-level outcomes are isomorphic.... (and) vertical transfer will occur through a simple additive or averaged combination of individual-level outcomes." Kozlowski et al (2000) differentiate between different composition and compilation tasks. However, they argue many tasks may be complex in nature, and require interaction with others (i.e. teamworking). Hence, an individual may successfully complete their task, but does not achieve the required performance criteria because of the team failing to complete this collective task. Kozlowski et al (2000) argue that an advancement of TNA would be to focus on individual tasks and also team task analysis. Ultimately this could then influence team training (see: Salas, Dickinson, Converse & Tannenbaum, 1992; Tannenbaum, Beard & Salas, 1992; Tannenbaum, Salas & Cannon-Bowers, 1996).

3.5 Training design

Researchers (see: Baldwin & Ford, 1988; Campbell & Kuncel, 2002; and Tannenbaum & Yukl, 1992) have identified that the design of training interventions will have an influence upon what is learnt within a training intervention. Baldwin & Ford (1988) highlight four basic principles that determine training effectiveness. These relate to: a) identical elements, b) teaching of general principles, c) stimulus variability, and d) various conditions of practice. *Identical elements* represent the degree to which the training setting matches the transfer setting. Hence, transfer should be maximised when there is identical stimulus and response elements in training setting and the transfer environment. Campbell & Kuncel (2002) identify a range of activities that could be used to disseminate training content (see table 3.1). Campbell & Kuncel (2002) argue that training content that:

“should represent with as much fidelity as possible with the chosen training method. For example, if a specific behavioural skill is being taught, then the trainee should be provided with opportunity to practice this skill in a situation similar to the training condition. Alternatively, where problem solving is being taught, the practice situation could include a novel situation where the trainee is required to utilise the skills taught”.

Secondly, Baldwin & Ford (1988) argue “teaching through general principle maintains that transfer is facilitated when trainees are taught, not just applicable skills, but also the general rules and theoretical principles that underlie the training context” (p.66). (c.f. McGehee & Thayer, 1961). Thirdly, Baldwin & Ford (1988) identify “that positive transfer is maximised when a variety of relevant training stimuli are employed” (p.67) which is referred to as *stimulus variability*. Finally, Baldwin & Ford (1988) identify *conditions of practice* such a) providing feedback or knowledge of performance and, b) providing opportunity for practice can impact upon training effectiveness. For example, Baldwin & Ford (1988) propose that over-learning, that is where the trainee is required to practice the training content beyond the point where it has been successfully learnt can impact subsequent retention of training content.

The four basic principles discussed by Baldwin & Ford (1988) would be consistent with the five guidelines for the design of training interventions proposed by Tannenbaum & Yukl (1992). These being:

- The instructional events that comprises the training method should be consistent with the cognitive, physical, or psychomotor processes that lead to mastery (c.f. Campbell & Kuncel, 2002).

Table 3.1: Taxonomy of generic instructional methods relevant for occupational training: Campbell & Kuncel (2002).



- The learner should be induced to produce the capability actively (e.g. practice behaviours, recall information from memory, apply principles in doing a task). The more active the production the greater the retention and recall.
- All available sources of relevant feedback should be used, and feedback should be a) *accurate*, that is feedback must be accurately perceived by the recipient to be effective, b) *credible*, that is the accuracy of feedback is influenced by how credible the source of feedback is viewed, c) *timely*, that is the frequency of feedback is important, where high levels of feedback could be viewed as a loss of personal control, and d)

constructive, that is the individual needs of the trainee should be considered when providing feedback (Ilgen, Fisher & Taylor 1979; Kanfer & Ackerman, 1989).

- The instructional processes should enhance trainee efficacy and expectations that the training will be successful and will lead to a valued outcome. That is, the training sessions should commence with simple behaviours and progress to more complex behaviours when the trainees confidence has been raised.
- Trainee methods should be adapted to differences in the trainees aptitude and prior knowledge.

3.6 Post-training interventions

Research has illustrated that the inclusion of post-training interventions into training design can have been shown to have an influential effect upon training outcomes. For example, Fayne & Geringer (2000) identify a range of post-training interventions (see table 3.2) that could impact upon training outcomes and post-training behaviours. Wexley (& Baldwin, 1986; Wexley & Nemeroff, 1975) proposed that post-training interventions incorporated into training design can improve transfer of training to the workplace. For example, Wexley & Nemeroff (1975) incorporated goal-setting as an element of a two day management development program designed to improve leadership and interpersonal skills of hospital supervisors. They report trainees who received a behavioural checklist (i.e. assigned performance goals) reported more on-the-job usage of skills developed in the program. Similar results were reported by Wexley & Baldwin (1986), where goal-setting was associated with higher maintenance of behaviours two months after training. Gist (1989) report the design of training to promote innovative problem solving (practice and reinforcement vs. traditional lecture and practice) had a significant impact upon post-training self-efficacy and the quantity and divergence of ideas generated. Frayne & Latham (1987) report self-management training significantly influenced self-efficacy and subsequent performance (c.f. Fayne & Gerineger, 2000; Marx, 1982). Similar results were reported by Gist, Bavetta & Stevens (1990). They report that self-management techniques (such as identifying and planning how to overcome potential obstacles, setting performance goals and monitoring progress) was related to improved skill generalisation on novel tasks. Stevens & Gist (1997) proposed that self-management and goal setting may have different outcomes. Specifically, self-management techniques may be related to the promotion of skill usage. In contrast, goal setting may be associated with superior outcomes.

Table 3.2: Framework for post-training self-management techniques: Frayne & Geringer (2000)

Gist, Stevens, & Bavetta (1991) report self-management training attenuated the relationship between self-efficacy and performance, whereas goal-setting training accentuated the differences in performance of trainees with high or low self-efficacy. While Gist & Stevens (1998) report improved performance on a contract negotiations task for trainees who had received supplementary mastery-orientation training (i.e. feedback about whether tactics used had been effective) rather than performance training (i.e. setting goals). Gist & Stevens (1998) also report the benefits of mastery-orientation training was accentuated under conditions where a confederate negotiator had been hostile and intimidating during practice. This would be consistent with the findings of Richman-Hirsch (2001), who proposed that the work environment may influence the

effectiveness of post-training interventions. She reports that external ratings of long-term maintenance and generalisation of trained skills for trainees in a goal-setting sub-group (Locke, Shaw, Saari & Latham, 1981) was significantly higher when the trainee worked within a supportive work environment. However, for trainees who received self-management instruction, the prevailing work environment had little effect upon long-term maintenance and generalisation of trained skills. Although, this may reflect that trainees “have been trained to recognise the potential inadequacies of the work environment and are prepared to cope with them” (p.117).

Why? Marx (1982; 1986) makes reference to *relapse prevention* (see figure 3.3). Marx (1982) had trainees diagnose situations and identify those situations that were likely to prevent the utilisation of learning. For example, if the trainee identified that time pressure was a potential inhibitor then they should be shown time management techniques. Marx (1982) proposed that when such coping strategies were not available then positive transfer (i.e. utilisation of new learning) was unlikely to occur.

Figure 3.3: Cognitive-behaviour model of the relapse process: Marx (1982)



A similar relationship was reported by Burke (1997), where the provision of *relapse prevention* training improved trainee's ability to cope with difficult situations. While, Tziner, Haccoun & Kaddish (1991) report details of two-week advance methods training programme for 81 offices from the Israeli defence force. The trainees and their supervisors were requested to rate whether they a) made use of transfer strategies taught in the training course and b) the frequency with they made use of core skills taught in the training course. Trainees who participated in a *relapse prevention* programme performed better on post-training content mastery test, these trainees reported they had adopted transfer strategies (however, there were no differences on supervisor rated transfer strategy usage), whereas supervisors reported higher usage of trained skills for trainees. Hence, this would illustrate that training effectiveness can be improved by the inclusion of training for post-training interventions (such as self-management, goal-setting and relapse prevention) into training design.

3.7 Training evaluation

The Instructional Systems Design (ISD) approach to training would indicate that once training has been undertaken an organisation should conduct thorough evaluation of the training intervention's effectiveness. Goldstein (1991, p.147) defines evaluation as "the systematic collection of descriptive and judgmental information necessary to make effective training decisions related to the selection, adoption, value, and modification of various instructional activities". Why is evaluation so important? Its importance stems from the desire to examine whether the training intervention has accomplished its stated aims. The most commonly used training evaluation framework, is the criteria presented by Kirkpatrick (1976), which identified that training could be evaluated at four levels reflecting *reactions*, *learning*, *behaviours* and *results*. The following section will examine each level in more details.

Level 1 – *Reactions* represent the affective feelings towards a training program. This could be the trainees reaction to how organised the training program was, or whether the trainees found the training useful. However, Alliger, Tannenbaum, Bennett, Traver and Shortland (1997) present a revised and expanded framework, that suggests sub-divided into two distinct factors:

- *Affective judgement*: "I found this training to be enjoyable", and
- *Utility judgement*: "To what degree will this training influence your ability to perform your job?"

Similar distinctions are made by Warr & Bunce (1995), who measured training reactions as 'enjoyment of training' i.e. training was enjoyable or satisfying and 'perceived usefulness' i.e. training was relevant to job. Warr & Bunce (1995) also measured a third reaction outcome relating to 'perceived difficulty' of training.

Level 2 – *Learning* represents of the retention of principles, facts, and techniques presented in a training intervention. However, Alliger et al (1997) argue the original conceptualisation fails to differentiate between behaviours demonstrated in the training context and in a non-training context. Accordingly, they suggest that learning can be measured in three ways: a) Effect upon immediate (post-training) knowledge; b) Knowledge retention (tested at a delayed interval), and c) Effects upon behaviours or skills demonstrated within the training context (rather than on-the-job).

A similar classification of training outcomes is discussed by Kraiger Ford & Salas (1993). They criticise the classification for "lack of clarity regarding what specific changes may be expected as a function of trainee learning and the difficulty in identifying what assessment techniques are appropriate given those expectations" (p.311). Instead Kraiger, et al (1993) identify three types of learning outcomes reflecting a) *cognitive*, b) *skill-based* and c) *attitudinal* outcomes (c.f. Gagne, Briggs & Wager, 1992).

a) *Cognitive outcomes* These represent the quantity and type of knowledge acquired in training, and the relationship(s) among knowledge elements (see: Anderson, 1987; or Kanfer & Ackerman, 1989 for more detailed discussion). This relates to:

- Acquisition of declarative (information about what), procedural (information about how) & tacit (information about which, when & why) knowledge;
- Investigation of how knowledge is stored (and accessed) i.e. mental models; and,
- Cognitive strategies used to operationalised this knowledge.

b) *Skill-based outcomes*: Kraiger et al (1993) indicate that skill-based outcomes occur at three definable stages: a) initial skill acquisition; b) skill compilation, and c) skill automaticity. This distinction is important, because as Salas et al (1999,p.147) suggest, the "relationship between learning and behaviour is complex. While trainees obviously need to learn targeted knowledge, doing so does not guarantee that the skills have been learned." These stages can be illustrated by the theoretical framework presented by Anderson (1987). He illustrates the stages required for the transfer of learning into behavioural activities on-the-job. These can be viewed as:

- *Declarative learning*: represented by the initial activity where information and/or facts are acquired.
- *Knowledge compilation*: where declarative knowledge becomes proceduralised, and the learner begins to understand the ‘sequences’ in which actions occur (or are required) within the training context.
- *Proceduralisation*: where knowledge learnt in one context (i.e. training) is applied in another (i.e. on-the-job) (c.f. Baldwin & Ford, 1988). Anderson (1987) proposed that over time (and with practice) the learned sequence of events will become an automatic action, and will be integrated into a person’s normal daily activity (as and when such action is required). Therefore, there has been a change from cognitive knowledge into behavioural skills/ability.

c) *Attitudinal outcomes*: Kraiger et al (1993) argues that motivational tendency induced by the training intervention represent the attitudinal outcomes of training – this could include self-efficacy beliefs, training motivation and goal setting. These are not strictly a learning outcome because it does not imply a change in KSA’s. However, Kraiger et al (1993) argue the original Kirkpatrick classification ignored affective measures as indicators of learning. It does include reaction measures which “provide feedback on the quality of training delivery but are not direct measures of individual learning” (p.319). The importance of affective measures is acknowledged by later revisions and expansion of the training evaluation criteria by Alliger et al (1997) and Warr & Bunce (1995).

Level 3 – *Behaviour* represents the alteration of behaviour to be consistent with training. Alliger et al (1997) argue that ‘behaviour’ is conceptually vague, and appears only to refer to mastery of KSA’s in a training context. They suggest this is “behaviour that is retained and applied to the workplace is considered transfer.” Baldwin & Ford (1988) differentiate between performance in a training and non-training context, by indicating the that behaviour change is the “degree to which trainees effectively apply knowledge, skills and attitudes gained in training context to the job” (p.63).

Level 4 – *Results* represent the measurable impact of training i.e. improved employee morale, customer satisfaction or organisational productivity/profitability, or reductions in labour turnover & absenteeism. Researcher such as Marrow, et al (1997), Mathieu & Leonard (1997), and Schmidt et al (1982) also indicate that it is possible to quantitatively examine the economic benefits of a training intervention (see chapter two for details).

3.8 Criticism of the training evaluation

Alliger & Janak (1989) argue there are a number of implicit assumptions that lead to misunderstanding and overgeneralization of the general principle advocated by Kirkpatrick (1976).

1. *Each succeeding level is more informative than the last:* Alliger & Janak (1989) argue that the model would appear to imply that level 4 or 'results' was the 'best' measure of training effectiveness because it is at the top of the hierarchy. However, they argue that it is "not clear that all training in organisations is meant to effect change at all four levels" (p.x). For example training could be used as a mechanism to promote 'soft' skills such as team building, or as part induction to the organisation. Accordingly, the impact of training might not necessarily be seen at all of the levels. While Warr, Allen & Birdi (1999) argue that it is difficult to accurately measure the 'results' of a single training intervention, because "not only is it difficult to obtain sound measures at this level (especially in comparison with a previous period), but identification of a single training activity as the cause of any changes observed is logically dubious."

2. *Each level is caused by the previous level:* Alliger & Janak (1989) argue the Kirkpatrick (1976) classification implies a hierarchical relationship – reaction \Rightarrow learning \Rightarrow behaviour \Rightarrow results – however, such "causality is difficult to prove" (p.333). Alliger & Janak (1989) also question the proposed link between reactions (level 1) and learning (level 2), because "there would appear to be no temporal distinction between reactions and learning as far as their assessment. Why then assume the former causes the latter?" (p.x) (c.f. Campion & Campion, 1987). However, they argue that it would be reasonable to expect a link between levels 2, 3 and 4. Alliger & Janak (1989) propose a slight alteration to the relationships, with the removal of the direct link between reactions and learning, as can be viewed in figure 3.4.

For example, they argue that learning is required for new behaviours to occur, and these new behaviours may result in valued results. In addition, they propose that the occurrence of valued results can result in the continuation of behaviours, as implied by the 'feedback' link in the model. However, Alliger et al (1997) report that 'utility' reactions (i.e. training was relevant to job), although not affective reactions (i.e. found training enjoyable) displayed a strong association with learning.

Figure 3.4: The a) causality in the hierarchical model and b) and alternative model of causality among Kirkpatrick's four levels of training criteria: Alliger & Janak (1989)



Similar findings were also reported by Warr et al (1999). They who report that a) enjoyment of training, b) perceived usefulness of training and c) training motivation were positively related to supervisory-rated trainee competency, the trainee's performance on a knowledge test, and perceived value of knowledge acquired. While perceived training difficult was negatively related to supervisor-rated competency and test performance. This lead Warr et al (1999,p.369) to argue that the "general conclusion (of Alliger) is not appropriate for links between reactions and learning when more differentiated moderators of reaction are examined".

Similarly, Salas et al (1999) suggest that although reactions may not be directly related to learning, there is evidence of a link with other training outcomes (i.e. training motivation). Accordingly, they suggest that "further efforts to understand trainee reactions and their relationships to trainee motivation are required"(p.xxx). For example, Mathieu, Tannenbaum & Salas (1992) report that reactions to training were not related to learning (c.f. Alliger & Janak, 1989). However, they found that reactions moderate the relationship between training motivation and learning, and mediate the relationship between motivation and performance. Accordingly, contrary to Alliger & Janak (1989), they argue that reactions play a major in the transfer process (i.e. where people react well to training and are motivated, then they learn more). Although Mathieu, Martineau & Tannenbaum (1993) failed to replicate the interaction effect – this was attributed to the nature of the task (bowl exercise) which may have influenced expectations.

3. *Each succeeding level is correlated with the previous level:* Meta-analysis conducted by Alliger & colleagues (1989, 1997) revealed comparatively weak correlations between the levels established by Kirkpatrick (1976). Although Alliger et al (1997) report a stronger relationship between utility reactions with on-the-job performance than measures of learning. They state “one possible explanation assumes that trainees’ utility reactions are influenced by their knowledge of the work environment to which they will return” (p.352). This highlights the importance of considering the influence of reactions to training, and factors not included in the Kirkpatrick (1976) classification (see: Baldwin & Ford, 1998). Holton (1996) also criticised the Kirkpatrick (1976) classification for failing to include the factors that affect learning and the transfer process, hence this “is really a taxonomy of outcomes and is flawed as an evaluation model” (p.5).

Holton (1996,p.6) argues that “it is quite possible that the training program is well designed and the problem lies outside the classroom with some element of the organisation, job, or individual”. For example, Tracey et al (1995) speculate the linkage between climate and performance could via be mediated by attitudinal and motivational constructs such as training motivation and self-efficacy (see: Kopelman et al, 1990). Tracey, Hinkin, Tannenbaum & Mathieu (2001) report the work environment and job attitudes influenced pre-training self-efficacy and motivation, which in turn were related to affective reaction, utility reaction, declarative knowledge and training performance (c.f. Alliger & Janak, 1989; Baldwin & Ford, 1988; Noe & Schmitt, 1986; Wexley & Latham 1981). This typifies the shift over the past 15 years from training evaluation models (Alliger & colleagues, 1989, 1997; Kirkpatrick, 1976) toward *training effectiveness* models that “seek to explicate why training did or did not achieve its intended outcomes” (Kraiger et al, 1993,p.312).

3.9 Models of training effectiveness

In the following section a series of theoretical models (i.e. Baldwin & Ford, 1988; Colquitt et al, 2000; Dubin, 1990; Holton, 1996; Mathieu & Martineau, 1997; Noe, 1986; Quinones, 1997) that identify situational and individual factors that then influence the training outcomes (*reactions, learning, behaviour, and results*) proposed by Kirkpatrick (1976). For example, Salas et al (1999) identify organisational influences, pre and post-training factors, and training design and delivery as the main factors which influence the effectiveness of training (c.f. Goldstein, 1991). These can be in table 3.3.

Table 3.3: Variables in typical training effectiveness models: Salas, Cannon-Bowers, Rhodenizer, & Bowers (1999)



One of the earliest models was presented by Noe (1986). This theoretical model is based upon principles of expectancy theory of motivation (Porter & Lawler, 1968; Pinder, 1984; Vroom, 1964). Noe (1986) argues training behaviour (and learning) is influenced by an individuals motivation to perform well in training. He argues that “trainees’ beliefs that they can learn the material presented in the program and that desirable outcomes such as promotion or salary increase will result from skill and knowledge acquisition are important antecedents of motivation” (p.501). This would imply that trainee’s would be more motivated to perform well in training if they believed:

- *High effort will lead to high performance in training i.e. they are able to learn the content of the training session.*
- *High performance in a training will lead to improved on-the-job performance.*
- *High on-the-job performance is instrumental in obtaining a desired outcome (i.e. improved promotion prospects or greater autonomy to perform their job).*

Central to this model is training motivation. Noe and Schmitt (1986,p501) described motivation to learn will have a direct effect on learning in training, as this represents “a specific desire on the part of the trainee to learn the content of a training”.

Figure 3.5: Motivational influences on training effectiveness: Noe (1986)



Noe (1986) proposed motivation to learn will mediate the relationship between individual and situational variables and performance in training (c.f. Baldwin, Madjuka & Lohar, 1991; Baldwin & Magjuka, 1991, 1997; Clark, Dobbins & Ladd, 1993; Mathieu et al, 1993; Noe & Wilk, 1993; Quinones, 1995, 1997). Maier (1973) suggest that an individual may posses the cognitive and psychomotor skills required to learn the content of a training session, however, learning is dependent upon the individuals' motivation to learn the content of a training intervention. Wexley & Latham (1981) refer to this as 'trainability' or the degree to which a trainee is able to learn (and apply) material presented in a training session. Expanding upon this, Noe (1986) proposed performance in training is a function of the trainees ability, their motivation and the prevailing *environment favourability*. Noe & Schmitt (1986) argue "trainees may be cognisant of task constraints and/or non-supportive supervisors and co-workers that will inhibit use of knowledge and skills acquired in training"(p.502). This represents perceived availability of *technological necessities* required to perform their tasks, available opportunities to practice and/or use KSAs, and the probability of receiving reinforcement and feedback from a supervisor and/or work colleagues (c.f. Facticeau et al, 1995; Ford, Quinones, Sego, & Sora, 1992) would influence the training process.

Noe (1986) argues that a trainees motivation plays an important part in whether training is transferred to the workplace. This is referred to as motivation to transfer. Noe & Schmitt (1986,p503) described motivation to transfer as the "desire to use the knowledge and skills mastered in the training program on the job. Behaviour change will be likely to

occur for trainees who learn the material presented in training and desire to apply new knowledge or skills to work activities.” They argue motivation to transfer is likely in situations where the trainee is confident about using the new KSAs, and these “will help solve work-related problems and frequent job demands” (p.503).

The model was tested by Noe & Schmitt (1986), although they largely failed to support the model. However, the general principles have influenced subsequent training effectiveness research (see: Baldwin & Ford, 1988; Colquitt et al, 2000; Holton, 1996; Mathieu & Martineau, 1997; Quinones, 1995, 1997). Many of the features of the Noe (1986) model can be seen within a model developed by Baldwin & Ford (1988). They present an *organising framework* to identify potential factors that could influence the effectiveness of a training intervention, and the transfer of training to the workplace (see figure 3.6). The model proposed post-training behaviour was influenced by three types of training *inputs*:

- *Trainee characteristics*: such as the trainee’s ability, personality and motivation can impact upon performance in training, and the trainee’s desire to utilise their KSAs in the workplace (Noe, 1986; Wexley & Latham, 1981).
- *Training design*: Baldwin and Ford (1988) highlight four basic principles which determine training effectiveness: a) identical elements, or the degree to which the training setting matches the transfer setting; b) general principle used in present training content (McGehee & Thayer, 1961); c) stimulus variability, and, d) conditions of practice. Hence, the Baldwin & Ford (1988) model would indicate that training design; training content and training delivery contribute toward training effectiveness.
- *Work environment*: Support from work colleagues and supervisor (Fecteau, et al 1995; Huczynski & Lewis, 1980; Wexley and Baldwin, 1986), and task constraints (Mathieu et al, 1992, 1993; Ford et al, 1992) can either facilitate or inhibit learning and post-training behaviour. Research has also examined the link between a positive training climate and training outcomes (Baumgartel & Jeanpierre, 1972; Baumgartel, et al, 1978, 1984; Fieshman, 1953; Kozlowski & Salas, 1997; Rouiller & Goldstein, 1993; Tracey et al, 1995).

Figure 3.6: A model of training transfer: Baldwin & Ford (1988)



Baldwin & Ford (1988) suggest that training *inputs* will directly influence training *outputs* (c.f. Goldstein, 1991). Within the model, training output is represented by “the amount of original learning that occurs during the training program and the retention of that material after the program is completed” (p.63) (c.f. Kirkpatrick, 1976). Other researchers (Clark & Vogel, 1985; Laker, 1990) refer to this as *near* transfer – or the application of learning in a situation similar to those in which it was initially learnt. The model shows learning will have a direct effect upon post-training work place behaviours.

Baldwin & Ford (1988) differentiate between two component parts or conditions of transfer. Firstly, is the *generalisation* of trained material back to the job context. Other researchers (Clark & Vogel, 1985; Laker, 1990) refer to this as *far* transfer – or the application of learning in a situation dissimilar to those in which it was initially learnt. Secondly, this requires the *maintenance* of learned material over a period of time. Baldwin & Ford (1988) propose trainee characteristics and the work environment would have a direct effect upon the generalisation and maintenance of behaviours in the workplace. For example, even if KSAs are successfully learned in training, they may not be transferred to the work environment because trainees are not motivated or had lack of support from work colleagues (c.f. Noe, 1986; Wexley & Latham, 1981). Gielen (1995) makes reference to the *direction*, *level of complexity* and *distance of transfer*. Direction of transfer relates to the (positive or negative) outcomes of transfer behaviour. Complexity relates to the situations within which learners are able to transfer skills. While distance of

transfer reflects the conditions under which transfer occurs. Gagne (1985) identifies that this can reflect either *lateral* or *vertical* transfer. Lateral transfer occurs when the learner is able to perform learnt tasks in an identical situation. Vertical transfer involves the application of learnt skills on a similar, but more complex task.

A similar model is proposed by Mathieu & Martineau (1997). They argue the over-riding effectiveness of a training session will be influenced by the attributes of the session – what is its purpose, are the correct KSAs being taught, how are the KSAs being taught etc (c.f. Baldwin & Ford, 1998). In addition, individuals will attend training with different levels of motivation due to individual characteristics such as age, gender, ability and education, and the work environment. The outcome of training (*reactions, learning and behaviour*) are similar to that proposed by Kirkpartick (1976), however, the model differentiates between *training* behaviour and *work* behaviour – this is important because individuals may exhibit appropriate behaviours in the training context, yet do not demonstrate these on-the-job (c.f. Baldwin & Ford, 1988). A similar model is proposed by Quinones (1997) (see figure 3.7).

Figure 2.7: Contextual Influences on Training Effectiveness: Quinones (1997)



Quinones (1997) proposed that the maintenance and generalisation of training or *transfer outcomes* (c.f. Baldwin & Ford, 1988) are directly influenced by four main training outcomes *learning, behaviour, results* and *reactions* (c.f. Kirkpatrick, 1976) (see figure 3.7). Quinones (1997) identifies perceptions of fairness or equity (Adams, 1963), training motivation (Vroom, 1986) and self-efficacy (Bandura, 1977, 1986; Gist & Mitchell, 1992) as key determinants of training and transfer outcomes (c.f. Baldwin & Ford, 1988). In addition, Quinones (1997) also proposed both training and transfer outcomes were directly influenced by training design in relation to the methods employed within the training session (c.f. Baldwin & Ford, 1988). The model includes contextual influences, although these do not have a direct influence on training effectiveness. Quinones (1997,p.181) argued for “temporal ordering of the training process”. That is, if contextual factors influence the effectiveness of training, then the model implies this is most likely via ‘malleable’ factors like trainee characteristics (such as self-efficacy and training motivation). Quinones (1997) proposed contextual factors have a direct effect upon trainee characteristics, but are distal to training effectiveness. For example, the framing of the training can send important information about what training is offered (i.e. reward or punishment), and this is likely to influence training motivation (Tannenbaum & Yukl, 1992). The model also depicts that the prevailing organisational climate (Holton, 1996; Kozlowski & Farr, 1988; Kozlowski & Hults, 1987; Rouiller & Goldstein, 1993; Tracey et al, 1995) will either facilitate or inhibit training effectiveness.

Holton (1996) presents a model that includes three primary training outcomes relating to: a) *learning*; b) *performance* and c) *results* (c.f. Kirkpatrick, 1976). Figure 3.8 illustrates training reactions are not a primary outcome indicator of training effectiveness (c.f. Noe, 1986). However, Holton (1996) argues that the precise role training reactions plays in the transfer process has not yet been established. However, he argues reactions may moderate the relationship between training motivation and learning (c.f. Mathieu et al, 1992). For example, the trainee’s past training experiences may influence training motivation, thus, a positive experience (and outcome) could enhance future training motivation. Holton (1996) states that the model is designed to represent a single learning experience. However, “over time, it would be expected that employees’ success at achieving results from learning experiences would enhance future motivation to learn. In other words, over time there are many cumulative feedback loops that are not shown in this model” (p.10).

Figure 3.8: HRD Evaluation research and measurement model: Holton (1996)



Holton (1996) utilises expectancy theory to explain potential relationships within his model. Hence, Holton (1996) argues “high expected utility of organisational results from performance change should result in greater motivation to transfer learning into individual performance” (p.17). Holton (1996) indicates that there are three broad factors that can have either a direct or mediated effect on the training outcomes relating to: a) *ability/enabling elements*, b) *motivation elements* and c) *environmental elements* (c.f. Baldwin & Ford, 1988; Ford & Weissbein, 1997; Noe, 1986). Holton’s (1996) model indicates that such environmental factors can have a direct and mediated (via motivation) effect upon performance (c.f. Noe, 1986 or Colquitt et al, 2000), in addition Holton also considers the potential impact that ability or enabling elements can have upon the various training outcomes. For example, it is suggested that ability (c.f. Wexley & Latham, 1981) and training design (c.f. Baldwin & Ford, 1988) will impact upon performance. Holton (1996) highlights the importance of a strategic link between organisational goals and training design, as “greater linkage to organisational goals would also tend to result in transfer designs that enhance transfer” (p.15) (c.f. Tannenbaum & Yukl, 1992).

Holton (1996) makes reference to a number of *secondary influences* that have a direct influence upon training motivation, but are distal to training outcomes (c.f. Colquitt et al, 2000; Quinones, 1997). These relate to factors such as readiness or desire to enter and participate in training (i.e. agreement with needs assessment); job attitudes (i.e. job involvement), personality characteristics (i.e. locus of control; self-efficacy; need for achievement; and conscientiousness); and intervention fulfilment or the degree to which training meets the expectations of trainees. Such factors are also present within the models presented by Noe (1986) and Colquitt et al (2000), although in these models such variables are proposed to play a more proximal (not distal) role in the transfer process.

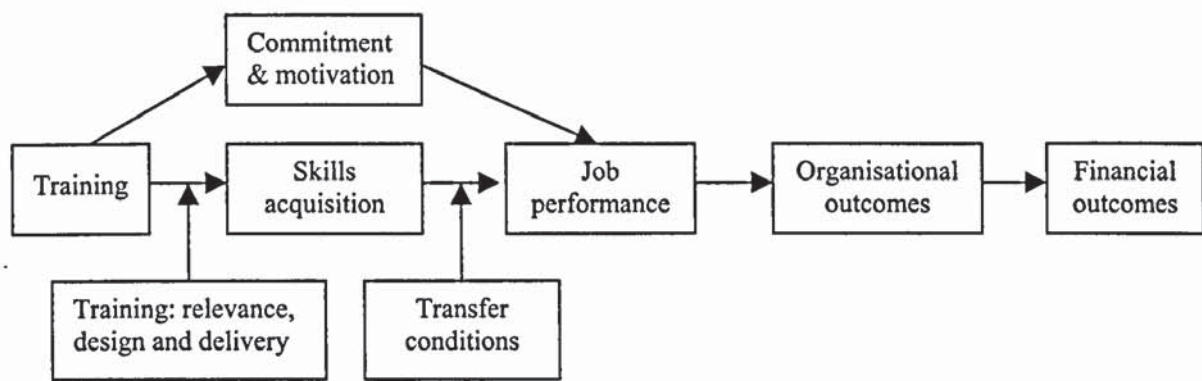
3.10 Criticism of models of training effectiveness

Kozlowski et al (2000) propose that traditional models of training effectiveness (i.e. Noe, 1986; Mathieu & Martineau, 1997) are rooted at the individual level. Kozlowski et al (2000) argue that the traditional link between training effectiveness and organisational performance is tenuous (c.f. Alliger & Janak, 1989; Alliger et al, 1997; Kirkpatrick, 1976). They argue, although training effectiveness models (i.e. Noe, 1986) identify the potential contextual and individual characteristics which impact training transfer, there is little consideration of *how* and *why* enhancements in individual level job performance should be transferred to improvements in performance at the organisational level. Indeed, Kozlowski et al (2000) state “current models of training effectiveness, while cognisant of contextual influences, do not consider how individual learning and transfer link to the organisational objectives on which training is predicted”, and continue to suggest that “exactly how training interventions, which focus on individual outcomes, will yield higher-level outcomes has been largely neglected” (p.174).

Why should training influence performance? The research presented in chapter three would indicate training could be associated with individual and organisational outcomes. Tharenou (in press) proposed attendance at a training session should be associated with the acquisition of new skills and skills (Burke & Day, 1986) (see: figure 3.9). However, the effectiveness of training is dependent upon the whether the training is relevant, well designed and transferred (Baldwin & Ford, 1988; Salas et al, 1999). For example, Goldstein (1991) argues for training to be effective organisations must adopt a systematic approach to the identification of training needs, training design and training evaluation. However, provision of training does not mean that trainees will utilise what they have learnt in training in a different context i.e. on-the-job (Acosta-Amad & Brethower, 1992;

Baldwin & Ford, 1988; Broad & Newstrom, 1992). Notwithstanding training design, the transfer of skills into the workplace domain is dependent on the prevailing conditions for transfer (c.f. Becker et al, 1997; Baldwin & Ford, 1988; Noe, 1986; Rouiller & Goldstein, 1993), and the commitment and motivation of employees (MacDuffie, 1999; Wright et al, 1999). Where an individual is motivated and the prevailing climate is supportive, then there should be an improvement in job performance (Baldwin & Ford, 1988). Using the logic of Becker et al (1997), Tharenou (in press) proposed that if this is mirrored by other employees in the organisation, the cumulative effects of improved job performance would result in improved organisational performance.

Figure 3.9: An individual level perspective on how training improves organisational effectiveness: Tharenou (in press)



Source: Tharenou, P. (in press). *Does training improve organisational effectiveness?* In M. Callinan, I. Robertson, & C. Cooper (Eds.). *Psychology and organizational effectiveness*. Chichester, England: Wiley.

However, Kozlowski et al (2000) would argue that a relationship would be dependent upon the nature of the task. This additive process may be the case for simple tasks, however, when tasks are complex this may require the integration of trained skills with work colleagues (for example training of air flight crews or surgical teams). Hence, although the trainee is able to utilise their KSAs this is not translated into improvement group or organisational outcomes because of a failure in another part of the work systems or lack of congruence between training provided to employees and organisational targets. Kozlowski et al (2000) make reference to vertical transfer. That is, the extent to which *lower-order* training provided to employees contributes to improved *higher-level* or organisational level targets (i.e. improved financial performance). Kozlowski & Salas (1997) place emphasis upon multilevel (*individual, team or unit, and organisational*) influences on the training process (see figure 3.10), and differentiate between *technostructural* factors and less tangible *enabling* factors.

Figure 3.10: A multilevel model for training implementation and transfer: Kozlowski & Salas (1997)



Technostructural factors represent “concrete derivatives of technology and structure that exist at each level of the systems”. For example, these could represent KSAs (individual level), machinery (team/unit level) or organisational structure. *Enabling* factors represent the informal, social and human interaction processes (such as social and interpersonal skills or motivation of trainees) that make up the technological system. For example, this represent the social and interpersonal skills or motivation of the trainees. Alternatively, transfer could be enhance when groups are integrated, have clear roles, clear objectives (see: Kozlowski & Ball, 2001). While, Kozlowski et al (2000) argues that organisational climate should support updating activity and job performance (c.f. Dubin, 1990; Kozlowski & Farr, 1988; Kozlowski & Hulst, 1987). Kozlowski & Salas (1997) argue that for individual level training to have an impact upon organisational level there needs

to downward *congruence* (or compatibility) where enabling contextual features that support the utilisation of KSAs, and upward *congruence* where individual training is aggregated to achieve *higher-level* objectives. This would be consistent with the theoretical model proposed by Dubin (1990) (see figure 3.11) that draws upon earlier theoretical and empirical research relating to the technical updating activity of engineers (c.f. Kozlowski & Farr, 1988; Kozlowski & Hults, 1987). Within the model Dublin (1990) propose updating behaviour was a function of the work environment and the motivation of the individual (c.f. Noe, 1986; or Wexley & Latham, 1981).

Figure 3.11: The Dubin model of technical updating: Dubin (1990)



From this, Dublin (1990) identified five elements of the work environment that facilitated updating activity, these being:

- a) Job and work assignments:* that challenge and stretch technical knowledge, job rotation to expose individuals to new technical disciplines, participation in relevant technical decisions, allowing engineers to complete a project from start to completion.
- b) Supervisor-subordinate relationship:* where supervisor gives credit and recognition for good work, providing opportunities to attend courses, conversing for opinions on technical problems and offering suggestions for improvement.
- c) Organisational climate:* which emphasised innovation and technical excellence.

- d) *Peer-colleague interactions*: where peers provide reliable information on technical developments, and solutions to problems based on their own experience.
- e) *Management policies and practices*: that provides resources for training, and tied financial rewards with technical competence.

3.11 Developmental activity

This chapter has illustrated there a variety of factors that could influence the effectiveness of training. The models presented in this chapter are related to the acquisition of KSAs from *formal training* interventions (see: Facticeau et al, 1995; Mathieu et al, 1992; 1993; Noe & Schmitt, 1986; Tharenou, 2001; Tracey et al, 2001). However, such activities represent only a small number of activities that could result in the acquisition of KSAs that could impact upon workplace behaviours. For example, Chao (1997) identifies formal activities as those activities that are initiated and sustained by an organisation, and could include courses, mentoring schemes, job rotation and secondment programs. However, development can also occur via more informal activities (Chao, 1997; Noe et al, 1997). Informal activities represent relatively unstructured activities that are mostly initiated by the individual, which could supported by the organisation (Chao, 1997) or occur accidentally (Marsick, 2001). These activities could include on-the-job learning, self-directed learning, and establishing informal networks. Such activities are important as research has shown a positive association between informal learning and performance (Noe, 1996; Sonnentag & Kleine, 2000; Tann, Blenkinskinsopp & Platts, 2001).

Noe, et al (1997) propose a theoretical model that differentiates between formal training, and development activity (see figure 3.12). Noe et al (1997) identified four main types of development activities. These being:

1. Traditional formal programs;
2. Assessment of (current) KSAs: Noe et al (1997) propose activities such as appraisals “stimulate a person to engage in other types of developmental activities designed to strengthen skills, behaviours, or attitudes” (p.159);
3. Job experiences: Noe et al (1997) propose that to be developmental, “a job experience must require employees to stretch their skills (i.e. they must be forced to learn new skills, apply their skills and knowledge in a different way, and master new experiences)” (p.162). Research would suggest most development occurs on-the-job (McCall, Lombardo & Morrison, 1998), and can impact upon learning (McCauley, Lombardo, & Usher, 1989; McCauley, Ruderman, Ohlott & Morrow, 1994);



Illustration removed for copyright restrictions

Source: Based on Noe, Wilk, Mullen & Wanek (1997) Employee development: issues in construct definition and investigation of antecedents.

4. Work relationships: Noe et al (1997) propose that relationships with other members of the organisation (mentor, or peers) can influence employee development (Lankau & Scandura, 2002). Noe et al (1993) suggest that the major of research has focused on the mentoring process, and the potential benefits open to the protégé (Chao, Walz & Gardner, 1993). However, Noe et al (1997, p.164) argue peer relationships are equally important “with the movement toward work design involving teams, peers are often called on to provide training to other team members.

Birdi et al (1997) identify a similar range of development activity to Noe et al (1997). They argue there are five main dimensions which distinguish between different type of development activities (see table 3.4). These being whether:

- 1 The activity is initiated by the individual (*voluntary*), dictated by company policy (*required*) or is the requirement of a professional body (*required*).
- 2 The activity can be designed and structured with explicit learning objectives to develop specific KSAs (*formal*) or activities not *sponsored* by the organisation or directly work-related, but develop KSAs transferable to the workplace (*informal*).
- 3 The focus of the activity can be directed at developing learned KSAs that are required for a current job (*job focused*), or KSAs compared that prepare for future job or anticipated changes in the current job (c.f. *continuous lifelong learning*: London & Smither, 1999).
- 4 The content of the activity can be directed at developing job-related competence (*job focus*) or KSAs largely unrelated to the individuals current position.
- 5 The activity can be conducted either in work time or during the individuals own time.

From this Birdi et al (1997) categorised four main types of development activity.

- Category one: Required training course in work time would represent participation in formal training sessions;
- Category two: Work-based development activity would represent job experiences (i.e. KSAs gained from performing a job or secondments to a different department);
- Category three: Voluntary development activity would represent activities that are undertaken outside work time and are offered by an external institution (i.e. MBA);
- Category four: Career planning activities would represent activities designed to provide feedback about potential and progress (i.e. appraisal, personal development plans), and are development activities, as they stimulate an individual to participate in other development activities.

Table 3.4: Profiles of typical employee development activities: Birdi, Allen & Warr (1997)



Typically, research has either examined participation in formal training sessions (Facteau et al, 1995; Mathieu et al, 1992; 1993; Noe & Schmitt, 1986; Tracey et al, 2001), or development activity related to external development courses (Bartlett, 2001; Noe & Wilk, 1993; Maurer & Tarulli, 1994; Tharenou, 2001). For example, Noe & Wilk (1993) report self-reported development activity and future plans were related with self-efficacy, motivation to learn, perceived benefits and the prevailing work environment. A similar relationship was reported by Maurer & Tarulli (1994). They report participation for in-house training and external development courses was related with self-efficacy, need for improvement, career insight and job involvement. Bartlett (2001) argues perceived access to training may be more important than reported training *frequency* (number of training events) or training *duration* (time spent on training events). He argues “employees don’t necessarily want to participate in a predetermined number of training events or hours per year but do value the knowledge that training is freely available” (p.346). Indeed, Bartlett (2001) reports perceived access displayed a stronger association with organisation commitment, job satisfaction, job-related benefits, and workplace support than training *frequency*, or training *duration*. However, there are few studies (Birdi et al, 1997; Maurer, Mitchell, & Barbeite, 2002) that has examined the wider range of development activities proposed by Noe et al (1997). Birdi et al (1997) report development activity (with the exception of voluntary non-job related activities) were associated with perceived social support, learning motivation, and job-related benefits. Birdi et al (1997) report *required* development activity was related with job satisfaction and organisational commitment. However, participation in *voluntary* development activity was not related with learning motivation. Maurer et al (2002) report social support (from a supervisor, peers and

subordinates) was associated with both in-the-job and off-the-job development activity. While self-efficacy was a predictor of off-the-job development activities. However, there is a gap in existing literature as there is no current study that has examined the association between development activities and changes in subsequent workplace behaviours (Baldwin & Ford, 1988). Hence this was the focus of study two reported in this thesis.

3.12 Review of chapter

In this chapter details have been presented of theoretical models of training effectiveness. The literature presented in this chapter examined the potential reasons why training and appraisal practices might impact upon organisational performance (Tharenou, in press) as presented in chapter one. This started with a review of a systematic approach to training needs analysis, design and evaluation (Goldstein, 1991). The chapter then went onto highlight that factors outside the classroom such as training characteristics that could include the trainees ability (Wexley & Latham, 1981) and motivation (Noe, 1986) are important predictors of training effectiveness. The research presented in this chapter has illustrated training could contribute towards organisational outcomes via the cumulative effect of improvements in individual level job performance (Kozlowski et al, 2001; Tharenou, in press). The final section of the chapter highlighted that training research has typically examined the association between participation in formal training interventions and training outcomes (Kirkpatrick, 1976). However, recent research would indicate that an individuals KSAs can be enhanced by a range of activities other than formal training interventions. This chapter has concentrated upon the presentation of theoretical models designed to examine factors that influence the effectiveness of training (i.e. Baldwin & Ford, 1988; Colquitt et al, 2000; Dubin, 1990; Holton, 1996; Mathieu & Martineau, 1997; Noe, 1986; Quinones, 1997). The following chapter (chapter four) will report in greater detail the empirical research that has examined the associations proposed within such theoretical models, and propose a theoretical model.

Chapter four: Situational characteristics, motivational outcomes and workplace behaviours.

4.1 Overview of chapter

In this chapter the empirical research relating to situational characteristics (social support from supervisor and co-workers, and work demands); job and career attitudes (job-related benefits, organisational commitment and job satisfaction); and trainee characteristics (motivation, self-efficacy) will be discussed that has tested the theoretical training effectiveness models (Baldwin & Ford, 1988; Colquitt et al, 2000; Holton, 1996; Mathieu & Martineau, 1997; Noe, 1986; Quinones, 1995) described in chapter three. The following section will examine the existing body of research and report the main empirical findings reported from these studies.

4.2 Training climate

Training research has stressed the importance of the training climate to the success of training activities (Colquitt et al, 2000; Rouiller & Goldstein, 1993; Tracey et al, 1995). (Colquitt et al, 2000, p.681) state the main features of training climate include:

“adequate resources, cues that serve to remind trainees of what they have learned, opportunities to use skills, frequent feedback, and favourable consequences for using training content”.

An early attempt to measure training climate was reported by Baumgartel and colleagues (Baumgartel & Jeanpierre, 1972; Baumgartel, et al, 1978, 1984). Baumgartel et al (1984) report details of a study of 260 managers who had attended a training session designed to improve self-understanding, interpersonal effectiveness and workgroup skills. Training climate, measured via three items: a) freedom to set objectives, b) encouragement to take risks, and c) promotion of using KSAs, was related to the application of KSAs (i.e. application of new learning, first application of older learning, how extensive the application effort had been, and how successful was this effort), but unrelated to trainee's affective liking of the sessions. Baumgartel et al (1984) report personality variables influenced training outcomes (c.f. Noe, 1996; Wexley & Latham, 1981). They report that managers with an internal locus of control were more likely to report that they worked within an work environment with a positive climate; to report that they expended more effort to transfer, and to report that had been more successful in applying what they have learned. Bennett, Lehman & Forst (1999) examined the influence of training climate on customer orientation (i.e. focus on service offered to customers). Training climate was

classified as either *blocked*, *neutral* or *helped* on the basis of supervisors and co-workers support and attitudes, workload and departmental policies. They report a positive climate (*helped*) was positively related with customer orientation, whereas a negative climate (*blocked*) was negatively related with customer orientation. Tsui et al (1997) reported organisational investment in employees (in relation to provision of training opportunities, career support and employment security) was related to organisational citizenship type behaviours, organisational commitment, absenteeism and turnover intentions.

Recently research has attempted to produce diagnostic tools that measures climate for training (see: Holton, Bates & Rouna, 2000; Holton, Bates, Seyler, & Carvalho, 1997; Rouiller & Goldstein, 1993; Tracey et al, 1995). Rouiller & Goldstein (1993) report details of a study with 102 supermarket employees who participated in a week-long program for newly appointed assistant managers. They chart the development of a climate scale representing “those situations and consequences that either inhibit or help to facilitate the transfer of what has been learned in training into the job situation” (p.379). They report conducting a critical incident workshop (with personnel officers) to establish potential job situations that facilitate or inhibit the transfer of learned behaviour to the job (c.f. Goldstein, 1991). Analysis of these critical incidents produced 112 items, from this subject matter experts who “had a thorough understanding of the training literature” (p.382) rated which element of climate the each item represented. The relevance of items was then discussed within focus group interviews with managers. This produced a training climate instrument of 63 scale items across 8 dimensions, which Rouiller & Goldstein (1993) refer to *situational cues*, or potential cues which remind trainees of the training undertaken or opportunities to utilise KSAs within the workplace. They also identify a series of *consequences*, which reflect potential outcomes of using KSAs. Table 4.1 gives more detailed descriptions (and examples) of each training climate dimension.

Rouiller & Goldstein (1993) report prior unit performance was not related to post-training transfer behaviour, therefore there was no evidence trainees assigned to better performing organisations would be more likely to transfer behaviour. However, learning in training was related to transfer behaviour – this is important because, if no evidence exists that individuals who perform better in training also perform better within their job, then there is no reason to test for the effects of the transfer climate. Finally, Rouiller & Goldstein (1993) report that a positive training climate was associated with training behaviour independent of the respondents level of learning.

Table 4.1: Definitions of Transfer Climate Constructs: Rouiller & Goldstein (1993)



Expanding upon the work of Rouiller & Goldstein (1993), Tracey et al (1995) differentiated between *training transfer climate* and *continuous-learning culture*. Tracey et al (1995, p.244) state continuous-learning culture “measured perceptions, beliefs, expectations, and values that reflect a broad range of individual, task and organisational factors that support knowledge, skill, and behaviour acquisition and application” (c.f. Kozlowski & Farr, 1987; Dubin, 1990). The fundamental difference between the two scales was *training transfer climate* relates to the transfer of KSA’s acquired via formal training activities. Whereas *continuous-learning culture* reflects KSA’s acquired via informal activities (c.f. London, 1990; London & Smither, 1999), and represents “salient characteristics and values and norms associated with less tangible aspects of the work environment” (p.x). Training climate was assessed using the Rouiller & Goldstein (1993) instrument (although self-control items were removed as they argue this represents a personal experience of using training on-the-job). Tracey et al (1995) report that factor analysis on the scale items did not produce the same factor structure as initially proposed by Rouiller & Goldstein (1993). However, both *training transfer climate* ($\beta .24$) and *continuous learning climate* ($\beta .21$) were conceptually distinct and explained post-training behaviours of 505 supermarket managers after a supervisory skills training.

However, recent research by Holton et al (1997, 2000) would suggest that training climate should be considered in relation to its *source* i.e. organisation, supervisor or work colleagues, rather than in relation to *situational cues* and *consequences*. This would be concurrent with the theoretical model of Noe (1986). Noe & Schmitt (1986) indicates performance in training or *trainability* is a function of the trainees cognitive ability, the trainees motivation and the prevailing *environmental favourability*, hence:

$$[\text{Trainability} = f(\text{Ability, Motivation, Environmental Favourability})]$$

Noe & Schmitt (1986) propose *environmental favourability* represents situation(s) where:

“trainees may be cognisant of task constraints and/or non-supportive supervisors and co-workers that will inhibit use of knowledge and skills acquired in training. Trainees’ beliefs regarding opportunities to practice skills or use knowledge acquired in the training program and the probability of receiving reinforcement and feedback from supervisors and peers are of particular importance... In addition to perceptions regarding social support, the extent to which technological necessities such as proper tools, equipment, materials, supplies, and monetary support are perceived to be available likely influences motivation to learn” (p.502).

Specifically, this quote illustrates the two elements of the work environment that could influence the training process, these being:

- Social support received from supervisor and/or work colleagues, and
- Task constraints.

4.3 Social support

Facteau et al (1995) examined the potential antecedents to pre-training motivation and transfer behaviour for 967 USA government employees employed in a managerial and supervisory capacity. Facteau et al (1995) differentiated between social support and task constraint (c.f. Noe, 1986), because: “from a theoretical standpoint, it may be that task constraints have a different effect on transfer than social support” (p.5), and that “various sources of social support may have differential effects on important training outcomes” (p.5). Hence they examined different sources of social support (from organisation, supervisor, peers, and subordinate). They report that supervisor support was positively related with pre-training motivation (but not transfer behaviour), while support from subordinates and peers was unrelated to pre-training motivation. However, subordinates and peers “provide support for training by enabling trainees to utilise their training skills once they are back on the job” (p.20) (c.f. Seyler et al, 1998). Facteau et al (1995) concluded “the findings of this study attest to the importance of empirically separating the effects of the different aspects of the environmentally favourability construct” (p.21).

Huczynski & Lewis (1980) present an inductively derived model potential factors that inhibit and facilitate the training process (see figure 4.1). Specifically, this shows that a supervisor play two roles. Firstly, in supporting and involving trainees pre-course in decisions over type of training undertaken (c.f. Baldwin et al, 1991; Cohen, 1990; Hicks & Klimoski, 1987; Noe, 1986). And secondly by creating a post-training transfer climate that facilitates the transfer of training content (c.f. Baldwin & Ford, 1988). Huczynski & Lewis (1980) proposed facilitators of training including having a manager/supervisor who was open to suggestions and new ideas, and who allow trainees control over how their work was completed. Whereas, unplanned work, high workload, and an non-supportive boss were potential inhibitors.

Figure 4.1: Factors affecting the management training transfer process: Huczynski & Lewis (1980)



A similar argument is presented by Facticeau et al (1995,p.234), who argue “the social context at work might support training in two ways, either by eliciting trained skills via a host of antecedent variables (e.g. opportunities, situational cues), or by rewarding these behaviours via a host of consequent variables (i.e. reinforcement)”. This is supported by Holton et al (2000), who proposed a dual role for a supervisor in the transfer process. That is, a supervisor acts as the *gatekeeper* to development activity (Birdi et al, 1997; Maurer & Tarulli, 1994; Noe & Wilk, 1993 & Tharenou, 2001), and provides post-training opportunities to use KSAs (Ford et al, 1992; Huczynski & Lewis, 1980), and rewards accrued from such activities (Birdi et al, 1999; Clark et al, 1993; Dubin, 1990; Maurer & Tarulli, 1994; Noe & Wilk, 1993; Tharenou, 2001). The following section will examine this research in greater detail.

4.3.1 Social support and development activity

This would be concurrent with existing literature that has shown social support (not just supervisor support) impacts upon participation rates in development activity (Birdi et al, 1997; Hazucha, Hezlett & Scheider, 1993; Maurer & Tarulli, 1994, 1996; Maurer et al, 2002; Noe & Wilk, 1993). For example, Maurer & Tarulli (1994) report that *company orientation* (or value placed on development) and supervisor support was related with participation on in-house courses (c.f. Kozlowski & Farr, 1988; Kozlowski & Hults, 1987). However, Maurer & Tarulli (1994) report support from a supervisor and co-workers was negatively related to external course participation. They argue this negative relationship may reflect perceived on-the-job development opportunities that preclude the need for external developmental activity. A similar pattern was reported by Birdi et al (1997), where management (but not co-worker) support was related with voluntary and non-voluntary development activity. In contrast, Maurer et al (2002) report social support (from a supervisor, peers and subordinates) was associated with both in-the-job and off-the-job development activity. Bartlett (2001) reports that workplace support was more strongly associated with *perceived access*, then either training *frequency* (number of training events) or training *duration* (time spent on training events). Bartlett (2001) argues that “employees don’t necessarily want to participate in a predetermined number of training events or hours per year but do value the knowledge that training is freely available” (p.346). This would illustrate that a supportive work environment is an important antecedent to development activity (Noe & Wilk, 1993; Maurer & Tarulli, 1994; Maurer et al, 2002).

4.3.2 Social support - signalling support for training

The existing body of research would indicate that social support (principally from a supervisor) plays an important role in signalling their approval for training (Brinkerhoff & Montesino, 1995; Tharenou, 2001; Vandenput, 1973). Indeed, Tharenou (2001,p.618) concluded trainees “need the approval of their supervisors to participate in training and development. Supervisors also encourage subordinates to participate in training and development, help them develop skills, and support the transfer of skills learnt in training to the job”. For example, Brinkerhoff & Montesino (1995) report details of a study with 91 middle managers, supervisors, and team leaders who had attended courses relating to managing meetings, negotiation skills, effective working together, effective time management or confident communication. For 37 trainees (experimental group) their

direct supervisor was asked to conduct a brief meeting both prior and after the training session. Whereas the other trainees (control group) had no such briefing. For the experimental group the supervisors were asked to discuss prior to training: a) what the course was about; b) how the course related to job; c) an example how the trainee could apply the content of training, and d) provide general encouragement about the session. Then after training, supervisors were asked to discuss a) the extent to which skills had been learned; b) identify potential barriers which might prevent the trainee to use their skills; c) agree when the skills would be used; d) provide coaching when it was required and e) emphasise that it was expected that the new skills would be used. Brinkerhoff & Montesino (1995) report trainees in the experimental group reported less inhibiting factors and more facilitating factors to the transfer of training, and higher usage of skills gained in training. A similar finding is reported by Tesluk et al (1995), where trainees who reported their managers had a *cynical* view toward, then they training reported low generalisation of skills to the workplace – perhaps this was because they viewed there was little value in trying to apply KSAs.

4.3.3 Social support and training transfer

Social support may impact upon whether trained skills are maintained and generalised in a non-training context (Axtell, Maitlis, & Yearta, 1997; Baldwin & Ford, 1988; Brinkerhoff & Montesino, 1995; Ford, et al 1992; Gumuseli & Ergin, 2002; Smith-Jentsch, Salas, & Brannick, 2001; Warr et al, 1999; Xiao, 1996). For example, Warr et al (1999) report that transfer support (from supervisor, and work colleagues) was associated with the frequency new equipment was used following a two-day vehicle repair course for automotive technicians. Ford et al, (1992) report supervisor ratings of the likeability, career potential and trust in the ability of 180 graduates from US Air Force personnel four months after technical training were related to the breadth; and type of tasks trainees had the opportunity to perform. Other studies have supported this finding. Gumuseli & Ergin (2002) report that for Coca-Cola employees attending basic sales training, those that had received support from their supervisor were more likely to display increased behaviour change three months post-training, increased productivity in relation to sales output three months post-training and enhanced job satisfaction. Finally, Axtell et al (1997) report that non-managerial technical staff attending a interpersonal skills at work course, perceived relevance training motivation and autonomy were related with transfer of skills at one month and one year. Axtell et al (1997) report autonomy was largely based upon the relationship trainees had with their manager, and the effects of management support on

subsequent transfer at one year had been mediated by autonomy – indeed they argue “employees with more control over their jobs will be better able to try out new ways of working, including, perhaps, the introduction of their recently acquired skills. However, despite the evidence of importance of these issues, little work exists which examines the maintenance of trained skills over time” (p.202).

Smith-Jentsch et al (2001) report a similar outcome on a flight simulation following a assertiveness course for pilots. They examined the frequency trained skills displayed reported by trainees in a *typical performance* (trainee instructed to act as normal with the other flight crew), and *maximum performance* condition (trainee instructed success depended on their ability to effectively use assertiveness training in situations with the captain and flight engineer). Trainees only demonstrated use of trained skills in the typical performance condition equivalent to maximum performance when they had a supportive captain. Smith-Jentsch et al (2001) argue “team leader support had a significant impact on the frequency with which trainees chose to use their newly learned skills throughout the team task”. Hence, even though the trainee may have learnt the required behaviours in training, these would not be transferred unless they receive support from supervisor/co-workers. Marx (1982) argues reinforcement from supervisor is an important determinant of the success of transfer. Fecteau et al (1995,p.20) argue a supervisor plays an important role not only in providing opportunities to utilise KSAs, but also in providing feedback about their attempts to transfer trained skills. Indeed, Dubin (1990,p.28) states “clarifying objectives and standards and providing feedback will reduce random behaviour and will increase task-relevant behaviours. Role perceptions is an essential feature of expectancy theory; it is the individual’s definition of successful performance” (see figure 3.11).

4.3.4 Social support and training benefits

Holton (1996) identified that supervisors may act as the controller of benefits attainable from training activities (c.f. Colquitt et al, 2000; Clark et al, 1993; Mathieu et al, 1992; Noe & Wilk, 1993; Tannenbaum et al, 1992; & Tharenou, 2001). Nordbaug (1989) examined employee’s perceptions as to whether would contributed to valued outcomes, and makes the theoretical distinction between three factors: a) interest in the course, b) career related outcomes (i.e. autonomy, promotion) and c) ‘psychosocial development’ (i.e. increased self-confidence) that influenced participation in training. There is a growing body of research that would indicate that the potential outcomes of using KSAs,

or the *job-related benefits* attributable to training, play an important role in the training transfer process. For example, Warr et al (1999) report transfer support (from supervisor, co-workers and the manufacturer of the equipment) was related with training motivation, and perceived value of the new equipment after a two day training course for the introduction of new electronic tools for technicians at a car dealership (c.f. Birdi et al, 1997; Clark et al, 1993; Maurer & Tarulli, 1994; Noe & Wilk, 1993). Both Birdi et al (1997) and Maurer & Tarulli (1994) report management support influenced job-related benefits and work-related attitudes, whereas co-worker support was related to training motivation and self-efficacy. While Clark et al (1993) reported supervisor support (but not co-worker support) was related with perceived job utility of training. This would indicate expectancy beliefs regarding the value (or utility) of training was a function of the supervisor-subordinate relationship. Clark et al (1992,p.303) argue, “the trainee may consider whether the supervisor will support efforts to transfer trained skill from the classroom to the job. If trainees do not believe that their supervisors will support training transfer, they will tend to believe that training will have limited job utility and thus not be motivated during training”.

The literature examined in this section has focused upon one element of the prevailing environment favourability (Noe, 1986) relating to social support. This section has illustrated social support can impact upon pre-training motivation and post-training transfer of training via the signals sent out to trainees about the relative value of the training they undertake and also the opportunities afforded to them either to participate in training or the transfer training back to the workplace (Baldwin & Ford, 1988). However, Noe (1986) identified that task constraints may also impact upon training outcomes. Hence, the following section will focus in more detail on task constraints.

4.4 Situational or task constraints

Situational constraints are those elements of the environment that interferes with or restrict individual's performance. Peters (& Fredman, 1984; Peters & O'Connor, 1980; Peters, Fisher & O'Connor, 1992; Peters, et al, 1985) proposed the work environment can interfere with motivation and work performance. Peters et al (1984) identified 11 features of work environment that may constraint performance. These include:

- *Job related information:* from supervisor, peers, subordinates, customers, company procedures etc. needed to complete the job.
- *Tools and equipment:* needed to complete the job assigned.

- *Materials and supplies:* needed to complete the job assigned.
- *Budgetary support:* or financial resources needed to complete the job assigned. This is not related to salary, rather the provision of monetary support necessary to accomplish task i.e. adequate resources and personnel.
- *Required services and help from others.*
- *Task preparation:* level of education, training and experience needed to complete job.
- *Time availability:* needed to complete the job, taking into account potential time limits.
- *Work environment:* within which the job is to be completed.

Other researchers (Campbell, 1988; Noe, 1986) have proposed situational constraints may prevent the extent to which individuals can transfer KSAs learnt in training to the work environment. Seyler et al (1998) report that opportunity to use KSAs (i.e. availability of financial resources) was positively associated with post-training motivation. However, training research has largely failed to establish a relationship between task constraints (measured in relation to competing work demands) and training outcomes (Facteau et al, 1995; Mathieu et al, 1992, 1993; Peters et al, 1985; Tharenou, 2001). For example, Mathieu et al (1992) report only a weak relationship between task constraints and training motivation. Although, they argue task constraints may serve as a source of frustration if they are not given the time and resources to utilise their new skills (c.f. Peters & O'Connor, 1980). Ultimately, this “would reduce employees’ motivation by reducing their expectancy perceptions” (p.832), and could have a detrimental impact on future training motivation and participation in training (c.f. Noe & Wilk, 1993; Birdi et al, 1997). Mathieu et al (1992) argue that:

“the collective findings suggest a potentially debilitating negative cycle stemming from situational constraints. For example, trainees could be expected to become frustrated if they developed new skills in training yet were not given adequate time, resources, and so forth, to apply what they have learned to their jobs. Such frustration would likely have a negative effect on how individuals approached future training programs that would in turn reduce the effectiveness of training. Thus, situational constraints are not only likely to limit the extent to which trainees can transfer learning to their work environment; foreknowledge of constraints is likely to stifle the learning process itself”(p.842).

In another study, Mathieu et al, (1993) report situational constraints had only a marginal negative effect on self-efficacy. However, they argue that competing demands on one’s time may influence whether the trainee believe they have the capacity to master the content of a training session. Facteau et al (1995) report that where task constraints were modest, they did not significantly hinder transfer of trained skills to the workplace.

Existing training research has largely focused on task constraints, and reported task constraints only inhibit the effectiveness of training when they are *severe* (Facteau et al, 1995; Mathieu et al, 1992, 1993).

4.5 Gap in the literature

There is a growing body of research that has established the association between the prevailing training climate and training outcomes (Colquitt et al, 2000). However, there are gaps in understanding of this association. Tracey et al (1995, p.249) argue:

“research should continue to examine the role of the work environment. Further work should examine how the work environment influences trainee perceptions and behaviour. For example, does culture and climate affect individual behaviour by influencing self-efficacy, motivation or expectations about formal and informal training experiences?”.

Colquitt et al (2000) propose factors including personality, ability, motivational outcomes and job related attitudes mediated the association between training climate and post-training behaviour (c.f. Noe, 1986; Wexley & Latham, 1983). However, they conclude:

“although recent research has examined climate and support, examination of situational characteristics remains surprisingly rare... research is therefore needed to identify the specific facets of climate, culture, and context that have the most positive relationships with motivation and outcomes” (p.700).

In addition, existing training research has largely focused upon the impact of role stressors such as task constraints on training outcomes. This has largely ignored other potential role stressors such as lack of understanding of role (role ambiguity), conflicting demands (role conflict), lack of control (role autonomy), having too many (work overload) or too few tasks to complete (work underload), inability to utilise skills (under-utilisation of skills), and influence over work related issues (decision latitude) (see: Abramis, 1994; Karasek, 1979; Karasek & Theorell, 1990; LaRocco et al, 1980; Viswesvaran et al, 1999). There is an extensive body of research which would indicate that the negative effects of task constraints may be mitigated in conditions where an individual has control over the work environment, and receives support from a supervisor or co-workers (Karasek, 1979; Karasek & Theorell, 1990; LaRocco, House & French, 1980; Viswesvaran, Sanchez, & Fisher, 1999) Hence, the following section has drawn on the wider social support-role stress literature to highlight a potential area of research not currently adequately covered in existing training research.

4.6 The demand-control model of job strain

Research would indicate that the potential negative effects of high task constraints may be dependent upon the level of control an individual has over their work environment. Karasek (1979) presented a model of job strain, referred to as the *demand-control* model of job strain (see figure 4.2). Karasek (1979) proposed that job strain (mental health or job-related attitudes) or motivation would be dependent upon job demands and job decision latitude. Job demands represent “the psychological stressors involved in accomplishing the work load, stressors related to unexpected tasks, and stressors of job-related personal conflict” (p.291). Whereas, job decision latitude represents “the working individual’s potential control over his tasks and his conduct during the working day” (p.290). Karasek (1979) identified two elements of job decision latitude – these being decision authority (or the extent to which the individual is able to make a decision about how he/she completes the task) and skill discretion (or the extent to which the individual has control over the manner in which tasks are completed).

Figure 4.2: The job strain model: Karasek (1979)



The demand-control model has two main hypothesis: a) the *strain* hypothesis and b) the *buffering* hypothesis. The *strain* hypothesis would indicate that where job demands and decision latitude *diverge*, and job demands are high, but control over decisions is low (A) this represents a *high strain jobs*, and this would be associated with highest levels of strain. However, Karasek (1979,p.303) argued this “should not be interpreted as showing that the adverse effects of low job decision latitude are limited to workers with highly demanding jobs or even that such jobs should be changed by decreasing job demands”.

High strain would also be associated with *passive jobs* (low demands and low control). In contrast, when the individual has an *active job*, that is they incur high demands, but also have control, the negative effects of high demands would be lessened – this is known as the *buffering hypothesis* where job demands and decision latitude are *matched* (B). In this condition it would be anticipated lower levels of strain, and high intrinsic motivation (Karasek, 1989; Karasek & Theorell, 1990; Parker & Sprigg, 1999). Indeed, Karasek (1997) argues “only average psychological strain is predicated for the ‘active job’ because much of the energy aroused by the job’s many stressors (‘challenges’) are directed into action -effective problem solving- with little residual strain to cause disturbance” (p.34).

More recent research (Bliese & Castro, 2000) has proposed understanding of current role requirements (role clarity/ambiguity) could have an impact upon how an individual reacts to job demands. Indeed, they argue that “low decision latitude suggests that an individual is restrained or unable to participate in important decisions. In contrast, low role clarity suggests that an individual does not know what actions should be performed (even if he or she has the latitude to do so)... in both cases, the employee is restricted in his or her ability to have an effective impact on the work situation” (p.71). This is supported by Tubre & Collins (2000), who propose that role ambiguity represents a lack of information about tasks requirements this could can influence motivation and “weaken effort-to-performance and performance-to-reward expectancies” (p.157) (c.f. Abramis, 1994; Jackson & Schuler, 1985).

4.7 Evidence based reviews of the demand-control model

Studies that has examined the demand-control model has offered only mixed support. For example, research has reported significant main effects for job demands and job control on strain (De Rijk, LeBlanc, Schaufeli & de Jonge, 1998; Dwyer & Ganster, 1991; Fletcher & Jones, 1993; Fox, Dwyer & Ganster, 1993; Hurrell & McLaney, 1989; Parkes, 1991; Payne & Flectcher, 1983; Sauter, 1989; Specter, 1987; van der Doef & Maes, 1999; Warr, 1990), or satisfaction (Dwyer & Ganster, 1991; Fletcher & Jones, 1993; Fox, et al, 1993; Greenberger, Strasser, Cummings, & Dunham, 1989; McLaney & Hurrell, 1988; Melamed, Kushnir, Meir, 1991; Mullarky, Jackson, Wall, Wilson, & Grey-Taylor, 1997; Parkes, Mendham, & von Rabebau, 1994; Sauter, 1989; Tetrick & LaRocco, 1987; Wall, Jackson & Mullarky, 1995; Warr, 1990). However, the interaction effects proposed within the model has received mixed support (van der Doef & Maes, 1999). For example, there are a number of studies that support the demand-control model (Bromet, Dew, Parkinson,

& Schulberg, 1988; De Jonge, Mulder, & Nijhuis, 1999; Dwyer & Ganster, 1991; Karasek, 1979; Landsbergis, 1988; Parkes et al, 1994; Wall, Jackson, Mullarkey & Parker, 1996). For example, Dwyer & Ganster (1991) report high work demands and low perceived work control was associated with high task satisfaction and low absenteeism. While Fox, et al (1993) and Parkes et al (1994) report an interaction effect between quantitative work demands and job control on job satisfaction. A similar effect was reported a sample of Dutch healthcare workers by De Jonge, van Breukelen, Landeweerd, & Nijhuis (1999), report interaction effects between demand-control with job satisfaction and motivation.

However, other studies (see: Fletcher & Jones, 1993; Ganster & Fusilier, 1989; Hurrell & McLaney, 1989; Kushir & Melamed, 1991; McLaney & Hurrell, 1988; Payne & Fletcher, 1983; Spector, 1987; Tetrick & LaRocco, 1987; Warr, 1990) have failed to replicate, or questioned the interaction effects proposed by the original Karasek (1979) model. Spector (1987) reported only 2 (from a possible 30) significant interaction effects, and these were not in the direct proposed within the job strain model (Karasek, 1979). Researchers (De Rijk, et al, 1998; Ganster & Fusilier, 1989) have identified a number of methodological issues the demand-control model. First, the measure of work demands may representative affective judgements i.e. have excessive work, or not enough time. Indeed Karasek & Theorell (1990,p.344) note that “broad questions about work load (“not enough time”) are more likely than specific questions to be affected by self-report biasing factors”. However, Dwyer & Ganster (1991) report interaction effects with job demands based on job analysis, whereas both Fox et al (1993) and Parkes et al (1994) measured quantitative work demands (Caplan, Cobb, French, Harrison & Pinneau, 1975). Second, the construct of decision latitude has been criticised for representing aspects of job control, skill variety and job complexity (Frese, 1989; Ganster & Fusilier, 1989: Wall et al, 1995). However, Landsbergis (1988) report job strain (job dissatisfaction, depression, physical strain and sleeping problems) and burnout was associated with high work demands and low decision latitude (i.e. high strain job) among a sample of healthcare workers. However, low job control (regardless of job demands) can also have a detrimental long term effect on motivation (Landsbergis, 1988; De Jonge, et al, 1999; De Rijk, et al, 1998). As De Rijk et al (1988) suggest, “low control environments may act to reduce one’s coping abilities and motivation to improve the job situation” (p.14).

The demand-control model has been more frequently reported in relations to measures of strain (i.e. job satisfaction) (Granster & Fusilier, 1989; Karasek, 1979; Landsbergis, 1988; Schaubroeck & Merrit, 1997; Van der Doef & Maes, 1999). However, the demand-control model may be related to other outcomes such as motivation and workplace learning (De Jonge, et al, 1999; Karasek, 1989; Karasek & Theorell, 1990; Mikkelsen, Saksvik, Eriksen & Ursin, 1999; Van Yperen, in press). For example, the *active learning hypothesis* (Karasek & Theorell, 1990) proposed that most workplace learning takes place in demanding and challenging situations (c.f. Noe et al, 1997). Karasek (1989) proposed that for *active jobs*:

“increased motivation are hypothesised to occur in job situations where psychological demands are high and decision latitude (control) is also high. Another branch of social psychological literature dealing with motivation and the learning process has viewed taxing situations as prerequisites for growth and learning rather than as contributors to illness. The fact that environmental demands contribute to positive behavioural outcomes in some settings and to negative outcomes in others is not a contradiction for the demand-control model” (p.135) (c.f. Noe et al, 1997).

Karasek & Theorell (1990) argue active jobs should result in high learning and personal growth – perhaps because the individual is stretched, hence job demands result in potential development experiences for the individual not available when job demands are low (c.f. Noe et al, 1997). That is, such an environment would provide opportunities for learning and a challenging work environment (c.f. Dubin, 1990). Mikkelsen et al (1999) propose that high decision authority and learning opportunities “makes it possible to learn without increasing the workload” (p.29) (see figure 4.3). In contrast, routine work and the eventual loss of skills was associated with low decision authority and low learning opportunities. Mikkelsen et al (1999) report decision authority and learning opportunities was related with perceived job stress, job satisfaction and organisational commitment.

Hence, the principles of the demand-control model could be applied to training research. Specifically, it may be that the failure of past research to report a strong association between task constraints and training outcomes could be because the individual also has control over the work environment. As a consequence they are better able to deal with the negative effects of task constraints, and does not adversely affect motivational outcomes. Such a relationship has not been examined in current training research.

Figure 4.3: An illustration of the relationship between decision authority and learning opportunities in a workplace situation: Mikkelsen, Saksvik, Eriksen & Ursin (1999)



4.8 Moderators of the stress-strain relationship

The *demand-control* model (Karasek, 1979) has been criticised for being too simplistic (Bliese & Castro, 2000). This is especially the case because there is a growing body of research which has showed that social support can have an impact upon strain (Abdul-Halim, 1982; Beehr, Jex, Stacy & Murray, 2000; Bliese & Castro, 2000; Cohen & Wills, 1985; De Jonge, Janssen, & van Breukelen, 1996; Kirmeyer & Dougherty, 1988; Johnson, 1989; Johnson & Hall, 1988; Johnson, Hall, & Theorell, 1991; Kahn & Byosiore, 1992; LaRocco, et al, 1980; Sargent & Terry, 2000; Searle, Bright, & Bochner, 1999; Terry, et al, 1993; Viswesvaran, et al, 1999; Winnurbst & Schabracq, 1996; Yan Yperen, in press). For example, LaRocco et al (1980) proposed a theoretical framework to examine person-environment fit (see figure 4.4). This shows social support can have a direct positive upon stress (arrow 4), strain (arrow 5) and outcomes (arrow 6). Perceived stress represent an incongruence or lack of fit between the person and the environment, where environmental demands exceed the resources/abilities of the individual (French et al, 1974). Role stress can represent excessive work load (extent individual does not have necessary resources), role conflict (extent job is characterised by conflicting demands) or lack or role clarity (extent of a person's uncertainty about aspects, such as priorities and expectations, of their job). Within the model (see figure 4.4) stress will have a direct negative effect upon perceived satisfaction individuals have with the role they perform i.e. strain (arrow a), however, the negative effects are ameliorated by social support (arrow 1). The model proposed both stress (arrow c), and strain (arrow b) would have a direct negative effect upon outcomes such as anxiety, and mental health. Finally, the negative effect of stress and/or strain on health outcomes will be ameliorated by social support (arrow 2 & 3).

Figure 4.4: A model of potential relationships among perceived occupational stress, social support and health: LaRocco, House, & French (1980)



Viswesvaran et al (1999) report social support ameliorates the potential negative effects of stressors on reported strain. For example, Terry et al (1993) report high supervisor support *buffered* the effects of both high role conflict and work overload on psychological well-being. Terry et al (1993) argue that “supportive supervisors may help protect people from the negative impact of work overload by acknowledging work, lengthening the load where possible, and heightening levels of work commitment.... (B)uffering effects of social support will be most likely to be observed when the support measures assess the functional domains of support relevant to the demands of the stressful situation (p.173/4). Bliese & Castro (1999) report that role clarity ameliorated the negative effects of work demands on psychological strain, but *only* when the individual reported high levels of supervisor support. A recent study of 555 Dutch nurses by Van Yperen (in press) reported that intrinsic motivation was highest when there were low work demands, high control (i.e. *low strain job*), but only when accompanied by high social support. Indeed, when a low strain job with accompanied by low perceived social support this was associated with the *lowest* intrinsic motivation. However, Van Yperen (in press) reports that despite this low perceived social support, intrinsic motivation could be dramatically enhanced when high control were coupled with an increase in work demands (as they had hypothesised). Conversely, when there was perceived high social support, high control coupled with an increase in work demands was associated with *lower* intrinsic motivation. Hence, the findings of Van Yperen (in press) would indicate that social support was associated with

high intrinsic motivation, while the negative effects of low social support was negated by high control over the work environment.

4.9 Gap in the literature

Previous training research has typically reported that task constraints are only related to training outcomes when they are perceived to be *severe* (Fecteau et al, 1995; Mathieu et al, 1992, 1993). However, training research has not explored *how* and *why* respondents make these judgements about task constraints. Role stressors may actually be beneficial when they are also associated with high control of the work environment (Karasek, 1979) – although employees may have a heavy work load and are stretched this may still be associated with high intrinsic motivation (Van Yperen, in press), learning outcomes (Parker & Sprigg, 1999) and development experiences (Karasek & Theorell, 1990; Noe, et al, 1997). Perhaps, in addition to a direct effect on motivational outcomes (Colquitt et al, 2000; Fecteau et al, 1995; Noe & Wilk, 1993), social support may mitigate the negative effects of role stressors (such as task constraints) on motivation outcomes

4.10 Motivational outcomes

Typically, models of training effectiveness locate motivational constructs as an intermediate variable (see: Holton, 1996; Mathieu & Martineau, 1997; & Noe, 1986). Motivational constructs may have been influenced by a range of factors such as situational and task constraints, job-related attitudes personality and ability. And, may in turn influence training outcomes such as performance in training and post-training transfer of training to the workplace (Baldwin & Ford, 1988; Colquitt et al, 2000; Fecteau et al, 1995; Holton et al 2000; Noe, 1986). Mathieu & Martineau (1997) proposed there are three types of motivational constructs commonly measured within training research (c.f. Kraiger et al, 1993), these related to:

- Training motivation: This represents the direction, intensity and persistence to utilise KSA acquired in training on-the-job (c.f. Colquitt et al, 2000; Noe, 1986). Noe (1986) differentiates between motivation to learn content of training, and motivation to transfer acquired KSAs in a non-training domain (c.f. Baldwin & Ford, 1988).
- Self-efficacy: Bandura (1986, p.391) proposed that self-efficacy represents “people’s judgements of their capabilities to organise and execute courses of action required to attain designated types of performance”. In a training context, this would represent a trainees belief they have the capability to overcome potential obstacles, and are able to utilise the KSAs acquired in a training context in a non-training context i.e. on-the-job.

- Expectancy based scales or 'valance': This would represent the potential outcomes of using KSAs, or the *job-related benefits* attributable to training (c.f. Colquitt et al, 2000; Clark et al, 1993; Mathieu et al, 1992; Noe & Wilk, 1993; Tannenbaum et al, 1991; & Tharenou, 2001).

4.10.1 Motivational outcomes and career related attitudes

Multifaceted models of training transfer (Noe, 1986; Holton, 1996) propose trainee involvement in the needs assessment process, choice over training undertaken, and the expectation that training needs will be met will impact upon training motivation. Noe (1986,p.501) argued "if trainees perceive the needs assessment as credible and providing useful information regarding skills strengths and weakness, they will react favourably to the information received". A similar relationship was reported by Clark et al (1993). In a study of 245 trainees on a variety of management training courses, they report decision maker creditability or the extent to it is believed the person involved in deciding training is aware of the training content, and its value to job performance was significantly related to perceived job utility (c.f. Holton, 1996). Clark et al (1993) indicate also that when employees had input into the training undertaken they were more likely to perceive the training to be relevant to their current job (c.f. Hicks & Klimoski, 1987). While, Wlodkowski (1985) report participation in the training needs assessment process enhanced motivation to learn, although Noe & Schmitt (1986) only report a weak link between perceived assessment and motivation to learn.

Baldwin, et al (1991) report trainees with choice over training displayed high motivation to learn and subsequent levels of learning, but this was contingent upon receiving the training requested. Where training choice was offered but not considered, motivation and learning was lower than if the trainee had no choice over the training. Baldwin et al (1991) refer to this as the *perils of participation*. Hicks & Klimoski (1987) report details of a two-day workshop for performance review and interview skills. Participants were randomly assigned to one of four groups, where respondents received differing levels of information prior to sessions and/or choice over the course taken. Hicks & Klimoski (1987) report the degree of choice had a significant impact upon commitment, satisfaction, training motivation, perceived value of the session, and performance on an assessment test. While realistic prior description of training impacted upon commitment, motivation to learn and satisfaction (but not performance on an assessment test). Mathieu et al (1992) report trainees who had choice over the training they attended, reported more

favourable training reactions, and was positively related with self-efficacy beliefs. However, Mathieu et al (1993) failed to replicate this finding – they attributed this to the nature of the task (bowl exercise), which may have influenced expectations.

Voluntary participation in training has been shown to have a positive relationship with motivation to learn, actual learning and subsequent reactions to training (Cohen 1990, Hicks & Klimoski, 1987 & Mathieu et al 1992, 1993). Fecteau et al (1995) report that compliance (i.e. training was mandatory) had a significant, but negative effect on pre-training motivation. While, Ryman & Biersner (1975) report lower drop-out rates for trainees on a Navy SCUBA course for candidates who had volunteered for the course. However, Baldwin & Magjuka (1991) propose trainees may attribute more importance to mandatory training. They report when trainee's are required to either prepare a report or undertake a post-training training assessment, this may place the trainee in a situation where they felt under pressure to perform. However, Tannenbaum & Yukl (1992) warn mandatory attendance may have demoralising effect if there is a perception that training is not valued by the organisation i.e. there will be little outcome. Quinones (1997) stresses the importance of framing the reason for providing training. For example, it may be felt "training is a punishment for inadequate behaviour" (p.188) rather than to enhance KSAs.

The perception training has (or will) accomplish stated aims can impact upon pre-training motivation and post-training behaviour (Holton, 1996). Alderfer, Tucker, Alderfer & Tucker (1991) report trainees who received more information prior to training had more positive reactions after training. Baldwin & Magjuka (1991) report trainees who received information before training showed greater intention to use skills back on the job. While, Fecteau et al (1995) report quality of the training intervention, perceived reputation of training and intrinsic incentives to be positively related with pre-training motivation. Tannenbaum et al (1991) report training fulfilment was associated with self-efficacy, training motivation, and organisational commitment. Martocchio (1992) reports that the labelling of training content could influence training outcomes. For example, trainees who attended training labelled as being an opportunity (i.e. greater job opportunities, enhanced reputation to co-workers) reported higher self-efficacy and learning than trainees which did not emphasis the benefits of training. Existing research (Noe & Wilks, 1993; Clark et al, 1993; Tharenou, 2001) would indicate there should be a positive relationship between perceived job-related benefits and training motivation.

Perceived relevance of training has been shown to be related with training motivation (Clark et al, 1993) and the immediate transfer of skills to a work setting (Axtell et al, 1997). For example, Clark et al (1993) report higher training motivation or desire to learn & use course material and complete course requirements when they perceived training would result in improved career and job-related outcomes. Clark et al (1993) argue this “demonstrates the value of expectancy theory (e.g. Porter & Lawler, 1968; Vroom, 1984) for predicting training motivation” (p.303). Orpen (1999) reports that in a sample of 105 Australia managers *training incentives* (pay rise, better job assignment, becomes more skilled, enhanced promotional prospects) *training resources* (time, money, resources and opportunity) and perceived *training needs* were associated with training motivation. This would be concurrent with Colquitt et al (2001), who report that *valance* (or job-benefits) was an important antecedent to training motivation.

4.10.2 Motivational outcomes and job-related attitudes

Colquitt et al (2000) propose job related attitudes (i.e. job involvement, and organisational commitment) were positioned between training climate and training motivation. They report job involvement was related with declarative knowledge acquisition and training transfer behaviours, but not with training motivation. Mathieu et al (1992) also failed to find a significant relationship between job involvement and training motivation. They concluded that the task (i.e. proof-reading) might not have been valued highly, and was related to current (not future) job performance. Similar findings were reported by Orpen (1999), who reports organisational commitment (but not job involvement) was related with training motivation. While, Tracey et al (2001) report job involvement was related with both measures of pre-training motivation and self-efficacy. And Allen, Russell, Poteet & Dobbins (1999) report job involvement was negatively related with perceived hierarchical plateauing (unlikely to progress further) and job content plateauing (tasks have become routine).

Organisational commitment and job satisfaction were not included in the Colquitt et al (2000) meta-analysis review because of insufficient studies including these variables. Tracey et al (2001) failed to establish an association between organisational commitment and pre-training motivation. However, Bartlett (2001) report organisational commitment was related with support from senior staff and work colleagues for training, motivation to learn, and perceived benefits from training (c.f. Noe & Wilk, 1986; Tharenou, 1997). Organisational commitment has also been shown to be related with perceptions of

training fulfilment; affective trainee reactions; training motivation and trainee performance (on a learning test) (Tannenbaum et al, 1991) and the application of training when performing job activities (Tesluk et al, 1995). While Fecteau et al (1995), who report organisational commitment was significantly related to motivation to learn (which then mediated the relationship with training transfer). Similarly, Carlson, Bozeman, Kacmar, Wright & McMahan (2000) report the effects of organisational commitment on training motivation were mediated by attitudes toward training (c.f. Tannenbaum et al, 1991). They propose this may be because highly committed trainees “should readily embrace employer-sponsored training efforts” (p.274). However, the association between job satisfaction and training outcomes is less clear, although Noe & Wilk (1993) and Birdi et al (1997) report job satisfaction and the work environment. Judge, Bono, Thoresen & Patton (2001) proposed positive perceptions of the work environment may be favourably influenced or biased when they identify with, are committed to, or are satisfaction with the job they perform. Holton (1996) argues “expectancy theory would lead us to speculate that people with high commitment and job satisfaction would be more likely to exert effort to transfer and to perceive the rewards from transfer as having higher valance” (c.f. Ford & Noe, 1987; Noe, 1986).

4.10.3 Motivational outcomes and training outcomes

The existing body of research would indicate that training motivation has influenced a range of training outcome variables. In a meta-analysis of 20 years of training research, Colquitt et al (2000) report training motivation was related with declarative knowledge ($r = .27$), skill acquisition ($r = .16$), post-training self-efficacy ($r = .18$), reactions to training ($r = .45$), and transfer ($r = .58$). Quinones (1995) report motivation to learn accounted for 18% of variance for learning, and 28% for behavioural outcomes of training. This would indicate that individuals who enter training with high motivation may prepare them to receive the maximum benefits of training. Mathieu et al (1992) report trainees who are motivated to do well in training (motivation to learn) will learn the content or principles of a training intervention better than less motivated trainees. Accordingly, “pre-training motivation may prepare trainees to learn by heightening their attention and increasing their receptivity to new ideas” (p.832). This in part may be due the training believing that they can master the training content, as individuals with high self-efficacy beliefs prior to training tend to outperform individuals with low self-efficacy (i.e. Taylor, Locke, Lee, & Gist, 1984). This is reflected by an increasing body of research that has established an association between self-efficacy and training motivation (Birdi et al, 1997; Carlson, et al,

2000; Colquitt et al, 2000; Noe, 1986, Noe & Wilk, 1993; Quinones, 1995; Seyler et al, 1998; Tannenbaum et al, 1991). For example, Carlson et al (2000, p.274) report training self-efficacy was related with training motivation, possibly because “persons high in training self-efficacy are likely to see themselves as capable of meeting the challenge to their present skills provided by training opportunity”.

Motivational outcomes have also been related with performance in training (Gist, 1989; Gist, Schwoerer, & Rosen, 1989; Gist et al, 1991; Martocchio & Webster, 1991; Tannenbaum et al, 1991) and post-training behaviours (Facteau et al, 1995; Ford et al, 1992; Gist, 1989; Gist et al 1991; Latham & Frayne, 1989; Mathieu et al, 1992; Saks, 1995; Stevens & Gist, 1997; Tannenbaum et al, 1991). For example, individuals who leave training with the belief that they have successfully performed the tasks they have learned have been found to be more likely to overcome potential obstacles in the transfer environment (Marx 1982), or will be more inclined to use their new KSAs (Ford et al, 1992; Hill, Smith & Mann, 1987). Ford et al (1992) argue that self-efficacy may lead to individuals being proactive in seeking out opportunities to utilise KSAs (c.f. Gist, 1989; Gist, Bavetta, Stevens, 1990; Gist, Rosen & Schoerer, 1988; Gist et al, 1991).

4.11 Gap in the literature

The literature presented in this section has shown that motivational outcomes (such as self-efficacy and training motivation) are related with training transfer (i.e. Facteau et al, 1995; Ford et al, 1992). The theoretical model presented by Baldwin & Ford (1988) (see figure 3.6) identified two conditions of transfer of training. Firstly, there is the need for the *generalisation* of trained material. Other researchers (Clark & Vogel, 1985; Laker, 1990) refer to this as *far* transfer – or the application of learning in a situation dissimilar to those in which it was initially learnt. Secondly, there is the requirement for the *maintenance* of learned material over a period of time. The focus of existing training research has been on performance within training, behaviour changes after training (Axtell et al, 1997; Brinkerhoff & Montesino, 1995; Gumuseli & Ergin, 2002; Facteau et al, 1995; Smith-Jentsch et al, 2001; Xiao, 1996), and the frequency trained behaviours are used in a non-training context (Ford et al, 1992; Warr et al, 1999). However, typically training research has not specified the *type* of behaviour that has occurred after training.

4.12 Workplace performance

The following section will differentiate between *in-role* and *extra-role* behaviours. In-role behaviours represent performance of tasks as specified by a person's job description (Campbell, 1990), in contrast extra-role behaviours are of a more discretionary nature, but which facilitate the functioning of the organisation (Borman & Motowidlo, 1993, 1997; Motowidlo & Schmit, 1999; Organ, 1997). There are a variety of theories relating to discretionary behaviours, for example *organisational citizenship behaviour* (Smith et al, 1983, Organ, 1988), *contextual performance* (Borman & Motowidlo, 1993, 1997), *adaptive performance* (Hesketh & Neal, 1999; Pulakos et al, 2000), *extra-role behaviour* (Van Dyne & Cummings, 1990), *personal initiative* (Frese et al, 1995, 1996; Speier & Frese, 1997), *organisational spontaneity* (George & Brief, 1992; George & Jones, 1997), *prosocial organisational behaviour* (Brief & Motowidlo, 1986) and *proactive behaviours* (Chant, 1999). The following section examines how workplace performance could be conceptualised.

Campbell et al (1993) defines workplace performance as:

"only those actions or behaviours that are relevant to the organisation's goals and that can be scaled (measured) in terms of each individual's proficiency (that is, level of contribution). Performance is what the organisation hires one to do, and do well. Performance is not the consequences or result of action, it is the action itself" (p.40).

Specifically, Campbell (1990) identified eight main components of performance:

- *Job-specific task proficiency*: The degree to which the individual can perform the core tasks that are central to the job.
- *Non-job specific task proficiency*: The activities an individual is required that are not specific to their particular job.
- *Written and oral communication task proficiency*: The proficiency to write or speak, independent of the subject matter
- *Demonstrating effort*: The frequency with which people expend extra effort when required, and the willingness to keep working under adverse conditions.
- *Maintaining personal discipline*: The degree to which negative behaviours are avoided.
- *Facilitating co-workers*: The degree to which the individual supports their peers, and help them with job-related problems.
- *Leadership and supervision*: The behaviours directed at influencing subordinates via face-to-face interaction and influence.
- *Management and administration*: Behaviours directed at setting goals, organising people, monitoring progress, controlling expenditure of their groups, obtaining additional resources for their group, and representing interests of their group in dealings with others.

However, Borman & Motowidlo (1997) make the distinction between *task* and *contextual* performance. Specifically, task performance represents:

“the proficiency with which job incumbents perform activities that are formally recognized as part of their jobs (and, usually, are not a part of at least some jobs in the organization), activities that contribute to the organization’s technical core either directly by implementing a part of its technological process, or indirectly by providing it with needed materials or services” (p.73).

and the

“activities that transform raw materials into the goods and services that are the organisation’s products... (and) activities that service and maintain the technical core by replenishing its supply of raw materials, distributing its finished products, or providing important planning, co-ordination, supervising or staff functions that enable it to function effectively and efficiently” (Motowidlo & Schmit, 1999, p.x).

This represents *in-role* performance, and the activities against which an individual would expect performance to be judged. In contrast, *contextual performance* represents activities employees perform that maintain the broader organisational, social, and psychological context, within which the technical core operates. Borman & Motowidlo (1993, 1997) and Motowidlo & Schmit (1999) identified five dimensions of *contextual performance*:

- Volunteering to carry out task activities that are not formally a part of the job.
- Persisting with extra effort or enthusiasm to complete the task successfully.
- Helping and co-operating with others.
- Following organisational rules and procedures even when they are personally inconvenient.
- Endorsing, supporting and defending organisational objectives.

Van Scotter & Motowidlo (1996) propose the facets of contextual performance can be considered as either *interpersonal facilitation* or *job dedication*. Interpersonal facilitation “encompasses deliberate acts that improve morale, encourage co-operation, remove barriers to performance, or help co-workers perform their task-oriented job activities” (p.526). In contrast, job dedication relates to behaviours such as following rules, working hard, and displaying initiative to solve problems.

Borman & Motowidlo (1993, 1997) argue contextual performance activities differ from task performance on four dimensions. Firstly, task performance contributes directly or indirectly to technical core tasks, in contrast contextual activities are likely to “support the organizational, social and psychological environment in which the technical core must

function” (p.73). However, Conway (1996, 1999) argued the distinction between task and contextual performance may become blurred for managerial jobs, as managers depend upon contextual performance (such as good working relationship) to complete core tasks. Secondly, task performance is reflected by job specific activities. In contrast, contextual activities are “common to many or all jobs. Their peripheral details vary because they are performed in environments that change from job to job, but their central features are the same” (p.74). Task performance is influenced by KSAs. However, contextual activities “are probably better predicted by volitional variables related to individual differences and predispositional variables represented by personality characteristics” (p.74) (c.f. Organ & Ryan, 1995; Pulakos et al, 1988). Finally, task performance represents formal job expectations, hence it would be anticipated this would be rewarded by the organisations compensation scheme. Contextual activities are more discretionary and “are less likely to be included explicitly in lists of incumbents’ formal responsibilities and obligations to the organization” (p.75).

Contextual performance is closely related with the concept of organisational citizenship behaviour (OCB) (Organ, 1988, 1990, 1997; Smith et al, 1983). Smith et al (1983) identified two distinct factors of OCB that represented helping and co-operating with co-workers (*altruism*) and, the support of the organisation (*generalised compliance*). Later work by Organ (1988) expanded OCB to include behaviours such as not complaining about minor annoyances (*sportsmanship*), keeping others informed of matters that might affect them (*courtesy*) and staying informed of political developments and expressing an opinion about them (*civic virtue*).

The key feature of OCB is that this represents actions that are *discretionary*, *extra-role* and for which the individual would not expect to be *formally* rewarded (Organ, 1988, 1997; Bateman & Organ, 1983; Smith et al, 1983). Organ (1988, p.4) defines OCB as:

“individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and that in the aggregate promotes the effective functioning of the organization. By discretionary, we mean that the behavior is not an enforceable requirement of the role or the job description, that is, the clearly specifiable terms of the person’s employment contract with the organization; the behavior is rather a matter of choice, such that its omission is not generally understood as punishable.”

Podsakoff, et al (2000) argue that it may be difficult to differentiate between OCB and *in-role* performance or job-related actions described within written job descriptions. Organ (1988) clarifies this by proposing:

“what we have in organization environments is a continuum such that different forms of contribution vary in the probability of being rewarded and of the magnitude of the reward. What we are doing is simplifying the issue, for the purpose of argument, by containing OCB within that region of nonrequired contributions that are regarded by the person as relatively less likely to lead along any clear, fixed formal rewards.”

However, Organ (1988) argues OCB could influence recommendations for salary increase or promotion, although “the important issue here is that such returns not be contractually guaranteed” (p.5). However, research (Borman et al, 1995; Johnson, 2001; MacKenzie, Podsakoff & Fetter, 1991; Motowidlo & Van Scotter 1994; Orr, Sackett & Mercer, 1989; Werner, 1994, 2000; Van Scotter & Motowidlo, 1996) has shown citizenship behaviours influence external ratings of performance. For example, Motowidlo & Van Scotter (1994) and MacKenzie et al (1991) report *task* and *contextual* performance were related with overall performance ratings, while Van Scotter (& Motowidlo, 1996; Van Scotter, 2000) reports interpersonal facilitation and job dedication were related with promotion eligibility, reenlistment eligibility, job satisfaction, commitment, and future organisational tenure. Kiker & Motowidlo (1999) report rewards (pay increase, promotion, fast-track development) for a fictitious person were distributed when either high task performance or interpersonal facilitation was displayed in an in-basket simulation exercise. There was also an interaction effect where the payoff of high task performance was enhanced when the person also displayed high interpersonal facilitation.

Podsakoff & Mackenzie (1997; Podsakoff et al, 2000) propose citizenship behaviours could also enhance organisational performance “by ‘lubricating’ the social machinery of the organization, reducing friction, and/or increasing efficiency”. Organ & Konovsky (1989) argue citizenship behaviour “derives its practical importance from the premise that it represents contributions that do not inhere in formal obligations. The presumption is that many of these contributions, aggregated over time and persons, enhance organizational effectiveness” (p.157). Podsakoff et al (2000) report citizenship behaviours are associated with organisational performance. Podsakoff & MacKenzie (1994) report that for 116 insurance agency units, citizenship behaviours were associated with attracting new business, increased performance over pervious year, average sales output per employee and total sales output. Podsakoff et al (1997) report citizenship behaviours were associated production quality and quantity for paper mill production crews, while MacKenzie et al (1996) report sales effectiveness of 306 pharmaceutical sales teams was related with citizenship behaviours.

There has been recent attempts within the literature to develop integrated frameworks to explain *citizenship behaviours* (Borman, Buck, Hanson, Motowidlo, Stark & Drasgow, 2001; Colman & Borman, 2000; Podsakoff et al, 2000). Podsakoff et al, (2000) argue that although there are conceptual differences, “it is not uncommon to see these differences glossed over... the literature also indicates that there are a number of occasions where essentially the same idea or concept has been given different labels by different researchers” (p.515). Indeed, Podsakoff et al (2000) identified seven overarching types of *citizenship behaviour* evident within the literature which reflect:

1. *Helping behaviours*: Smith et al (1983) refer to *altruism* or voluntary action directed at helping and co-operating with co-workers. Organ (1988, 1990) expand upon this and proposed three additional helping behaviours relating to a) *courtesy* (actions that would help prevent future problems for co-workers), b) *peacemaking* (actions that prevent, resolve or mitigate interpersonal conflict), and c) *cheerleading* (actions to encourage and reinforce the actions of co-workers). Other researchers refer to *interpersonal helping* (Moorman & Blakely, 1995) or *interpersonal facilitation* (Van Scotter & Motowidlo, 1996) where support is offered to co-workers (Borman & Motowidlo, 1993, 1997; George & Brief, 1992; and George & Jones, 1997).
2. *Sportsmanship*: This can be characterised as a general “willingness to tolerate the inevitable inconveniences and impositions of work without complaining” (Organ, 1990,p.6). Borman & Motowidlo (1993, 1997) refer to *helping & co-operating*, while Podsakoff et al, (2000, p.517) highlight maintaining “a positive attitude even when things do not go their way, are not offended when others do not follow their suggestions, are willing to sacrifice their personal interest for the good of the work group, and do not take the rejection of their ideas personally”
3. *Organisational loyalty*: This could represent promoting a positive image of the organisation (Moorman & Blakely, 1995); spreading goodwill by identifying the organisation was good to work for, or providing high quality services (George & Brief, 1992; George & Jones, 1997); or by enduring, supporting and defending organisational objectives by describing the organisation in a favourable light to outsiders (Borman & Motowidlo, 1993, 1997).
4. *Organisational compliance*: Smith et al (1983) refer to *generalised compliance* or “what a good employee ought to do” by displaying personal conscientiousness.

Alternatively, this could represent “the acceptance of the organization’s rules, regulations, and procedures, which results in a scrupulous adherence to them, even when no one observes or monitors compliance” (Podsakoff et al, 2000, p.517). This reflects *job dedication* (Van Scotter & Motowidlo, 1996) or behaviours such as adherence to organisational rules, working hard, and displaying effort, initiative, persistence, and self-discipline (Borman & Motowidlo, 1993, 1997).

5. *Individual initiative*: This relates *personal industry* or performance of tasks above and beyond the call of duty (Moorman & Blakely, 1995), *personal initiative* (Frese et al, 1996, 1997) where individuals take an active self-starting approach and go beyond formalised task requirements, persistence with enthusiasm (Borman & Motowidlo, 1993; 1997), and *job dedication* or effort and persistence on work-related tasks (Van Scotter & Motowidlo, 1996). While Organ (1988) identified *conscientiousness*, that is going beyond the minimal expected in areas such as attendance, punctuality, and utilisation of resources. This behaviour is similar to in-role behaviours (Organ, 1988). However, the original emphasis of OCB was on *discretionary* effort not formally rewarded by an organisations compensation system (Organ, 1988).
6. *Civic virtue*: Podsakoff et al (2000) indicate this represents a willingness on the part of the individual to a) participate in its governance (i.e. attend meetings, or express opinions and keeping abreast of larger issues involving the organisation) (Organ, 1988, 1990, 1997); b) monitor the environment for treats and opportunities (i.e. keeping up to date with industry changes) (Organ, 1988, 1990, 1997) and c) look out for the organisations interests (i.e. reporting suspicious activities, locking doors) (George & Brief, 1992).
7. *Self-development*: This represents discretionary behaviour aimed at improving KSAs – George & Brief (1992, p.155) refer to activities such as “seeking out and taking advantage of advance training courses, keeping abreast of the latest development in one’s field, or even learning a new set of skills so as to expand the range of ones contribution to an organisation” (c.f. Dubin, 1990 and updating activities).

4.13 Adaptive performance

Recent research has proposed that citizenship type behaviours do not adequately explain how people adapt to change within the workplace. Indeed, Hesketh and Neal (1999) argue that *adaptive* performance is a unique construct that is not represented in current models of job performance, and stress that such behaviours are important because:

“the rapid pace of change in job requirements arising from technological innovations places employees in a situation where they constantly need to demonstrate a capacity to engage in new learning and cope with change. Under these circumstances, one is no longer assessing absolute performance; rather, the focus is on responsiveness to changing job demands”.

The ability to adapt is an increasingly important attribute for employees (Ilgen & Pulakos, 1999). It is important for employees to be able to respond to changes in their tasks, work environment, and the organisation as a whole. Johnson (2001) proposed the ability to handle work stress is an important component of contextual performance, and defines such behaviours as whether individuals have:

“dealt with stressful situations in a clear thinking, focused manner, maintained a professional demeanour under stressful circumstances; stayed focused when faced with multiple responsibilities and were looked by others as the calming influence under difficult or demanding work situations” (p.989).

Hence, *adaptive* performance, is reflected by activities such as ease of learning new tasks, confidence in approaching new tasks, and capacity to cope with change, and is a unique behavioural construct not represented by *task* and *citizenship* behaviours. Pulakos et al. (2000) define adaptive performance as activities which:

“involves the effectiveness with which employees solve the atypical, ill-defined, and complex problems that confront today’s work, situations and organisations ... requires the individual to bring complex matter or situation to their desired need or develop creative solutions to novel difficult problems”(p.613)..

Pulakos et al (2000) identified eight specific elements of adaptive performance such as: a) solving problems creatively; b) dealing with uncertain and unpredictable work situations; c) learning work tasks, technologies and procedures; d) demonstrating interpersonal adaptability; e) demonstrating cultural adaptability; f) demonstrating physically oriented adaptability; g) handling emergencies or crisis situations; and h) handling work stress (see table 4.2 for details of each construct).

Table 4.2: Definitions of the eight dimensions of adaptive performance: Pulakos, Arad, Donovan, & Plamondon (2000)



The dimensions of adaptability identified by Pulakos et al. (2000) describe a wide range of different types of adaptability. However, this taxonomy does not provide a basis for differentiating between adaptability and other types performance such as citizenship (Podsakoff et al, 2000) or contextual performance (Borman & Motowidlo, 1993, 1997). Some of the aspects of adaptability identified by Pulakos et al. (2000) are closely related to the citizenship behaviours identified by Podsakoff et al (2000).

However, a recent study by Griffin (2001) has proposed an integrative model for mapping the different types of performance identified over the previous pages (see figure 4.5). Griffin (2001) proposed a three-by-three matrix of work performance which differentiates between performance on two dimensions of the *behavioural form* relating to *proficient*, *adaptive*, and *proactive* behaviours, and *direction* of work behaviour that can be directed at *individual*, *team*, and *organisational* level outcomes (Klein & Kozlowski, 2000; Rousseau, 1985). *Proficient performance* reflects the intensity and persistence with which an individual carries out the core requirements of their core tasks (*task proficiency*), how team members work together to achieve the team goals (*team proficiency*), and/or behaviours that facilitate the functioning of the organisation (*organisational proficiency*). Griffin (2001) proposed *task proficiency* would be most closely related to *task proficiency* (Campbell et al, 1993), or *task performance* (Borman & Motowidlo, 1993, 1997). While team and organisational proficiency would be similar to *extra-role behaviour* (Brief & Borman, 1986), *citizenship behaviour* (Smith et al, 1983), and *contextual performance* (Borman & Motowidlo, 1993, 1997).

The second dimension identified by Griffin (2001) reflects *adaptive performance*. This would describe attributes such as capacity to cope with change, the ease with which individuals learn new tasks, and confidence in approaching new tasks (Hesketh & Neal, 1999; Pulakos et al, 2000). Within the model Griffin proposed that this would reflect the intensity and persistence with which an employee adapts to changes in their core tasks (*task adaptivity*), adapts to changes in their role as a team member (c.f. *interpersonal adaptability*, Pulakos et al, 2000) (*team adaptivity*), and/or adapts to changes such as a merger or new management structures (*organisational adaptivity*) that require individuals to adjust to change.

The third dimension proposed by Griffin (2001) represents *proactive performance*. This involves self-starting, action-oriented behaviour that *changes* the surrounding work environment to achieve greater effectiveness (Bateman & Crant, 1993; Crant, 2000; Parker, 2000; Unsworth & Parker, in press). For example, this could reflect behaviours such as *personal initiative* (Frese et al., 1996) or taking charge (Wolfe-Morrison & Phelps, 1999). Crant (2000, p. 436) refers to *proactive behaviour* as “taking initiative in improving current circumstances; it involves challenging the status quo rather than passively adapting to present conditions”.

Figure 4.5: The motivational basis of work performance: Form, function, direction, persistence, and intensity: Griffin (2001)



This would reflect the persistence and intensity with which an individual engages in self-starting, action-oriented behaviour to initiate change their work environment situation (*task proactivity*), develops methods to improve the way their team functions (*team proactivity*), and/or engaging in activities such as serving on committees, that directly result in an action-oriented response which changes the work situation and leads to enhanced organisational effectiveness (*organisational proactivity*). The concept of proactivity is conceptually similar to *individual initiative* citizenship behaviour dimension identified by Podsakoff et al (2000). Podsakoff et al (2000, p.524) identify *individual initiative* as “voluntary acts of creativity and innovation designed to improve one’s task or the organisation’s performance, persisting with extra enthusiasm and effort to accomplish one’s job, volunteering to take on extra responsibilities, and encouraging others in the organisation to do the same”. This is related to *personal industry* or performance of tasks above and beyond the call of duty (Moorman & Blakely, 1995), *personal initiative* (Frese et al, 1996, 1997) where individuals take an active self-starting approach and go beyond formal task requirements, persistence with enthusiasm (Borman & Motowidlo, 1993; 1997), and *job dedication* or effort and persistence on work-related tasks (Van Scotter & Motowidlo, 1996).

The framework proposed by Griffin (2001) adopts a motivational framework to explain workplace behaviours on the basis of the direction, intensity, and intensity of behaviours (Landy, 1989; Pinder, 1984; Vroom, 1964). Although the model does not differentiate behaviours in terms of their intensity and duration, it is implicit that behaviours can differ in the level of effort exerted. And that, effort can be exerted in varying degrees of intensity, and over varying period of time (duration/ persistence). This would be consistent with Campbell et al (1993), who propose that performance is dependent upon an individual having the KSAs to perform a specific task (see figure 4.6) (c.f. Anderson, 1987; Borman, White & Dorsey, 1995; Kanfer & Ackerman, 1989; and McCrae & Costa, 1996). However “performance will not occur unless there is a choice to perform at some level of effort for some specified time. Consequently, motivation is *always* a determinant of performance” (p.45). Hence, Campbell (1990) argues the “direction, amplitude, and direction of volitional behaviour” (p.706) would be based on choices made by an individual relating to: a) choice to perform; b) choice over level of effort, and c) choice over persistence in effort.

Figure 4.6: Determinants of job performance components: Campbell, McCloy, Oppler, & Sager (1993)



For example, *Social learning* theory (Bandura, 1977) would indicate behaviours are determined by efficacy and outcome expectancies. Bandura (1977) proposed efficacy expectancies represent “the conviction that one can successfully execute the behavior required to produce the outcomes”, whereas outcome expectancies represents “a person’s estimate that a given behavior will lead to certain outcomes” (p.79). Existing research would indicate that there should be a strong association between self-efficacy and performance (Judge & Bono, 2001). Self-efficacy may influence workplace behaviours (Campbell, 1990) as it may influence an individuals choice about the type of behaviours undertaken, and how long they persist with such behaviours when they encounter obstacles (Locke, Frederick, Lee & Bobko, 1984; Wood & Bandura, 1989). Klein (1989) indicates that self-efficacy makes “people process, weigh, and integrate diverse sources of information concerning their capabilities, and they regulate their behavioural choices and effort expenditure accordingly” (p.167). Research (Bandura, 1977, 1986; Bandura & Cervone, 1986; Gist & Mitchell, 1992) has shown that an individual with high self-efficacy are more likely to expend more effort and/or spend more time on a task those with low levels of self-efficacy. Fisher & Ford (1998) indicate self-efficacy is related to the amount of effort (i.e. time spent) and type of effort (i.e. strategies used) devoted to

completed a task. Gist et al (1991) also suggests that individual's with high self-efficacy may also be more persistent and expend more effort (even when faced with initial difficulty). While individuals with low self-efficacy are likely to fail on a task as they cease expending effort earlier (Bandura, 1986, 1997). While in a training context, Ford et al (1992) report that self-efficacy was an important predictor of post-training behaviours.

Typically, models of training effectiveness (Noe, 1986; Martineau & Martinez, 1997; Colquitt et al, 2000; Tracey et al, 2001) have used expectancy theory (Vroom, 1964) to explain pre- and post-training behaviours. Expectancy theory of motivation indicates that a 'motivational force' is a function of *expectancy* (person's belief concerning whether they can acquire KSAs), *instrumentality* (person's perceptions that acquisition of KSAs will lead to a specific outcome), and *valence* (relative value placed on those outcomes). In a training context, Noe (1986) refers to this as either motivation to learn (the content of a training session), or motivation to transfer (the content of training back to the workplace. For example, Axtell et al, (1997) report motivation to transfer (which conceptually represents the direction, intensity and persistence to transfer training) was associated with post-training transfer behaviours at one month and one year after training.

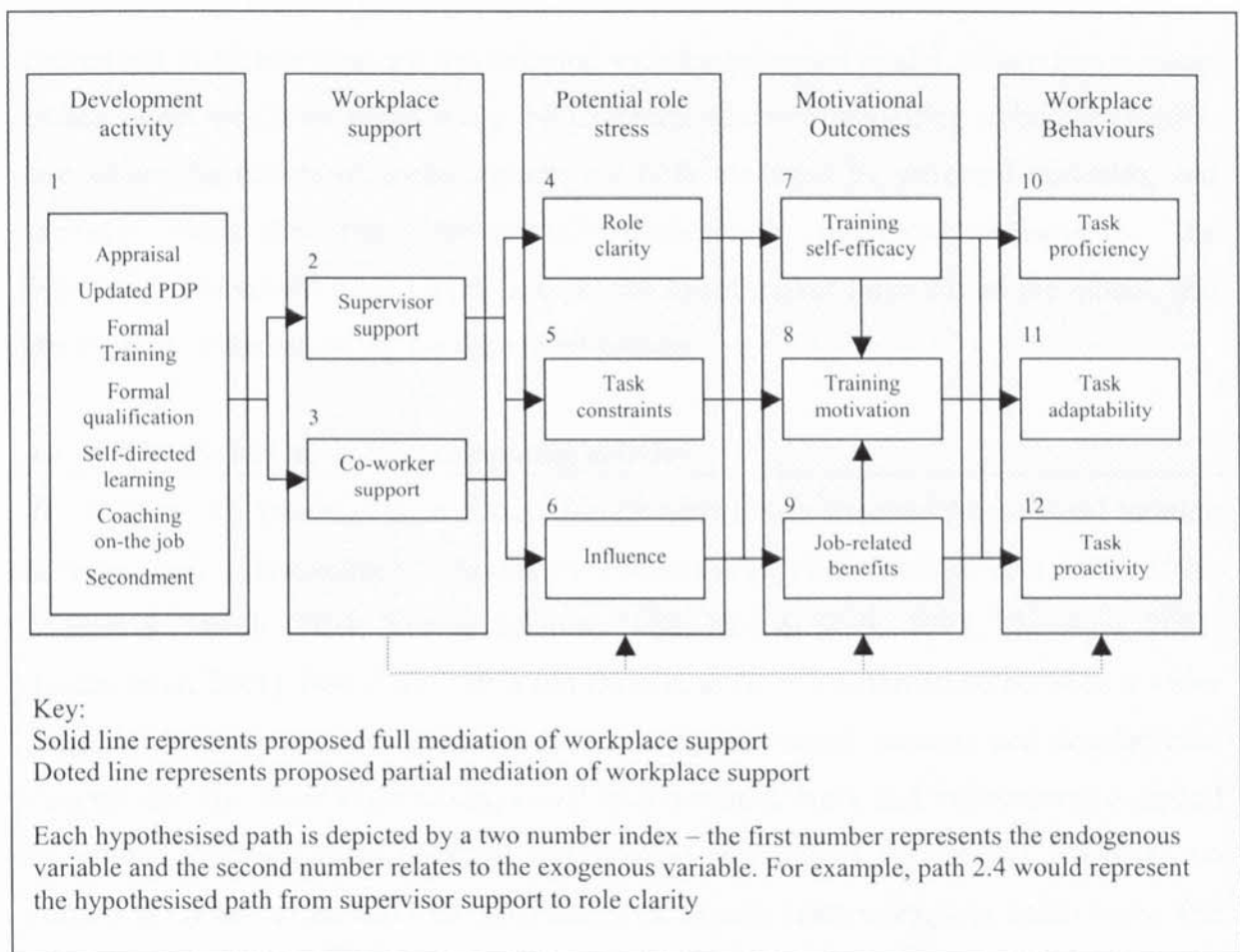
4.14 Gap in literature

The previous section has illustrated that work performance is multi-dimensional construct, and that are many ways to distinguish between different types of performance. This could reflect task performance (Campbell, 1990), contextual performance (Borman & Motowidlo, 1993, 1997), citizenship behaviour (Organ, 1997), personal initiative (Frese, et al, 1996), or adaptive performance (Hesketh & Neal, 1999). However, training research has largely not focused on such behaviours. The traditional focus has been upon how training has impacted upon task performance (Axtell et al, 1997; Brinkerhoff & Montesino, 1995; Gumuseli & Ergin, 2002; Facticeau et al, 1995; Smith-Jentsch et al, 2001; Xiao, 1996). Only one study (Kozlowski et al, 2001) has examined how training is related to a wider range of workplace performance – this study examined how training impacted upon adaptive performance in an air-traffic control exercise. Hence, a requirement for future research would be to examine whether workplace support, role stressors and motivational outcomes are associated with a range of workplace behaviours. The following section will outline a theoretical model developed following the review of literature reported in this chapter.

4.15 Theoretical model

Existing training research has utilised the *reaction*, *learning*, *behaviour change* and *results* classification of training evaluation (Kirkpatrick 1976) as a central tenet. However this classification has often been criticised for being simplistic (Holton, 1996). More complex training effectiveness models (Baldwin & Ford, 1988; Colquitt et al, 2000; Fecteau et al, 1995; Mathieu & Martineau, 1997; Noe, 1986; Tracey et al, 2001) have proposed support from a supervisor (Brinkerhoff & Montesino, 1995; Clark et al, 1993; Fecteau et al, 1995; Ford et al, 1992) or co-workers (Fecteau et al, 1995), task constraints (Ford et al, 1992), and motivational outcomes (Fecteau et al, 1995) could impact upon training transfer and workplace behaviours. Based upon a review of existing literature, a model was developed for study two (see figure 4.7).

Figure 4.7: Proposed relationships in study two



The model differentiates between *proximal* and *distal* variables (Kanfer, 1991; Katzell & Thompson, 1990) - for example, the model proposed that motivational outcomes are the most proximal variables to workplace behaviour. While support (from either a supervisor or co-workers) would be a distal variable, and that the effects of social support would be mediated by variables (such as motivational outcomes) more proximal to workplace

behaviour. The research attempted to integrate the results from previous studies to develop and test a model that examined possible factors which influenced workplace behaviours. Specifically, the model examined: a) the relationship between development activity (see Birdi et al, 1997; Warr et al, 1997) and support from a supervisor or co-workers; b) the link between support from either a supervisor or co-workers and potential role stressors (LeRocco et al, 1980); c) whether support from a supervisor or co-workers has a differential effect upon training outcomes (Facteau et al, 1995); d) the link between role stressors and motivational outcomes (Mathieu & Martineau, 1997), and e) the link between motivational outcomes and a range of workplace behaviours (Campbell, 1990).

The theoretical model tested is based upon Colquitt et al (2000), they propose the effects of the training climate on training outcomes (such as learning and behaviour change) would be either fully or partially mediated by variables more proximal (i.e. motivational outcomes). A similar strategy was adopted with the proposed model, where two variants of the model would be tested using the structural equation modelling technique. Firstly, one where the effects of social support are fully mediated by proximal variables, and secondly where the effects are partially mediated by the proximal variables. The following section will more clearly specify the hypothesised links within the model, and the theoretical underpinning for such relationships.

4.15.1 Theoretical model: Development activity

The focus of the training research has been towards KSAs acquired from formal training sessions, and/or development courses (see: Facteau et al, 1995; Mathieu et al, 1992; 1993; Maurer & Tarulli, 1994; Noe & Schmitt, 1986; Noe & Wilk, 1993; Tharenou, 2001; Tracey et al, 2001). Noe et al (1997) and Birdi et al (1997) differentiate between a wider range of development activity not only including traditional sessions and development courses, but also work experiences, social relationship at work and mechanisms designed to provide feedback about potential and progress (see page x for details). However, no current study has examined how such activities impact upon workplace behaviours. The study operationalised development activities as those that represent: a) mechanisms that identify training needs (appraisal), and which formulate specific plans to address such requirements (personal development plans); b) formal training courses and developmental opportunities (degree, external courses); c) self-directed learning activities which are work related (study leave); and d) experiences work at work which facilitate learning (such as receiving coaching on-the-job from a supervisor or co-workers, and secondment

to another department). It is proposed that each type of development activity will have a direct link with social support (c.f. Birdi et al, 1997; Maurer & Tarulli, 1994; Noe & Wilk, 1993; Noe et al, 1997). The theoretical model would propose that development activities are strongly associated with supervisor and co-worker support (paths 1.2, 1.3).

4.15.2 Theoretical model: Workplace support

Existing theoretical models of training effectiveness (see: Colquitt et al, 2000; Fecteau et al, 1995; Mathieu & Martineau, 1997; Noe, 1986; and chapter two of this thesis) have differentiated between two specific part of the work environment a) workplace support and b) task constraints that inhibit (or facilitate) the acquisition and transfer of KSAs (c.f. Rouiller & Goldstein, 1993; Tracey et al, 1995). The role these play in the training transfer process will be discussed in the following section. It was anticipated that respondents would change workplace behaviours (to incorporate newly learned KSAs) when they work within a supportive environment. This is based upon the findings of the meta-analytic review of Colquitt et al (2000), who report training climate was positively associated with transfer of training. However, Colquitt et al (2000) concluded:

“although recent research has examined climate and support, examination of situational characteristics remains surprisingly rare... research is therefore needed to identify the specific facets of climate, culture, and context that have the most positive relationships with motivation and outcomes” (p.700).

This is support by Fecteau et al (1995), who argue the type of support (i.e. supervisor or work colleagues) may impact upon the transfer process in subtly different ways. Hence, two types of support were identified, these related to:

- a) *Supervisor support* – the extent to which supervisors provide support, encouragement and advice relating to development activity.
- b) *Co-worker support* – the extent to which co-workers provide support, encouragement and advice relating to development activity.

The second facet of *environmental favourability* (Noe, 1986) relates to task constraints. For study two, consideration was given to the wider work role stress literature (Abramis, 1994; Karasek, 1979; LaRocco et al, 1980; Viswesvaran et al, 1999) than is typically reviewed within training research, and in study two work role stressors were measured in relation to whether respondents had:

- a) An understanding of their task requirements (i.e. role clarity);
- b) Influence over decisions effecting the tasks are performed (i.e. decision latitude); and,
- c) The available resources (mental and physical) to utilise KSAs (i.e. task constraints).

The model proposed that social support from either a supervisor or co-workers will have a direct influence upon role stressors such as role clarity (paths 2.4, 3.4), task constraints (paths 2.5, 3.5) and influence (paths 2.6, 3.6) (c.f. LaRocco et al, 1970). That is, the level of social support will determine whether the respondent has an understanding of their task requirements (paths 2.4, 3.4) (Abramis, 1994), has influence over decisions (paths 2.6, 3.6) (Axtell et al, 1997) or believes they have the resources (mental and physical) available to utilise KSAs (paths 2.5, 3.5) (Noe & Wilk, 1993).

4.15.3 Theoretical model: Motivational outcomes

Mathieu & Martineau (1997) identify three types of motivation constructs measured within training research, these related to: a) training self-efficacy (Bandura, 1986) beliefs about whether the respondent has the capability to overcome obstacles, and are able to utilise KSAs on-the-job; b) perceived job-related benefits (Clark et al, 1993; Noe & Wilk, 1993) about the outcomes attributable to the utilisation of KSAs; and c) training motivation (Noe, 1986) or the direction, intensity and persistence to utilise KSAs.

The proposed model included a direct path from role stressors (task constraints, role clarity and influence) to motivation outcomes. For example, training effectiveness models (Holton, 1996; Mathieu & Martineau, 1997; Noe, 1986) have predicted task constraints would have a *negative* impact on training outcomes such as training motivation (Facteau et al, 1995; Gist & Mitchell, 1992) or self-efficacy (Mathieu et al, 1993). Hence, task constraints should be associated with self-efficacy (path 5.7) or training motivation (path 5.8). In addition, task constraints may also influence whether an individual believes they will receive rewards if they use their KSAs (path 5.8). Secondly, the model proposed role clarity may impact upon motivational outcomes. For example, role ambiguity may result in people being less clear of the context in which they perform tasks, and as a consequence they may not fully understand what they have to do (Bandura, 1986), which could impact upon self-efficacy beliefs (Stajkovic & Luthans, 1998) (path 4.7). Role ambiguity may also weaken performance-outcome and effort-performance expectancies (Dubin, 1990) – thus where individuals have low role clarity they believe they will not be rewarded for using KSAs (path 4.9), which could then impact upon the direction, persistence and intensity of future behaviours (i.e. training motivation) (path 4.8). The demand-control model (Karasek, 1979) would indicate that even if perceived task constraints are also high, if an individual also has control (or influence) over the work environment then this may not have an adverse effect on self-efficacy beliefs (path 6.7)

(Butt & Cordery, 2001; Parker, 1988; Speier & Parker, 1997; Spring & Parker, 1999) or motivational outcomes (Parker et al, 2001), Hence, it could be that individuals who have more influence over decisions will report higher self-efficacy (path 6.7) and training motivation (path 6.8). It may be that individuals who have influence over decisions perceive that they will be rewarded for using KSAs (paths 6.9).

Social learning theory (Bandura, 1986) would indicate behaviour is based upon beliefs regarding ability to accomplish a task, and the consequence of such behaviour. Although self-efficacy and job-related benefits are motivational constructs (Mathieu & Martineau, 1997), existing research would indicate there should be a positive relationship between self-efficacy (Birdi et al, 1997; Colquitt et al, 2000; Noe & Wilk, 1993; Seyler et al, 1998; Tannenbaum et al, 1991), or perceived job-related benefits (Noe & Wilks, 1993; Clark et al, 1993; Tharenou, 2001) with training motivation (paths 7.8, 9.8). The model proposed that there may also be a partial mediation effect (cf. Colquitt et al, 2000) where social support has a direct effect on motivational outcomes. Previous research has reported a strong association between social support is strongly related with self-efficacy (Colquitt et al, 2000) (paths 2.7, 3.7), training motivation (Fecteau et al, 1995, Seyler et al, 1997) (paths 2.8, 3.8), and job-related benefits (Noe & Schmitt, 1993; Clark et al, 1993; Tharenou, 2001) (paths 2.9, 3.9).

4.15.4 Theoretical model: Workplace behaviours

Typically, training research has examined training transfer as the application of KSAs in a non-training context (Baldwin & Ford, 1988). Previous research has examined the frequency or breadth of behaviours performed (Ford et al, 1992) and behaviour change (Axtell et al, 1997; Brinkerhoff & Montesino, 1995; Fecteau et al, 1995; Gumuseli & Ergin, 2002; Smith-Jentsch et al, 2001; Xiao, 1996) rather than examining the *type* of workplace behaviours that have been initiated. This study examined how training and development activities relate to three types of workplace behaviours, relating to whether the respondent had: a) utilised of correct procedures (*task proficiency*); b) adapted to changes (*task adaptability*); and c) initiated changes (*task proactivity*) in the way their core tasks are performed.

Performance requires that an individual possess the appropriate KSAs to engage in a specific set of activities (Fleishman, 1972). However, others (Campbell, 1990; Campbell, et al, 1993) argue that an individual may possess the require KSAs, but performance also

involves choice over the type *and* degree of the activities an individual choose to engage. Expectancy theory (Landy, 1989; Pinder, 1984; Vroom, 1964) predicts behavioural choice or motivational force relates to the initiation, direction, intensity, duration and quality of work behaviours – training motivation (Noe, 1986) represents the direction, intensity and persistence to utilise training. Whereas, social learning theory (Bandura, 1977) would indicate that behaviour is a function of efficacy and outcome expectancies. Bandura (1977, p.79) defines outcome expectancies as “a person’s estimate that a given behavior will lead to certain outcomes”, whereas efficacy expectancies represent “the conviction that one can successfully execute the behaviour required to produce the outcomes”. For example, prior research would indicate self-efficacy was associated with the level of effort and persistence to complete a task (Gist & Mitchell, 1992; Fisher & Ford, 1998), and performance (Bandura, 1986; Judge & Bono, 2001; Kozlowski et al, 2001; Stajkovic & Luthans, 1998). Hence when respondents report high training motivation, believe they would be able to overcome potential obstacles (high self-efficacy), and that they will be rewarded for using KSAs (high job-related benefits), then respondents would be more likely to report they utilise correct procedures (*task proficiency*) (paths 7.10, 8.10, 9.10), adapt to changes (*task adaptability*) (paths 7.11, 8.11, 9.11), and initiate changes (*task proactivity*) to core tasks (paths 7.12, 8.12, 9.12).

The model proposed that social support could be related with workplace behaviours. For example, Ford et al (1992) report that social support was related with breadth of activities undertaken following training. This may be because this has created an environment within which the individual can enact such behaviours (Huczynski & Lewis, 1980). Alternatively, it could be that social support stimulates such behaviours. For example, research has shown a high quality relationship with a supervisor is related with extra-role behaviours (Deluga, 1995; Farh, Podsakoff & Organ, 1990; Podsakoff, Mackenzie & Bommer, 1996; Schnake, Dumlar & Cochran, 1993; Settoon, Bennett & Liden, 1996; VanYperen, van den Berg, & Willering, 1999; Wayne, Shore & Liden, 1997). This may be due to reciprocal norm (c.f. Blau, 1964) being constructed which “creates obligations toward another when that party has engaged in previous behaviour that was beneficial to the recipient. A recipient is indebted to a donor until the obligation is repaid” (Wayne et al (1997, p.86). Hence, it is proposed that when respondents receive support (& encouragement) from a supervisor or co-worker, they would report they utilise correct procedures (*task proficiency*) (path 2.10. 3.10), adapt to changes (*task adaptability*) (path 2.11, 3.11), and initiate changes (*task proactivity*) to their core tasks (path 2.12, 3.12).

4.16 Research questions: interaction effects

Noe (1986) proposed that situational or task constraints, which represent those elements of the environment that interferes with, or restrict an individual's performance. Training research has failed to establish a strong relationship between task constraints and training outcomes, unless they are perceived to be *severe* (Facteau, et al, 1995; Mathieu, et al, 1992, 1993). This study attempted to examine why individuals are able to overcome potential task constraints. Karasek (1979) proposed the demand-control model, where job demands represent work load or time pressures, and control relates to the ability of the person to control decisions within the work environment. Others (Bliese & Castro, 2000) have proposed that an understanding of current role requirements is also a measure of control, and could impact upon how an individual reacts to task constraints.

Within the demand-control model (Karasek, 1979) there are two main hypothesis (*strain* and *buffering* hypothesis) that can be drawn. These represent:

- a) *Strain* hypothesis: High strain jobs (high demands-low control) will be associated with the most adverse reactions to psychological strain and physical illness.
- b) *Buffering* hypothesis: There will be an interaction between demand and control, so that control will buffer the potential negative effects of high demands. Hence, although employees may have a heavy work load and are stretched, this may be associated with low strain (Karasek (1979), high intrinsic motivation (Van Yperen, in press), learning outcomes (Parker & Sprigg, 1999) and development experiences (Karasek & Theorell, 1990; Noe, et al, 1997).

There is a growing body of research that has shown social support could ameliorate the potential negative effects of stressors (Bliese & Castro, 2000; LeRocco, et al, 1980; Van der Doef & Maes, 1999; Viswesvaran, et al, 1999). Van der Doef & Maes (1999) indicate the *strain* and *buffering* hypothesis may be influenced by the level of social support an individual receives. In addition, they identify:

- a) *Iso-Strain* hypothesis: High strain jobs (high demands-low control) coupled with low social support will be associated with the most adverse reactions to psychological strain and physical illness.
- b) *Buffering* hypothesis: There will be an interaction between demand and control, so that control will buffer the potential negative effects of high demands. However, this will only occur in situations where social support (of work colleagues) is received.

In addition, Fecteau et al (1995) has reported that different sources of social support (i.e. supervisor or co-worker) may impact in different ways. Therefore, this study attempted to examine whether effects were attributable to the source from where support was received. However, no current study has tested for the *iso-strain* or *buffering* hypothesis within a training context on motivational outcomes.

4.17 Review of the chapter

In this chapter the empirical research that has examined the associations between training outcomes (Kirkpatrick, 1976) with workplace support, role stressors, job-related attitudes and motivational outcomes. These studies indicated that workplace support has been found to be an important antecedent to training outcomes. The discussion in this chapter highlighted a potential gap in the body of existing literature that has typically reported only a weak association between work demands and training outcomes. Reference was given to research (Karasek, 1979) that has identified the potential negative effects of work demands can be mitigated under certain circumstances. Such relationships have largely been ignored within existing training literature. Typically, training research has focused upon changes in *in-role* behaviours representing tasks as specified by a formal job description (Campbell, 1990), rather than *extra-role* behaviours or discretionary actions that facilitate the functioning of an organisation (Griffin, 2001).

Chapter five: Study one - establishing the link between HRM practices and patient mortality.

5.1 Overview of chapter

In this chapter details of the first study reported in this thesis will be described – this study was designed to examine the link between HRM practices and performance at the organisational level of analysis. The chapter will be divided into three sections. Firstly, a brief review of theoretical background of the research will be presented, and a series of research questions and hypothesis introduced. Secondly, details will be given of the methodology employed – this will cover the survey instrument used in the study, the Trusts that participated in the study, and describe how performance of NHS hospitals can be measured. Finally, the third section will report details of descriptive statistics, the analytical strategy employed, the main research findings, and the implications of these findings.

5.2 Theoretical background

Existing research presented in chapter two has established a link between HRM practices and organisational performance measured in relation to either profitability or productivity (Wood, 1999a). For example, Patterson et al (1997) report that HRM practices designed for *acquisition and development of employee skills* (selection, induction, training and appraisal), and job design (team working and job enrichment/enlargement) accounted for 19% of the variance in profitability and 18% of variance in productivity. However, to date there has been little research that has attempted to examine the association between HRM practices and performance outcomes in a healthcare setting. One of the few studies was conducted by Guest & Peccei (1992,1994). They report a weak association between personnel effectiveness and *human resource* outcomes (labour turnover and absenteeism) within 303 healthcare organisations. Hence, study one reported in this thesis attempted to address this gap in literature, and set out to examine the association between HR practices relating to training and appraisal and *organisational outcomes*, which were measured in relation to health outcomes (i.e. patient mortality).

5.2.1 Theoretical background: Research questions

The focus on training and appraisal practices has practical relevance to the NHS, and would offer evidence based findings to support the philosophy of promoting sound people management practices that attempt to *recruit, retain* and *develop* a high quality workforce (DoH, 1997, 2002). Key mechanisms identified to promote such outcomes relate to the lifelong learning and continuing professional development of the workforce. Ultimately, these may be influenced by the people management practices. For example, the *Working Together – Training Together* (DoH, 2001) document sets out a number of characteristics that could engender the facilitation of a *learning* environment within NHS Trust hospitals. These include the Trust having a coherent learning strategy, a system of appraisal and personal development planning, access to training resources, and Investors in People (IiP) accreditation.

Research question one: Training and appraisal related practices will be associated with improved health outcomes (i.e. lower patient mortality) within NHS Trust hospitals.

There is a body of research which has stressed the importance of *internal* fit or internal consistency between HR practices that mutually reinforce each other, where there is an *additive* effect (Baird & Meshoulam, 1988; Baron & Kreps, 1999; Barney & Wright, 1998; Becker & Huselid, 1998; Delery, 1998). That is, it could be that where Trusts display more of the identified characteristics of a *learning* environment, there could be an *additive* effect in addition to the effect which such characteristics have individually.

Research question two: There will be evidence of an additive effect, where NHS Trust hospitals that display a high number of training and appraisal related practices will display improved health outcomes (i.e. lower patient mortality).

There is a body of research which has stressed the importance of *external* fit between HRM and business strategy (Baird & Meshoulam, 1988). Guest (1987) differentiated between HRM (*proactive, strategic* and *integrated*, with a focus on maximum utilisation of its human assets), and personnel management (providing *short-term, reactive*, and *ad hoc* solutions). While, Wood (1999b) reports that the adoption of high-commitment HR practices was associated to the extent HR practices were related to the business strategy adopted (*institutional integration*) and whether there was board level representation (*strategic integration*). External fit may also impact upon performance outcomes – for example, Becker & Gerhard (1996) propose that there is a non-linear relationship between

HRM practices and organisational performance, and the full effects of HRM are not seen unless there is a link between HRM and business strategy.

Research question three: There will be evidence that the institutional integration of Human Resources with overall Trust strategy will be positively related with improved health outcomes in NHS Trust hospitals.

Board representation may impact upon initial strategy formulation, and role adopted by people management in the implementation of strategy (Sisson, 1995; Torrington & Hall, 1996). For example, Guest & Peccei (1992, 1994) identify board level representation as an important facet of HR effectiveness. Hence, it could be that there is a main effect – that is, it could be that Trusts with board representation will take a more active role in the formulation *and* implementation of practices relating to management of its human capital.

Research question four: There will be evidence that the strategic integration of the HR/Personnel function will be positively related with improved health outcomes (i.e. lower patient mortality) in NHS Trust hospitals.

Alternatively, it could be that board level representation for the HR/personal function will influence the effectiveness of HR practices. For example, board representation could signal the relative importance of HR within the Trust (c.f. Audit Commission, 2000), possibly via taking a more active and visible role in the implementation of practices relating to management of its human capital (c.f. Guest & Peccei, 1992). For example, in the document *Working Together – Training Together* (DoH, 2001) it is identified that an important characteristic of a *learning* organisation is the presence of a person to act as *champion*. Hence, it could that although a Trust has a range of HR policies and practices in place, these are not properly implemented unless there is a person to act as a *champion* (DoH, 2001) to ensure that they are effectively implemented.

Research question five: There will be evidence that the strategic integration of the HR/Personnel function will influence the association between training and appraisal practices and health outcomes in NHS Trust hospitals.

5.2.2 Theoretical background: Study hypothesis

Hypothesis 1: There will be evidence of lower patient mortality amongst NHS Trust hospitals which have greater institutional integration between HRM practices and overall Trust strategy.

Hypothesis 2: There will be evidence of lower patient mortality amongst NHS Trust hospitals which have board level representation for the HR/personnel function.

Hypothesis 3: There will be evidence of lower patient mortality amongst NHS Trust hospitals which:

- a) Have achieved IiP status;
- b) Have a written strategy document relating to training and development;
- c) Have tailored training policy documents;
- d) Have more frequent assessment of training needs;
- e) Have integrated training and appraisal practices;
- f) Have a high percentage of staff who have received an appraisal;
- g) Have more frequent appraisals;
- h) Have a high percentage of staff who have received an updated Personal Development Plan.

Hypothesis 4: There will be evidence of lower patient mortality among NHS Trust hospitals that have board level representation for the HR/personnel function, and which:

- a) Have achieved IiP status;
- b) Have a written strategy document relating to training and development;
- c) Have tailored training policy documents;
- d) Have more frequent assessment of training needs;
- e) Have integrated training and appraisal practices;
- f) Have a high percentage of staff who have received an appraisal;
- g) Have more frequent appraisals;
- h) Have a high percentage of staff who have received an updated Personal Development Plan.

Hypothesis 5: There will evidence of an additive effect, where NHS Trust hospitals which adopt a high usage of training and appraisal related practices will be associated with improved health outcomes (i.e. lower patient mortality).

Hypothesis 6: Board representation will moderate the additive effect of training and appraisal related practices upon health outcomes.

5.3 Methods

In the following section the methods employed in study one reported in this chapter are described. The research instrument used is discussed, details of the specific scales used in the study provided, and the analytical approach adopted with details of analysis conducted to examine a) the relationship between and b) the impact of control measures upon the scales used in the study are outlined.

5.3.1 Methods: Study design

The study reported in this chapter was cross-sectional in design, with data collected from multiple sources. The research reported in this chapter represented phase one of the *Organization, management and effectiveness in NHS Trusts* research project conducted by *Aston Centre for Health Service Organization Research* (ACHSOR). First, information relating to HRM practices was gathered directly from representatives from the NHS Trusts – this process is reported in chapter five. Second, information relating to performance outcomes was collected from external sources either directly from NHS sources (www.doh.gov.uk), or existing measures of performance (see: Jarman et al, 1999). The following section will outline the procedure used to collect information relating to HRM practices – this will include details of the research instrument. This will then be followed by details of the measure of hospital performance (patient mortality) utilised in the statistical analysis reported in this chapter. It is important to acknowledge that hospital performance can be influenced by a variety of factors (not only HRM practices) – hence, this section will identify potential factors which could impact upon health outcomes, and were subsequently controlled for in the statistical analysis reported in this chapter.

5.3.2 Methods: Access to Trusts for study one

Data was collected for study one between June 1999 and August 2000. Firstly, a list of NHS Trusts providing Acute services was obtained from Binley's NHS directory – from this the person responsible for HR/Personnel was identified. Where the name of the Director of HR/Personnel was listed, this was the initial contact person. However, where no details were present, the Chief Executive of the Trust was used as the initial contacted point. Two approaches were adopted to gain access to the Trusts. Firstly, a letter was sent to either the Chief Executive, or Director of HR/Personnel of all NHS Trusts in England providing acute services. This letter (see appendix two) described the nature of the research, and who was conducting the research (ACHSOR). This letter was accompanied

with an additional letter from Steve Barnett (NHS Executive Deputy Director for HRM). This letter informed the Trusts that the project was being supported by the NHS executive, and encouraged the Trusts to participate in the research project (see appendix three). In addition to the letters, the Trusts were also sent a document that described the nature of, and reason for the project being conducted (see appendix four). Where a Trusts responded that there were interested in participating in the research project, a member of the research team then contacted the initial contact person via telephone to discuss in greater detail the reason for the project, and the process by which the research was to be conducted. For Trusts which had not responded to the initial letter, a follow up letter was distributed. Again, this included details of the research project and details of why the project was being conducted. Due to a initial poor response with this strategy, a more proactive strategy was also adopted. Those Trusts which had been contacted, but which had not responded to the initial letter(s) were then directly contacted by a member of the research team. During this conversation the contact person was given more details about the nature of the project, and the process by which the project would be completed.

After this consultation process, 81 NHS Trusts agreed to participate in the study. Analysis was conducted to examine whether there were significant differences (in relation to size, and patient mortality) between those Trusts who participated and those who did not participate in study one. This analysis conducted indicated the sample was representative – the mean hospital income was £90 million, this compared with a mean income of £86 million ($p = .49$) for all NHS Trusts in the UK. During the time which the study was conducted 18 Trusts had merged, accordingly it was not possible to use this data in the analysis reported in this chapter. In addition, one Trust was too small to provide data on the outcome measures and one failed to supply sufficient data for inclusion in the sample. This resulted in reduction in the final sample to 62 Trusts.

Once a Trust had agreed to participate in the study, the representative from the Trust was sent a copy of the research instrument (see appendix five). The representative was then given the option of completing the survey with a member of the research team over the telephone, or self-completion of the survey and then returned it via the postal system. In total, thirty-one of the surveys were completed as a telephone interview, and where necessary additional detailed numerical information was provided separately when required. The remaining NHS Trusts ($n=30$) self-completed the survey – the cover sheet of the survey included section relating to who had completed the survey. For self-

completed surveys more people within the Trusts provided information, however, more junior members of staff were only responsible for completing the factual elements of the survey. Analysis was conducted to examine the job title of the representative(s) who completed the survey. This would indicate that most surveys were completed either the Chief Executive, Personnel/HR Director or associate HR Director. However, there was no evidence that the position of the person who completed the survey varied according to whether the survey was completed via a telephone interview or self-completed.

5.3.3 Methods: The research instrument

The research reported in study one was part of large scale research project sponsored by an NHS regional office designed to examine the link between HRM practices and performance. Specifically, the survey was designed to elicit information about:

- a) The type of HRM practices used;
- b) How HRM practices are linked with business strategy;
- c) How HRM practices are implemented in the Trust, and the sophistication of the approaches adopted within the Trust; and
- d) The impact of HRM practices on different occupational groups – doctors, nurses and midwives, Professions aligned to medicine (PAMs), ancillary staff, professional and technical staff (P&T), administration and clerical staff and managers.

The research instrument comprised 67 questions, and covered 10 areas relating to: a) basic information about the trust; b) Trust strategy and HRM; c) recruitment and selection; d) training; e) harmonisation; f) job security; g) reward and flexibility; h) job design and team working; i) involvement and decision-making, and j) appraisal. Appendix five shows the research instrument. The study reported in this chapter focused on a small part of the data collected. The following section will report details of the scales used in the analysis, and the theoretical reasoning for gathering such information.

Integration of HRM practices: Study one examined the influence of the *institutional* and *strategic* integration of HR on health outcomes. *Institutional integration* represented the extent to which HR practices were integrated with the overall strategy of the Trust. In study one the respondents were asked, on a five point scale ranging from *strongly disagree* to *strongly agree*, to what extent did they agree the statements:

- 1) Human resource policies are deliberately integrated with Trust strategy;
- 2) Human resource personnel are a key influence in setting HR strategy;
- 3) Human resource strategy is distinct from the business strategy;

- 4) Human resource strategy has an insufficient input-influence on the Trust's general strategy.

Strategic integration: Representation of the HR/personnel function at Board level may also be a measure of strategic integration. Trust were asked to indicate (either Yes or No) whether there was board level representation for the function. Initial analysis would indicate an equal split within the sample between Trusts who had (n=31), and who did not have (n=30) Board representation for the HR/personnel function.

The following section will outline details of the HRM practices (training and appraisal) examined in study two. This will examine in greater details individual elements relating to either training and appraisal, and includes an outline of why such a practice might be relevant and how this aspect of training or appraisal was measured in study one.

Training: In study one several measures of training were examined. These related to:

- **Investors in People (IiP) status:** Investors in People (IiP) is a competency based national quality standard introduced to provide a framework against the sophistication and extensiveness of people management practices could be assessed. The focus of IiP is the sophistication of training practices, where organisations are rated against four main principles (commitment, planning, action and evaluation) measured via 12 performance indicators (see appendix one). In study one, respondents were asked whether the Trust: a) had achieved IiP status; b) currently preparing for IiP accreditation, or c) not considering IiP status.
- **Presence of a training strategy document:** The government has placed emphasis upon modernising the NHS. One of the mechanisms proposed to facilitate this is the notion of lifelong learning (DoH, 1997, 2000, 2001). The presence of a strategy document is considered to be a characteristic of a successful 'learning' organisation (DoH, 2001). Specifically, the presence of a training strategy document would imply that the Trust placed greater emphasis upon training, and has explicitly sort to clarify the link between training and other HRM policies (i.e. appraisal) designed to improved the KSAs of the workforce (c.f. Tannenbaum & Yukl, 1992). In study one, Trusts were asked whether there was a strategy document that specifically related to training and development activities – responses were given as either Yes or No.

- Access to a tailored training policy for each occupational group: The Trusts were asked whether each occupational group had access to a tailored and formal written statement about training policy and entitlements. This was recorded as either Yes – No for each occupational group. Details of a training policy tailored for specific groups rather than for all employees was measured because the training needs for different occupational grouping will be substantially different by virtue of the different tasks they are required to perform (DoH, 1999, 2000). The overall sophistication of training policies documents was determined by calculating the mean score across all occupational groups – accordingly, Trusts that responded they had tailored training policies for all occupational groups were considered to have the most sophisticated training policies.
- Frequency of training needs assessment (TNA): TNA is an integral component of the ISD approach to training (see: Goldstein, 1991). This a systematic approach to training, where the analysis of training needs drives the content, design and subsequent evaluation of a training intervention (see: Goldstein, 1991; Salas, et al, 1999; Tannenbaum & Yuhl, 1992; Kozlowski & Salas, 1997). The needs assessment process consists of three components: organisation, task and person analysis (see: McGhee & Thayer, 1961). Task analysis relates to the identification of the relevant KSAs required to perform a specific task, whereas person analysis results in the identification of a) who requires training *and* b) what training is required. In study one, the Trusts were asked to indicate the frequency TNA occurred for each occupational group. Details of the frequency of TNA for specific occupational grouping was examined, as it is likely that the training needs for different occupational grouping will be substantially different by virtue of the different tasks they are required to perform (DoH, 1999, 2000). Frequency of TNA was measured on a four point scale ranging from every 3 months to bi-annually and the scale also included a never option. The overall sophistication of TNA was determined by examining the responses given for each occupational group. Trusts which indicated more frequent assessment of training needs for all occupational groups were considered to display the most sophisticated training needs assessment policies.
- Integration of training and appraisal: Goldstein (1993) highlights that the content of a training intervention should be influenced by the systematic analysis of the organisation, task and employee. This analysis should identify whether training will be supported (*organisational analysis*); what should be included in the training session

(*task analysis*), and what training is required (*person analysis*). In study one the respondents were asked, on a five point scale ranging from *strongly disagree* to *strongly agree*, to what extent did they agree the statements:

- 1) Training activities are planned and designed systematically;
- 2) Training activities complement other HR activities such as selection and appraisal;
- 3) The Trust conducts thorough analysis of the effectiveness of its training activities;
- 4) The performance review/appraisal process includes mechanisms which help identify potential training needs of staff members.

Appraisal: In this study, the sophistication of appraisal practices was examined because the appraisal process is linked with developmental activity (Noe et al, 1997). Goldstein (1992) refers to person analysis, and the process whereby the organisation identifies whether employees need training and what kind of training is required. For example, Noe et al (1997) highlight the assessment of (current) KSAs will “stimulate a person to engage in other types of developmental activities designed to strengthen skills, behaviours, or attitudes” (p.159). Such mechanisms could include the appraisal process – in this study the sophistication of the appraisal process was measured on 3 dimensions: a) coverage of appraisal; b) frequency of appraisal, and c) coverage of personal development plans.

- Coverage of appraisal: Trusts were asked to indicate the percentages of staff from each occupational group who had received an appraisal in the previous 12 months. The overall coverage of appraisal was determined by examining the responses given for each occupational group. Trusts which indicated a high percentage of appraisal across all occupational groups were considered to display wider coverage of appraisals.
- Frequency of appraisal: Trusts were asked to indicate the frequency with which these appraisals occurred. This was rated on a scale of bi-annually, annually, every six months, every six months, every three months or never. The overall frequency of appraisal was determined by examining the responses given for each occupational group. Trusts which indicated more frequent appraisal across all occupational groups were considered to display more frequent appraisals.
- Coverage of personal development plans (PDPs): PDPs Trusts were asked to indicate whether the appraisal had resulted in the updating of a personal development plan (PDPs). Responses were then considered across each occupational group. Trusts which reported a high percentage of updated PDPs across all occupational groups were considered to display wider coverage of PDPs.

5.4 Performance measurement of NHS hospitals

Study one reported in this thesis examined the association between HRM practices and hospital performance. Accordingly, it is necessary to identify what should constitute performance for an NHS hospital. Typically, researchers have investigated the impact of HRM practices on a range of performance outcomes. For example, Dyer & Reeves (1995) identify performance can be measured in relation to a variety of outcomes: a) human resource outcomes (*absence, labour turnover*), b) organisational outcomes (*productivity and quality*), c) financial outcomes (*return on assets and profitability*) and d) market outcomes (*stock market price, growth on returns*). However, performance measurement should be concerned with *what* an organisation does, and *how* this has been accomplished (Ballentine, Brignall & Modell, 1998). Hence, the majority of the outcomes identified by Dyer & Reeves (1995) are not relevant to the performance of an NHS hospital.

5.4.1 Performance measurement of NHS hospitals: Historical overview

The National Health Service (NHS) was established in 1948 with the objective of providing a universal, comprehensive and fair system of healthcare, where access based on need not on ability to pay or geographical location. However, as Carter (1991, p.96) identifies, the NHS is a complex organisation characterised by:

“heterogeneity, complexity and uncertainty. That is, it is a multi-product organisation, which has to mobilise a large case with a high degree of interdependence between the different actors and where the relationships between the activity and impact is often uncertain. It is not always clear who ‘owns’ the performance; the activities of the NHS are only one of many factors influencing the health of the population”

The following section will provide a brief overview of how the performance of NHS hospitals has previously been assessed. Information on hospital performance was initially collected on dimensions relating to *patient admissions, length of patient stay, number of outpatients, rate of discharge, bed availability* and *waiting lists*. However, Jowett & Rothwell (1988) report that there was little effort to systematically use the data collected to measure (and compare) hospital performance. However, this altered in the 1970s with the NHS Re-organisation (Department of Health & Social Security – DHSS), which attempted to promote greater *upward* political accountability for hospital performance, and *downward* service planning (Rande, 1995). This was related with more systematic utilisation of routinely collected performance data, with greater emphasis placed upon the quality of service provided and value for money.

The measurement of hospital performance became more sophisticated in the 1980s with the introduction of specific performance indicators (PIs) relating to the areas of *finance, manpower, ambulance services, estate management* and *bed activity* following the Griffith Report (DHSS, 1983). The data collected from such PIs became central to the performance league tables that became prevalent in the 1990s, which became the focus of initiatives such as the Patients Charter which allowed for the comparison of hospitals on dimensions such as hospital waiting times. The shift towards performance league table occurred as a consequence of major changes to health care provision at the beginning of the 1990s. In 1989 the *Working for Patients* white paper (which later became the *NHS and Community Care Act*) led to the creation of an internal market, where Health Authorities, Hospitals and General Practitioners (GPs) entered into purchaser-provider relationships. This saw the creation of an internal market where Health Authorities were allocated funding from central government to purchase healthcare provision for the local population (DoH, 1989, 1991). Health Authorities were no longer directly responsible for the provision of healthcare as this was taken over by hospital providers which were able to gain independent *Trust* status, which allowed for more autonomy in the way in which specific hospitals were managed (see Paton, 1999).

DoH papers *The New NHS: modern, dependable* (1997) and *Working Together: securing a quality workforce for the NHS* (1998) have emphasised the modernisation of the NHS, with the stated aim of providing effective and appropriate healthcare when required. This has resulted in the annual collection of a comprehensive set of health service performance data. As part of the performance assessment framework (NHS Executive, 1999), these included the collection of *clinical indicators* and *high level performance indicators* relating to six areas of performance: a) *health improvement*; b) *fair access*; c) *effective delivery of appropriate health care*; d) *efficiency*; e) *patient/carer experience of the NHS*; and f) *health outcomes of NHS care* (see figure 5.1) (c.f. Donebedian, 1980; Maxwell, 1992). The NHS Executive (1999) proposed that:

“the circular presentation reinforces the inter-dependence of the six areas. From an initial view of the health of the diverse communities of the local population under consideration (*Health Improvement*), we need to ensure that everyone with health care needs (*Fair Access*) receives appropriate and effective health care (*Effective Delivery*) offering good value for money for services (*Efficiency*) as sensitive and convenient as possible (*User/Carer Experience*) so that good clinical outcomes are achieved (*Health Outcomes of NHS Care*), to maximise the contribution to improved health (back to *Health Improvement*)” (p.5).

Figure 5.1: NHS Performance Assessment Framework.



Source: NHS Executive (1999) Performance Assessment Framework: Quality and performance in the NHS – High level performance indicators.

However, improvement in health outcomes represented the ultimate goal of health care provision (NHS Executive, 1999). Health outcomes (or health gain) are typically measured in relation to patient morbidity and mortality. For example, the NHS executive (1999) identify that reducing deaths from cancer and heart disease was a national priority in the *Our Healthier Nation* green paper. Hence, *higher level performance indicators* (i.e. health authority level) are collected for:

- Death from all cause mortality ratio (ages 15-64) or (65-74).
- Cancer registration.
- Deaths from cancer (people aged under 75).
- Deaths from circulatory diseases (people aged under 75).
- Suicide rates.
- Deaths from accidents.

Such data would provide details of the relative health outcomes of the local area within which a NHS trust hospital is located. Whereas, *clinical indicators* relate to health outcomes within specific NHS trust hospitals on dimensions relating to:

- Death within 30 days of surgery (non-elective admissions) per 100,000 patients
- Death within 30 days of a heart bypass operation per 100,000 patients
- Death within 30 days of admission to hospital with a fractured hip per 100,000 patients
- Death within 30 days of admission to hospital with a stroke per 100,000 patients

These *clinical indicators* relate to specific health outcomes. An alternative and more general measure of patient mortality was developed by Jarman, et al (1999). Patient mortality is stratified by the patients' age, gender and primary diagnosis (based on 85 primary diagnosis) and then standardised to produce a figure which can be used to compare the level of mortality in different hospitals. Patient mortality is calculated as the ratio of actual deaths to expected deaths multiplied by 100. Jarman et al (1999) report the mortality measure was initially developed on data collected to covered the period 1991 to 1995. Within this time 7.65m admissions (85% of total hospital admissions during this period) were considered – the average standardised mortality ratio within hospitals fell from 104.9 to 97.0, representing a decrease of on average 2.6%. Jarman et al (1999) report that lower patient mortality was associated with:

- a) a high number of doctors per 100 beds;
- b) a high number of general practitioners per 100,000 population;
- c) a low percentage of emergency hospital admissions (health authority level);
- d) a high number of NHS facilities per 100,000 population, and
- e) a lower rate of discharge to local residence.

Indeed, Jarman et al (1999) calculate that a reduction of 5000 deaths per annum could (theoretically) be achieved by an increase of 9000 additional doctors (27% increase), or 2300 additional general practitioners (8.7% increase). Jarman and colleagues continued to collect this data for each subsequent years, hence this represents one of the few measures of hospital performance which has remained constant over a period of time. Due to the consistency in the way patient mortality has been calculated over a period of ten year, this was used as the dependent variable in study one reported in this thesis. The data relating to HRM practices was collected in 1999-2000.

Patterson et al (1997) propose that the effects of HR practices (i.e. improvement in outcome measure) may start to become evident 18 months after HRM practices were assessed. Therefore, patient mortality data for 2000/01 was employed as the dependent variable in study one because the association between HRM practices and health outcome is not likely to be immediate. Using the logic proposed by Patterson et al (1997) it could be expected that HRM practices may be related to a reduction in patient mortality as early as 2000-01.

5.4.2 Performance measurement of NHS hospitals: Comparison of NHS Trusts

The NHS Executive (1999) identified that the data collected on the specific performance indicators can be used for a variety of purposes, these could include:

- To provide information to the public about performance in their local health services
- As the basis for benchmarking performance of NHS organisations across the six areas of the framework
- To encourage the sharing of comparative information between NHS organisations
- To promote the spreading of good practice within the NHS

However, comparison of NHS Trust hospitals on such dimensions is extremely dangerous if full consideration is not first given to the potential factors that could influence how an NHS hospital performs relative to other hospitals. Indeed, Allen, Harley & Makinson (1987) offer the criticism that performance measures typically fail to compare 'like with like'. This criticism is shared by Waring (2000, p.14), who argued that:

"this is a problematic pursuit because every hospital exists and performs within a particular organisational and social context. For example differences in the local health profile will determine the work pattern of the hospital and this may have an impact upon specific waiting times or bed occupancy.... A crude example exists in the case of lengths of stay. A hospital may be seen to have shorter lengths of patient stay, possibly indicating greater organisational efficiency and streamlined processes. However, without considering the demands on the hospital and the outcomes of the services this information is worthless. For example, patients may be discharged too quickly leading to re-infection, therefore requiring readmission to hospital".

Waring (2000) indicates political demands may impact upon performance. For example, the desire to reduce patient waiting time. This could lead to the assessment that a Trust is performing well on this particular performance indicator (i.e. waiting times). However, this may be due to some other factors (such as the general health of the local population) that is beyond the control of the Trust. Researchers (Fuchs, 1973; McKeown, 1979; Muldoon, Barger, Flory & Manuck, 1998) have argued hospital performance is

influenced by socio-economic factors within the local environment. For example, there may be variations in the level of demand placed upon NHS hospitals, and differences in the type of services required in different parts of the country. Hence, it is important to consider the multitude of factors that could impact upon hospital performance.

Waring (2000) proposed an input-process-output model of hospital performance. Specifically, Waring (2000) identified three input factors, required for a hospital to function. These being: a) human, b) technical and c) financial resources. For example, human resources represent the employees who work within the hospital, and who provide the necessary services to ensure that the hospital continues to function. Indeed, the DoH (1999) report staffing costs account for the largest proportion of NHS expenditure. Therefore, if a hospital does not have sufficient human resources it is likely that it would provide a worse service to its patients. Waring (2000) identifies technical resources relate to the physical work environment or technical equipment available within the hospital. Hence, if a hospital does not have sufficient beds to cope with demand, this will undoubtedly impact upon performance criteria such as waiting times or health outcomes. Finally, Waring (2000) identifies financial resources could influence the level of facilities (infrastructure, and equipment) within which patient care is provided – this in turn would likely greatly impact upon the performance of the hospital.

5.5 Control variables

An NHS hospital is a complex organisation, and there are a vast array of factors that could potentially influence the health outcomes of an NHS hospital (see: DoH, 2000; Jarman et al, 1999; Waring, 2000).

Hence, the following section will discuss in more details the possible factors which could impact upon health outcomes. These factors were subsequently considered as control variables in the statistical analysis conducted in study one reported in this thesis.

- *Number of doctors per 100 beds:* Jarman et al (1999) report that the doctors per 100 beds displayed a strong association with patient mortality. They speculate that a low number of doctors per beds may be associated with high clinical workloads, which in turn may be associated with unsafe acts and risk taking by doctors (c.f. Vincent, 1998). This could then impact upon death rates. Hence this would indicate that Trusts with more doctors per 100 beds should report lower patient mortality.

- *Number of General Practitioners per 100,000 population:* Jarman et al (1999) report the number of General Practitioners (GPs) in the local vicinity was associated with lower patient mortality. GPs typically represent the initial access point to the health service – according it could be that where there are more GPs, potential illness could be detected sooner, and patients are then referred to hospital for treatment sooner. Jarman et al (1999,p.1518) state that when GPs “are relatively overworked the patients whom they send to hospital may be relatively sicker; and in these areas patients are more likely to be admitted as emergencies”. One of the main performance indicators is the early detection and diagnosis of illness such as cancer, hence it is possible that where patients have access to a GPs they will be referred to hospitals sooner. Hence patient mortality within hospitals could be decreased.
- *NHS facilities in hospitals catchment area:* Jarman et al (1999) report the number of NHS facilities in the local area was strongly associated with patient mortality. Jarman et al (1999,p.1518) state “where there are more NHS facilities, hospices and local authority or nursing home places available, patients are more likely to be discharged to one of these for recovery and any deaths that follow would not be in hospital... where these facilities do not exist patients are more likely to remain in hospital to die”. This would indicate that the availability of NHS facilities was associated with the relative demand placed the hospital. Hence, this would indicate that Trusts with more local NHS facilities in the catchment area should report lower patient mortality (due to lower demand).
- *Effective delivery of appropriate healthcare - live discharge to patients home:* Jarman et al (1999) report a positive relationship between live discharge rates and patient mortality. The NHS Executive (1999) identify discharge rates as a measure of effective delivery of appropriate healthcare. They state there is a clear link with “the availability of community health services, social care and family support.” Hence this could represent a measure of the co-ordination between the Trusts and other NHS facilities. This would indicate that Trusts that are able to discharge patients more quickly to their normal place of residence are more efficient. However, the positive association between discharge rates and mortality reported by Jarman et al (1999) could also reflect early discharge rates being associated with readmission rates and an increased subsequent death rates (c.f. Waring, 2000).

- *Trust size:* The relative size of the Trust may impact upon the services offered by the Trust (and hence health outcomes). Paterson et al (1997) used a measure of financial income as a control measure of manufacturing firms, and in this is a common control measure across other studies. It could be that a Trust with a larger budget may have the financial resources to provide services beyond the scope of smaller hospitals and employ more staff or offered enhanced terms and conditions to attract (and retain) a high quality workforce.
- *Hospital efficiency:* As part of the NHS performance framework (NHS Executive, 1999), hospital efficiency or the ability of the Trust to ensure effective healthcare was delivered with minimum waste was an important measure of hospital performance. Hospital efficiency may be related to patient mortality because hospital resources are finite. Hence, it could be that when Trusts are more efficient at providing healthcare, they are able to treat more patients, potential life threatening illnesses are detected earlier, which results in lower patient mortality. Patient mortality may also be affected by the relative efficiency of the hospital – hence two measures of efficiency were examined. These were: a) the number of finished consultant episodes (FCEs), or the number of resolved cases seen within the Trust, and b) day case rate, or the number of treatments that do not require overnight stay.
- *Fair access:* As part of the NHS performance framework (NHS Executive, 1999), waiting times represent a measure of fair access. In study waiting times were measured via the percentage of inpatients seen within 13 weeks of initial referral. It could be when more patients are seen within the 13 weeks of referral, patients could receive healthcare treatment sooner, have a greater chance of recovery, and as a consequence patient mortality is reduced because patients in ill health are seen quicker.
- *Health outcomes - emergency admissions:* Jarman et al (1999) report emergency admissions were negatively associated with patient mortality. They indicated “some hospitals may admit relatively higher percentages of less sick patients because they have lower thresholds for admission (p.1518)”. That is, they do not have the capacity to admit patients unless they are emergency patients. However, this may also reflect the relative ill-health of its patients or local health authority. It could be that a Trust with a high number of emergency admissions receives patients in worse health when they arrive at hospital, and as a consequence they report high patient mortality.

- *Health outcomes within the local Health authority:* The location in which the Trust is located is likely to influence the health outcomes of the local population (c.f. DoH, 2000). The DoH (2000) attribute regional areas with titles such as: ‘most prosperous’, ‘mining and coalfields’ or ‘service industry’. These represent socio-economic variations within each region which may influence the relating demand placed on NHS resources. For example, it could be that people with most prosperous areas (such as the South East) are more likely to have access to private health care – therefore, the relative demand placed on NHS Trusts within these areas is lower. To account for potential socio-economic variations, *higher level performance indicators* (NHS Executive, 1999) relating to Health Authority level health outcomes (i.e. death rates from all causes) were collected. These represent the relative health of the general population within the area where the NHS Trust is located. Hence, it may be that mortality is generally high in within the local Health Authority, and not only within a specific NHS Trust. In this study standardised Health Authority death rates (age 16-64) from all causes was used as a control measure. The DoH (1999, p.20) state this gives a broad guide “to the relative health status of health authority populations in the context of wider influences on health”.

5.6 Results

In the following section details will be given of the response rate, mean scores and reliabilities of the HR practices relating to training and appraisal measured in study one. This will be followed by presentation of the correlation matrix to illustrate the relationship between a) HRM practices and b) control measures and patient mortality. Then, analysis will be reported which attempted to answer the research questions (and hypothesis) posed at the start of this chapter.

5.6.1 Results: Response rate

In total survey data was collected from 82 NHS Trusts. However, due to trust mergers between the time of data collection and data analysis the final sample was reduced to 61 trusts. There was a large amount of missing data within the survey completed by the 61 Trusts, where the respondent(s) from the Trust(s) could not provide or expressed difficulty providing details for specific questions. Indeed, only 22 trusts provided details to all of the areas investigated within study one reported in this thesis. The following section will provide details of descriptive statistics (frequencies and mean scores) for the specific areas of training and appraisal practices investigated in study one.

Institutional integration: All the Trusts in the final sample provided details relating to the institutional integration of the HR function with business policy. The mean score on this variable was 4.087. Reliability analysis was conducted, and this would indicate that the scale items for institutional integration formed a reliable scale (alpha .6512).

Board representation for the HR/personnel function: All the Trusts in the final sample provided details relating to board representation. 30 (49.2%) responded *yes* to indicate that there was board level representation.

Investors in People (IiP) status: In total 60 trusts provided details of the Trusts current IiP status - 21 Trusts had achieved the IiP standard (35%), 20 Trusts were either working toward the IiP standard, and 19 Trusts were not currently considering obtaining IiP.

Training strategy: In total 52 Trusts responded to the question “*Is there a documented training and development strategy for the Trust?*”. Examination of the responses given would indicate that 33 (65.3%) responded *yes* to indicate that the Trusts had a strategy document relating to training and development.

Access to a tailored training policy for each occupational group: Examination of the responses given by the Trusts would indicate 35 of the 51 Trusts (68.6%) indicated that there were tailored training policies for each occupational group. Reliability analysis was conducted, and this would indicate that this formed a reliable scale (alpha .9540).

Frequency of training needs assessment (TNA): Examination of the responses given by the Trusts would indicate there was comparatively small variation on the frequency of training needs analysis, as 36 of the 48 Trusts (73.5%) reported TNA occurred on an annual basis. Reliability analysis was conducted, and this would indicate that this formed a reliable scale (alpha .9424).

Integration of training and appraisal: In total 53 Trusts provided details to the four questions relating to integration of training and appraisal. Examination of the responses given by the Trusts would indicate the mean score on this variable was 3.85. Reliability analysis was conducted, and this would indicate that the scale items for integration of training and appraisal formed a reliable scale (alpha .7042).

Coverage of appraisal: In total 43 Trusts provided details of percentage of staff members who had received an appraisal. The range of reported coverage was 29% to 100%, with a mean response of 76%. Reliability analysis was conducted, and this would indicate that this formed a reliable scale (alpha .9088).

Frequency of appraisal: Examination of the responses given by the Trusts would indicate there was comparatively small variation on this particular variable, where 33 of the 46 Trusts (71.7%) reported appraisal occurred on an annual basis. Reliability analysis was conducted, and this would indicate that this formed a reliable scale (alpha .8772).

Coverage of personal development plans (PDPs): In total 32 Trusts provided details of percentage of staff members who had received an updated PDP. The range of reported coverage was 22% to 100%, with a mean response of 65%. Reliability analysis was conducted, and this would indicate that this formed a reliable scale (alpha .8737).

Examination of the correlation matrix (table 5.1) would indicate that with the exception of the frequency of appraisals, all of the training related variables were associated with standardised patient mortality (2000/01). Specifically, the correlation matrix illustrates that the coverage of appraisal and updated PDPs across occupational groupings were strongly related – this could perhaps related an updated PDP being a consequence of the appraisal process. Integration of training and appraisal practices were strongly related with the presence of a training strategy document, tailored training policies across occupational groups, more frequent training needs assessment, and greater coverage across occupational groups of appraisal & updated PDPs. The presence of a training strategy document is positively related with IiP status, tailored training policies, frequency of training needs assessment, and the coverage of appraisal and updated PDPs. Finally, tailored training policies were associated with frequency of needs assessment, and the coverage of appraisal and updated PDPs across occupational groupings.

Examination of the correlation matrix with the proposed control measures (see table 5.2), illustrates that the number of GPs and NHS facilities in the local community were negatively related with mortality, whereas discharge rates were positively related with mortality. This would be consistent with Jarman et al (1999). Table 5.2 illustrates the number of doctors per bed was negatively related with hospital activity relating to emergency admissions and waiting times and positively related with discharge rates, Trust income and Finish Consultant Episodes (FCEs). Trust income and day cast rate were strongly related with each other (and with FCEs), and also displayed a negative association with patient mortality (although this was not consistent over the three years). Table 5.2 also illustrates that discharge rates were associated with higher patient mortality (c.f. Jarman et al, 1999), Trust income, and greater throughput (i.e. high number of FCEs and day cast rate), but negatively related with emergency admissions.

Table 5.1: Correlation matrix: Associations between patient mortality and HRM practices

Correlation matrix	1	2	3	4	5	6	7	8	9	10	11
1 Standardised Mortality Ratio 1998/99	0.791***										
2 Standardised Mortality Ratio 2000/01	60										
3 Institutional integration	-0.060	-0.219*									
4 Strategic integration	60	59									
5 Investors in People status	-0.052	-0.157	0.258**								
6 Training strategy	61	60	60								
7 Tailored training policy	-0.090	-0.193*	-0.090	-0.162							
8 Training needs	60	59	59	60							
9 Training integration	-0.322**	-0.386**	-0.322**	-0.120	0.200*						
10 Appraisal coverage	52	51	52	52	52	0.321**					
11 Appraisal frequency	-0.261**	-0.377**	-0.261*	-0.028	0.032	-0.326**					
12 PDP coverage	51	50	51	51	50	43					
	0.050	0.221*	0.050	-0.025	-0.187	-0.326**	-0.275**				
	49	48	49	49	48	43	43				
	-0.239*	-0.469**	0.070	0.002	0.228*	0.747***	0.649***	-0.690***			
	38	37	53	38	38	38	38	38			
	-0.354**	-0.447***	-0.354**	0.078	0.716***	0.336**	0.326**	-0.195	0.424**		
	43	42	43	43	42	37	39	37	30		
	0.039	0.166	0.039	-0.217*	-0.195*	0.239*	-0.069	-0.028	0.051	-0.214*	
	46	45	46	46	45	40	38	38	28	38	
	-0.495**	-0.539***	-0.495	-0.247*	0.558***	0.428**	0.363**	-0.204	0.475**	0.720***	0.106
	32	32	32	32	31	26	30	28	22	31	29

NB 60 = sample size for the recorded correlation

Table 5.2: Correlation matrix: Associations between patient mortality and control measures

Correlation matrix	1	2	3	4	5	6	7	8	9	10	11
1 Standardised Mortality Ratio 1998/99											
2 Standardised Mortality Ratio 2000/01	0.791***										
3 Doctors per 100 beds	-0.346**	-0.267**									
4 NHS facilities per 100,000 population	-0.248**	-0.282**	-0.132								
5 GP's per 1000 catchment population	-0.034	-0.284**	-0.078	0.211*							
6 Discharge to home residence	0.177*	0.228**	0.287**	-0.085	0.033						
7 Total trust income	-0.311**	-0.163	0.403***	-0.066	-0.018	0.392***					
8 Health Authority needs	0.043	-0.056	-0.081	-0.183*	0.025	0.281**	0.249**				
9 Finished Consultant Episodes	-0.135	-0.015	0.253**	-0.018	0.148	0.539***	0.776***	0.210*			
10 Daycast rate	-0.198*	-0.118	-0.112	0.122	0.048	0.262**	0.125	0.011	0.252**		
11 Emergency admissions	0.216**	-0.024	-0.401***	0.075	0.080	-0.463***	-0.457***	-0.060	-0.454***	-0.322***	
12 Inpatient waiting time	0.016	-0.070	-0.336**	0.067	0.224**	-0.106	-0.015	0.369**	0.084	0.122	0.020
	61	60	61	61	61	61	61	61	61	61	61

NB: 60 = sample size for the recorded correlation

*** 0.01 level
 ** 0.05 level
 * 0.10 level

5.7 Regression analysis: Analytical strategy

The following section will provide details of analysis conducted to examine the impact of control measures are reported. This is will followed regression analysis to examine:

- a) The impact of institutional and strategic integration upon patient mortality;
- b) The impact of training and appraisal relating practices upon patient mortality, and
- c) Interaction effects where board level representation (strategic integration) moderates the impact of HRM practices relating to training and appraisal upon patient mortality.

5.8 Regression analysis: control measures

The following section will report analysis conducted to examine the association between patient mortality and the control measures used in this study. To give a more accurate representation of the relative strength of the association between training and appraisal practices and patient mortality, the standardised residuals of the analysis reported on following page were used as the dependent variable(s) in subsequent analysis¹. Why was this approach adopted? The method of using residuals as dependent variables in regression analysis was an attempt to balance the desire to account for the effects of control variables, with the need to limit the number of predictors in regression analysis with small samples. By first regressing the original dependent variable onto the control variables, the residuals produced are a linear transformation of the original dependent variable, minus the effects of the control variables as indicated in the regression equation. Therefore, any subsequent regression analysis using these residuals represents regression analysis on the original dependent variable having accounted for the effects of the control variables. The advantage of this method, as opposed to entering the control variables and predictor(s) in the same regression, is that it eliminates potential *shrinkage* or artificial inflation of R squared due to a small number of few degrees of freedom.

¹ A new ratio of patient mortality was calculated by using the formula: standardised residuals for patient mortality 2000 after accounting for the variance explained by the control variables x standard deviation of patient mortality 2000 + 100. Scores of 100 represent a basemark, scores above 100 represent higher patient mortality, and scores below 100 patient mortality represent lower patient mortality.

The utilisation of different control measures would allow for the examination of whether HRM practices relating to the development of the workforce, such as the sophistication of training and appraisal policies were:

- a) *Associated* with lower patient mortality, and/or
- b) Associated with a *reduction* in patient mortality *after* controlling for prior mortality (c.f. Patterson et al, 1997).

Analysis was conducted to establish the relative strength of the proposed control variables on patient mortality. Table 6.3 shows the control variables on relating to a) Doctors per bed; b) number of GPs; c) number of NHS facilities; d) live discharge rates; e) Health Authority death rate; f) Trust income; g) total emergency admissions; h) day case rate and i) inpatient admissions accounted for 47.6% of the variance in patient mortality (2000/01) – in later analysis this will be referred to as patient mortality (1)².

Table 5.3: Details of regression of patient mortality (2000-2001) and control measures (n=60)

Table 5.5: Details of Regression of patient mortality (2000-2001) and control measures (n=60)									
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.			
		B	Std. Error	Beta					
1	(Constant)	94.595	0.967		97.851	0.000			
	Doctors per 100 beds	-4.283	1.161	-0.454	-3.689	0.001			
	GP's per100,000 population	-2.656	1.082	-0.263	-2.455	0.018			
	NHS facilities per 100,000 population	-2.260	1.018	-0.239	-2.220	0.031			
	Discharge to home residence (%)	3.819	1.220	0.396	3.131	0.003			
	Total deaths (aged 15-64) (Health Authority level)	-1.616	1.168	-0.170	-1.384	0.172			
	Trust income	-1.576	1.164	-0.167	-1.355	0.182			
	Total emergency admissions	-1.647	1.250	-0.174	-1.318	0.193			
	Day case rate	-3.070	1.058	-0.321	-2.902	0.005			
	Inpatients seen in 13 weeks from referral (%)	-0.747	1.159	-0.078	-0.644	0.522			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.690	0.476	0.382	7.472	0.476	5.051	9	50	0.000

² Finished consultant episodes (FCE) were not reported in this table because preliminary analysis would indicate FCEs were highly correlated with Trust income. Examination of the VIF coefficient would indicate that multi-collinearity was evidence between FCEs and Trust income, hence it was decided to remove one of these variables from the regression equation. FCEs also represent a measure of efficiency, which was also covered within the regression equation with Day Case Rate, therefore it was decided to use Trust income rather than FCEs as a control measure in this analysis. When FCEs were removed from the regression equation, all VIF coefficients were within acceptable levels.

Analysis was also conducted to examine where HRM practices explained additional variance in patient mortality *after* controlling for the effects of prior patient mortality (1998-99) (c.f. Patterson et al, 1997). Table 5.4 shows the control variables on relating to a) number of Doctors per bed; b) number of GPs; c) number of NHS facilities, d) live discharge rates; e) Health Authority death rate; f) Trust income; g) total emergency admissions, h) day case rate; i) inpatient admissions within 13 weeks of referral *and* prior patient mortality (1997-99) accounted for 74.5% of the variance in patient mortality (2000/01) – in later analysis this was referred to as patient mortality (2).

Table 5.4: Details of regression of patient mortality (2000-2001) and control measures and prior patient mortality (n=60)

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant)	94.524	0.682		138.618	0.000			
	Doctors per 100 beds	-1.660	0.897	-0.176	-1.851	0.070			
	GP's per100,000 population	-2.207	0.765	-0.218	-2.883	0.006			
	NHS facilities per 100,000 population	-0.605	0.754	-0.064	-0.802	0.426			
	Discharge to home residence (%)	0.473	0.979	0.049	0.484	0.631			
	Total deaths (aged 15-64) (Health Authority level)	-1.035	0.828	-0.109	-1.251	0.217			
	Trust income	0.307	0.862	0.033	0.356	0.723			
	Total emergency admissions	-2.129	0.884	-0.224	-2.409	0.020			
	Day case rate	-0.604	0.821	-0.063	-0.735	0.466			
	Inpatients seen in 13 weeks from referral (%)	-0.721	0.817	-0.076	-0.883	0.382			
	Standardised mortality '98	6.922	0.964	0.734	7.177	0.000			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.863	0.745	0.693	5.270	0.745	14.290	10	49	0.000

5.9 Regression analysis – Institutional integration

Hypothesis 1: There will be evidence of lower patient mortality amongst NHS Trust hospitals which report HRM practices are related to Trust strategy.

Hypothesis two proposed that integration of HR practices with business strategy would be associated health outcomes. Table 5.5 shows integration of HR practices with business strategy was associated with lower patient mortality (β -.305), and accounted for 9.3% ($p = 0.019$) of the variance in patient mortality (1).

Table 5.5: The relationship between patient mortality (1) and integration of HR practices ((n=59)

				Unstandardized Coefficients	Standardized Coefficients				
Model				B	Std. Error	Beta	t	Sig.	
1	(Constant)			99.980	1.056		94.692	0.000	
	Integration of HR practices			-2.574	1.064	-0.305	-2.419	0.019	
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.305	0.093	0.077	8.109	0.093	5.852	1	57	0.019

Once the effects of prior patient mortality were controlled for, table 6.8 shows integration of HR practices with Trust strategy was associated with lower patient mortality (β -.278), and accounted for 7.7% ($p = 0.033$) of the variance in patient mortality (2).

Table 5.6: The relationship between patient mortality (2) and board representation (n=59)

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant)	99.951	1.054		94.793	0.000			
	Integration of HR practices	-2.323	1.062	-0.278	-2.187	0.033			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.278	0.077	0.061	8.098	0.077	4.781	1	57	0.033

Taken together, this would offer support for hypothesis 2. That is, NHS Trust hospitals that reported HR practices were integrated with Trust strategy, also reported lower patient mortality.

5.10 Regression analysis – Strategic integration

Hypothesis 2: There will be evidence of lower patient mortality amongst NHS Trust hospitals which have board level representation for the HR/personnel function.

Hypothesis one proposed that board level representation of the HR/personnel function in NHS Trust hospitals would be associated health outcomes. In total 60 Trusts provided details of board level representation of the HR/personnel function. Table 5.7 shows board representation of the HR/personnel function was associated with lower patient mortality (β -.288), and accounted for 7.9% ($p = 0.030$) of the variance in patient mortality (1). Patient mortality was highest amongst those Trusts where there was no board level representation of the HR/personnel function (102.252), and lowest amongst Trusts which had board level representation of the HR/personnel function (97.593).

Table 5.7: The relationship between patient mortality (1) and board representation (n=60)

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant)	99.961	1.046		95.527	0.000			
	Voting membership of board	-2.349	1.055	-0.280	-2.225	0.030			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.280	0.079	0.063	8.104	0.079	4.953	1	58	0.030

Once the effects of prior patient mortality were controlled for, table 5.8 shows that board representation of the HR/personnel function was associated with lower patient mortality (β -.329), and accounted for 10.8% ($p = 0.010$) of the variance in patient mortality (2). Patient mortality was highest amongst those Trusts where there was no board level representation of the HR/personnel function (102.615), and lowest amongst Trusts which had board level representation of the HR/personnel function (97.204).

Table 5.8: The relationship between patient mortality (2) and board representation.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.			
		B	Std. Error	Beta					
1	(Constant)	99.954	1.019		98.079	0.000			
	Voting membership of board	-2.728	1.028	-0.329	-2.654	0.010			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.329	0.108	0.093	7.893	0.108	7.042	1	58	0.010

Taken together, this would offer support for hypothesis 1. That is, NHS Trust hospitals that had board level representation of the HR/personnel function reported lower patient mortality.

5.11 Regression analysis: HRM practices

Research question three proposed the presence of HRM practices relating to training and appraisal would be associated with improved health outcomes. Due to the small size it was decided that the association of each aspect of training and appraisal sophistication would be examined individually. The analysis reported was conducted with varying sample size – this was done for a number of reasons. The useable data provided by the Trusts varied across the measures of HR practices. With the reduction of sample due to Trust mergers the sample size (n=61) was already comparatively small. The exclusion of cases to obtain an *nvalid* sample cases across all HR practices of interest would have reduce the sample size to 20. The strength of the relationship(s) between HRM practices and patient mortality would be adversely effected in certain cases. Accordingly, it was decided that the analysis would be conducted on a sample of Trusts who had supplied sufficient data. Due to the small sample, diagnostic statistics (Cook's leverage) were examined to see if associations reported in the regression analysis could have been influenced by a potential outlier effect.

Research four proposed there would be an interaction effect, where membership on the board of directors would moderate the relationship between HRM practices relating to training and appraisal with health outcomes. To examine research questions three, the variables were entered into the regression equation at three steps to examine the variance explained. Regression analysis was conducted with the entry of each the HR practice (i.e. access to training tailored training policy). A significant change in variance explained (r^2) would indicate the HR practice was associated with health outcomes (i.e. patient mortality). The tables reported over the following pages include details of the proposed moderation relationship.

To test this relationship, board representation was entered at step two of the regression equation. Then, at step three the interaction term³ was entered into the regression equation. A significant change in variance explained (r^2) at step three would indicate that Board representation moderates the relationship the HRM practice and patient mortality and would support research question four.

³ The interaction term was calculated from the multiplication of the z scores for each of the training and appraisal relating practices by the z scores for board representation.

5.11.1 Regression analysis: HRM practices - Investors in People (IiP) status

Hypothesis 3a: There will be evidence of lower patient mortality amongst NHS Trust hospitals which have achieved IiP status.

Hypothesis 4a: There will be evidence of lower patient mortality among NHS Trust hospitals that have board level representation for the HR/personnel function, and they have achieved IiP status.

It was hypothesised that the current Investors in People (IiP) status of NHS Trust hospitals would be associated health outcomes. In total 59 Trusts provided details of their current IiP status. Table 5.9 shows that IiP status accounted for 13.5% ($p = 0.017$) of the variance in patient mortality (1). Patient mortality was highest amongst those Trusts which were not currently considering IiP (103.336), and lowest amongst Trusts which had achieved the IiP standard (96.705).

Table 5.9: The relationships between IiP status, board representation, and patient mortality (1) (n=59)

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant)	100.320	0.947		105.958	0.000			
	IiP1	3.112	1.091	0.408	2.851	0.006			
	IiP2	2.231	1.077	0.296	2.071	0.043			
2	(Constant)	100.230	0.900		111.339	0.000			
	IiP1	3.643	1.056	0.477	3.449	0.001			
	IiP2	2.231	1.024	0.296	2.180	0.034			
	Voting membership of board	-2.462	0.929	-0.321	-2.651	0.010			
3	(Constant)	100.543	0.854		117.699	0.000			
	IiP1	4.100	0.989	0.537	4.145	0.000			
	IiP2	2.725	0.965	0.361	2.824	0.007			
	Voting membership of board	-2.607	0.862	-0.340	-3.025	0.004			
	Interaction term 1	-0.239	0.997	-0.030	-0.240	0.811			
	Interaction term 2	2.709	0.976	0.354	2.776	0.008			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.367	0.135	0.104	7.260	0.135	4.357	2	56	0.017
2	0.482	0.233	0.191	6.898	0.098	7.030	1	55	0.010
3	0.604	0.365	0.305	6.391	0.133	5.533	2	53	0.007

Once the effects of prior patient mortality were controlled for, table 5.10 shows that IiP status accounted for 9.3% ($p = 0.065$) of the variance in patient mortality (2). Patient mortality was highest amongst those Trusts which were currently working towards IiP (102.521), and lowest amongst Trusts which had achieved the IiP standard (96.855). Taken together, this would offer support for hypothesis 3a. That is, Trusts which has achieved IiP status reported lower patient mortality.

Table 5.10: The relationships between IiP status, board representation, and patient mortality (2) (n=59)

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant)	100.096	1.030		97.191	0.000			
	IiP1	2.131	1.187	0.263	1.795	0.078			
	IiP2	2.658	1.172	0.332	2.269	0.027			
2	(Constant)	99.993	0.972		102.896	0.000			
	IiP1	2.742	1.140	0.338	2.405	0.020			
	IiP2	2.658	1.105	0.332	2.406	0.020			
	Voting membership of board	-2.833	1.002	-0.347	-2.826	0.007			
3	(Constant)	100.356	0.933		107.529	0.000			
	IiP1	3.218	1.081	0.397	2.978	0.004			
	IiP2	3.128	1.054	0.391	2.967	0.004			
	Voting membership of board	-2.972	0.942	-0.364	-3.156	0.003			
	Interaction term 1	-0.534	1.089	-0.064	-0.491	0.626			
	Interaction term 2	2.579	1.066	0.317	2.419	0.019			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.305	0.093	0.061	7.897	0.093	2.875	2	56	0.065
2	0.456	0.208	0.165	7.446	0.115	7.984	1	55	0.007
3	0.574	0.329	0.266	6.983	0.121	4.773	2	53	0.012

It was hypothesised that board level representation of the HR/personnel function would moderate the association between IiP status and patient mortality. Table 5.9 shows that the interaction term between IiP status and board level representation accounted for 13.3% ($p = 0.007$) of the variance in patient mortality (1).

Figure 5.2: Interaction effect evident between IiP status, board representation and patient mortality (1).

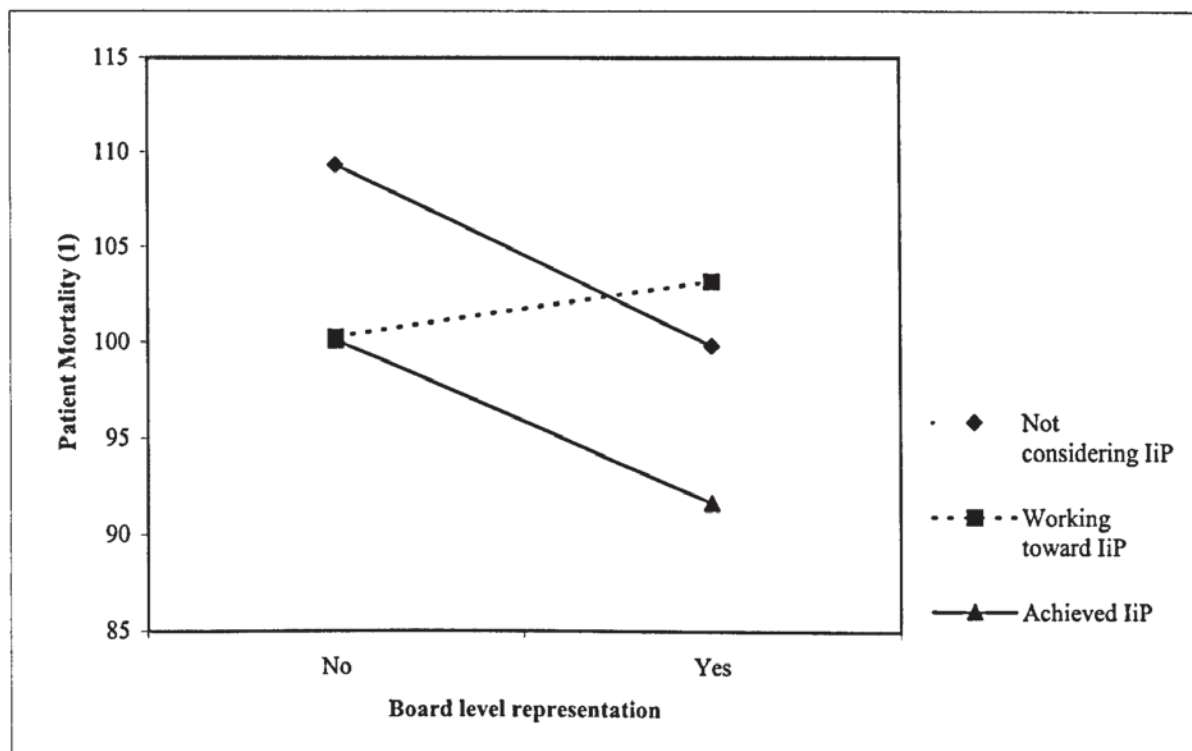
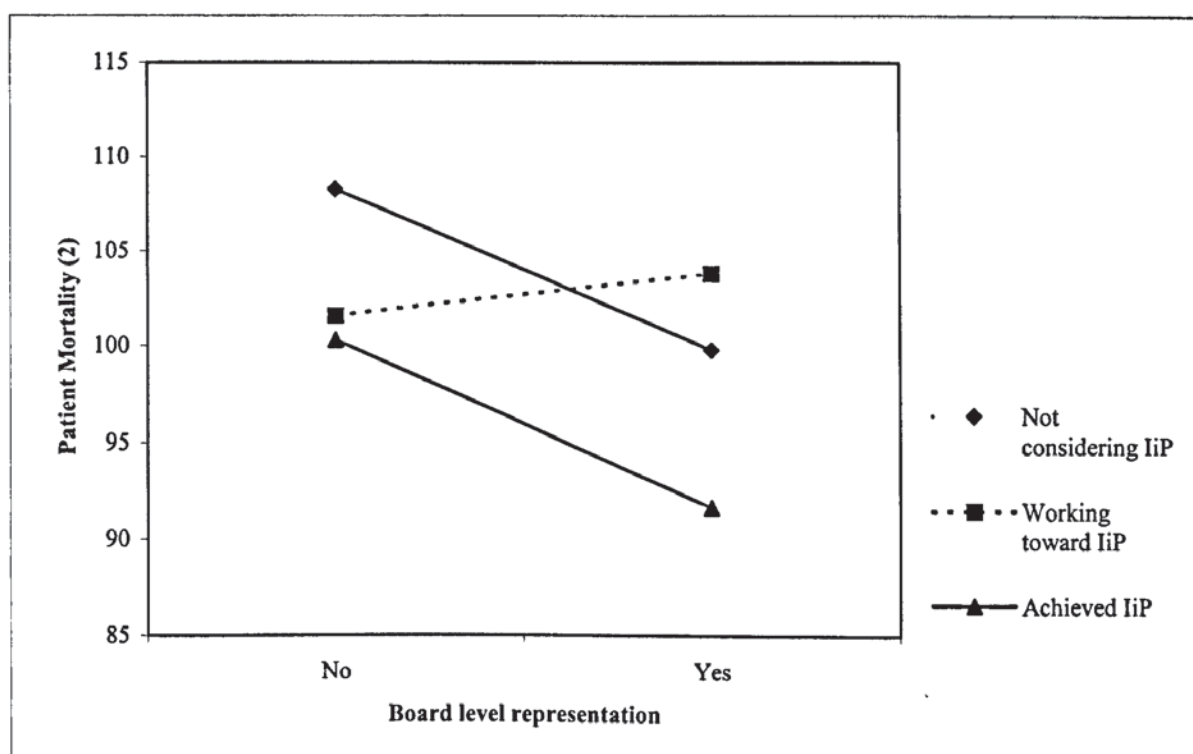


Figure 5.2 shows that amongst Trusts with no board representation, patient mortality was highest amongst Trusts which were not currently considering IiP (109.334), and there were only comparatively small differences between Trusts currently working towards IiP (100.274) and Trusts which had achieved the IiP standard (100.099). However, amongst Trusts with board representation, patient mortality was highest for Trusts currently working towards IiP (103.239), and lowest for Trusts that had achieved the IiP standard (91.613). Figure 6.2 shows that for Trusts currently working towards the IiP standard, board representation was *detrimental* to health outcomes.

A similar association was present after controlling for prior patient mortality. Table 5.10 shows the interaction term between IiP status and board level representation accounted for 12.1% ($p = 0.012$) of the variance in patient mortality (2). Figure 5.3 shows amongst Trusts with no board level representation, patient mortality was highest amongst Trusts not currently considering IiP (108.281), and there were only comparatively small differences between Trusts currently working towards IiP (101.615) and Trusts which had achieved the IiP standard (100.311). However, amongst Trusts with board representation, patient mortality was highest amongst Trusts currently working towards IiP (103.880), and lowest for Trusts that had achieved the IiP standard (91.671). Figure 5.3 shows that for Trusts currently working towards the IiP standard, board level representation was *detrimental* to health outcomes.

Figure 5.3: Interaction effect evident between IiP status, board representation and patient mortality (2).



Taken together, this would offer support for hypothesis 4a. That is, board level representation would moderate the association between IiP status and patient mortality. However, the moderation effect was *not* in the expected direction.

5.11.2 Regression analysis: HRM practices - Training strategy

Hypothesis 1b: There will be evidence of lower patient mortality amongst NHS Trust hospitals which have a written strategy document relating to training and development.

Hypothesis 4b: There will be evidence of lower patient mortality among NHS Trust hospitals that have board level representation for the HR/personnel function, and they have a written strategy document relating to training and development.

It was hypothesised that the presence of a written training strategy document would be associated health outcomes. Table 5.11 shows the presence of a written training strategy document was associated with lower patient mortality (β -.396), and accounted for 15.7% ($p = 0.004$) of the variance in patient mortality (1). Patient mortality was higher amongst those Trusts which did not have a training strategy document (104.369), than for Trusts which did have a training strategy document (98.064).

Table 5.11: The relationships between training strategy, board representation and patient mortality (1).

Table 5.11. The relationships between training strategy, board representation and patient mortality (1)									
		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant)	100.368	0.999		100.431	0.000			
	Training strategy	-3.066	1.016	-0.396	-3.016	0.004			
2	(Constant)	100.366	0.947		105.997	0.000			
	Training strategy	-3.306	0.968	-0.427	-3.416	0.001			
	Voting membership of board	-2.461	0.959	-0.320	-2.566	0.013			
3	(Constant)	100.207	0.932		107.514	0.000			
	Training strategy	-3.213	0.949	-0.415	-3.384	0.001			
	Voting membership of board	-2.415	0.940	-0.315	-2.570	0.013			
	Interaction term	-1.662	0.956	-0.212	-1.738	0.089			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.396	0.157	0.139	7.135	0.157	9.097	1	49	0.004
2	0.508	0.258	0.227	6.760	0.102	6.585	1	48	0.013
3	0.551	0.303	0.259	6.622	0.045	3.021	1	47	0.089

Once the effects of prior patient mortality were controlled for, table 5.12 shows that a training strategy document accounted for 3.6% ($p = 0.184$) of the variance in patient mortality (2). Patient mortality was higher amongst Trusts which did not have a training strategy document (102.011), than for those which did have a training strategy document

(98.689), although the difference was not significant. Taken together, this would offer partial support for hypothesis 2b. That is, Trusts which have a written training strategy document reported lower patient mortality. However, there was no evidence that this resulted in a *reduction* in patient mortality (once prior mortality was accounted for).

Table 5.12: The relationships between training strategy, board representation and patient mortality (2).

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant)	99.878	1.193		83.689	0.000			
	Training strategy	-1.635	1.214	-0.189	-1.347	0.184			
2	(Constant)	99.875	1.107		90.196	0.000			
	Training strategy	-1.961	1.132	-0.227	-1.733	0.090			
	Voting membership of board	-3.349	1.121	-0.391	-2.987	0.004			
3	(Constant)	99.844	1.123		88.871	0.000			
	Training strategy	-1.942	1.144	-0.224	-1.697	0.096			
	Voting membership of board	-3.340	1.133	-0.389	-2.949	0.005			
	Interaction term	-0.331	1.153	-0.038	-0.287	0.776			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.189	0.036	0.016	8.520	0.036	1.813	1	49	0.184
2	0.432	0.187	0.153	7.905	0.151	8.919	1	48	0.004
3	0.434	0.188	0.136	7.982	0.001	0.082	1	47	0.776

It was hypothesised that board level representation of the HR/personnel function would moderate the association between training strategy and patient mortality. Table 5.7 shows that in model 3, the interaction term between training strategy and board representation accounted for 4.5% ($p = 0.089$) of the variance in patient mortality (1). Figure 5.3 shows that amongst Trusts with no training strategy document, board representation had little impact upon patient mortality. Within Trusts without a training strategy and no board representation, patient mortality was 104.640. This compared with 104.151 for Trusts which had no training strategy but board level representation. However, within Trusts which did have a training strategy, there was evidence that board representation impacted upon patient mortality. Within Trusts with a training strategy but no board representation, patient mortality was 101.368. This compared with 94.099 for Trusts which had a training strategy and board representation. This would offer support hypothesis 4b.

However, once the effects of prior mortality were controlled for, these interaction effect was no longer present. Table 5.12 shows the interaction term between training strategy and board representation accounted for 0.01% ($p = 0.776$) of the variance in patient mortality (2). Figure 5.4 shows a main effect between board representation and patient

mortality, but board representation had little or no influence upon the association between training strategy and patient mortality (2). Taken together, this would offer partial support for hypothesis 3b. That is, board representation would moderate the association between training strategy and patient mortality.

Figure 5.3: Interaction effect between training strategy, board representation and patient mortality (1).

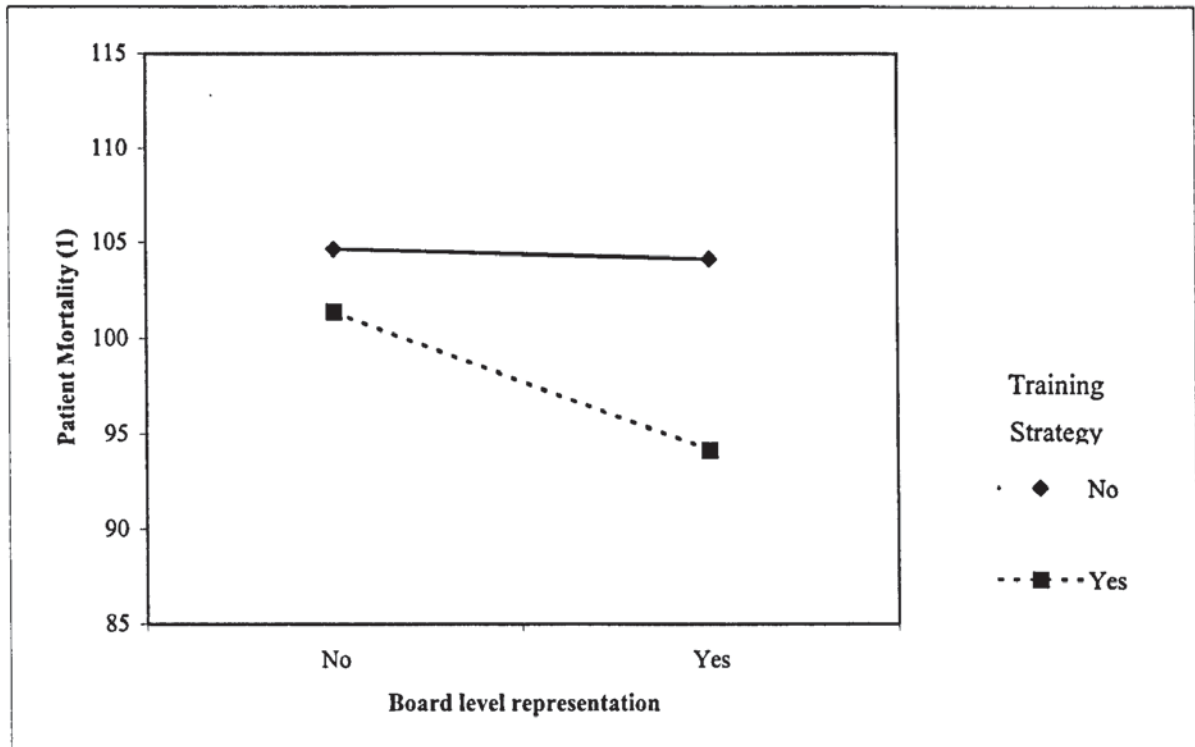
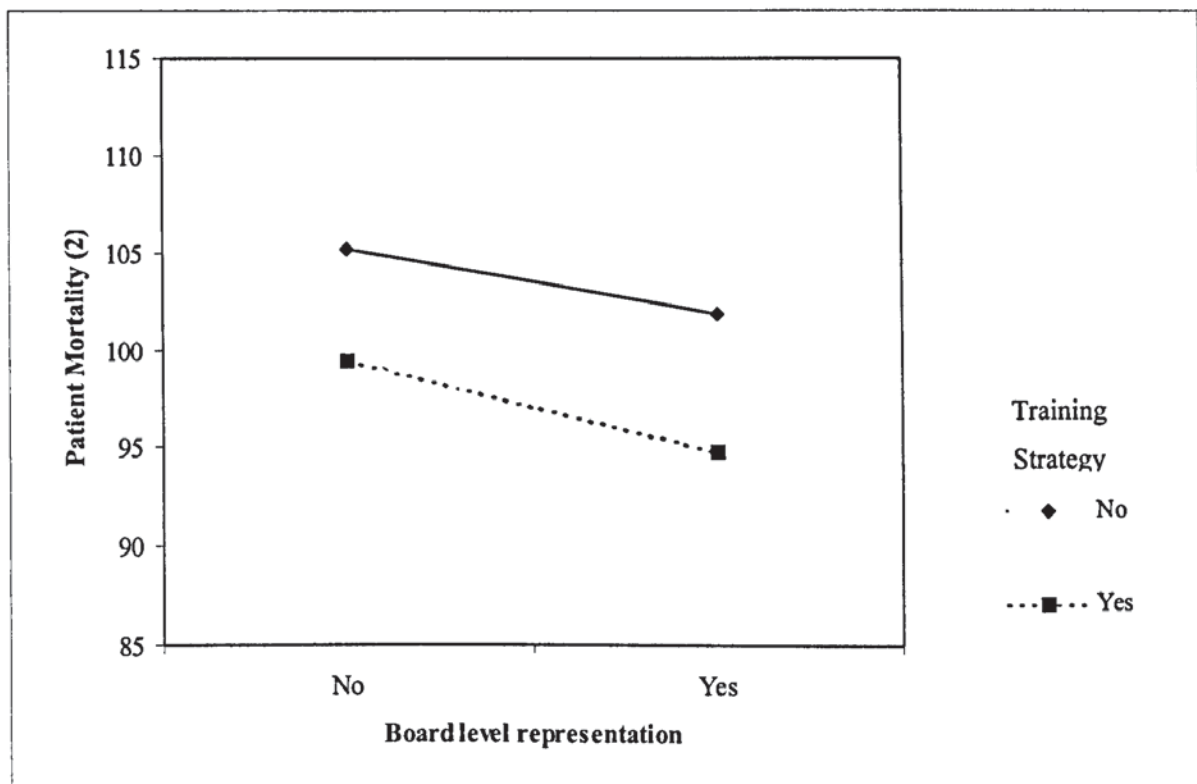


Figure 5.4: Interaction effect between training strategy, board representation and patient mortality (2).



5.11.3 Regression analysis: HRM practices - Tailored training policies

Hypothesis 1c: There will be evidence of lower patient mortality amongst NHS Trust hospitals which have tailored training policy documents.

Hypothesis 4c: There will be evidence of lower patient mortality among NHS Trust hospitals that have board level representation for the HR/personnel function, and they have tailored training policy documents.

It was hypothesised that Trusts which had tailored training policy documents for each occupational group would display better health outcomes (i.e. lower patient mortality). Table 5.13 shows tailored training policies for each occupational group was associated with lower patient mortality (β -.312), and accounted for 9.7% ($P=0.028$), of the variance in patient mortality (1).

Table 5.13: The relationships between training policy, board representation and patient mortality (1)

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant)	99.791	1.151		86.695	0.000			
	Training policy	-2.675	1.177	-0.312	-2.272	0.028			
2	(Constant)	99.521	1.105		90.066	0.000			
	Training policy	-2.788	1.125	-0.325	-2.478	0.017			
	Voting membership of board	-2.654	1.117	-0.311	-2.376	0.022			
3	(Constant)	99.485	1.111		89.568	0.000			
	Training policy	-2.806	1.130	-0.327	-2.483	0.017			
	Voting membership of board	-2.641	1.122	-0.310	-2.354	0.023			
	Interaction term	-0.881	1.140	-0.102	-0.773	0.444			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.312	0.097	0.078	8.137	0.097	5.163	1	48	0.028
2	0.440	0.194	0.160	7.770	0.097	5.646	1	47	0.022
3	0.452	0.204	0.152	7.803	0.010	0.597	1	46	0.444

Once the effects of prior patient mortality were controlled for, table 5.14 shows that tailored training policies documents was associated with lower patient mortality (β -.254), and accounted for 6.4% ($p = 0.075$) of the variance in patient mortality (2). Taken together, this would offer support for hypothesis 2c. That is, Trusts which have tailored training policy documents across occupational groups reported lower patient mortality. Indeed, there was evidence that having tailored training policy documents was associated with a *reduction* in patient mortality once prior mortality was accounted for.

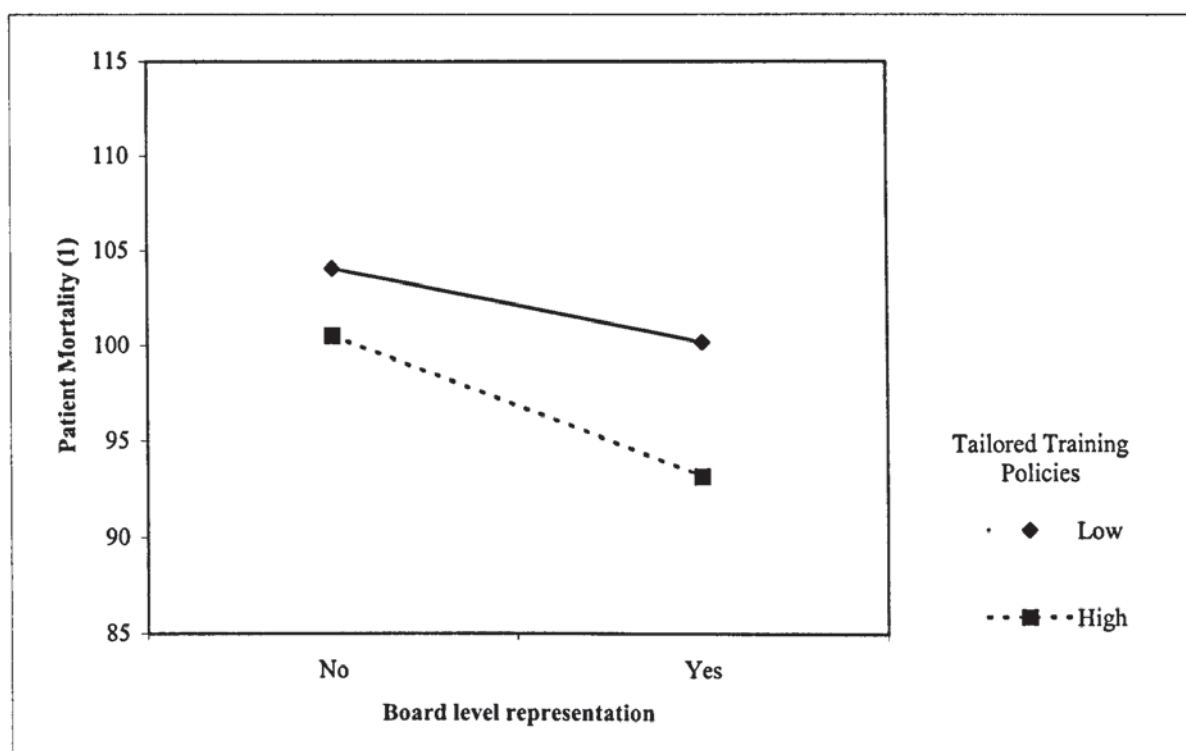
Table 5.14: The relationship between tailored training policy, board representation and patient mortality (2).

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	99.320	1.141		87.013	0.000
	Training policy	-2.123	1.167	-0.254	-1.819	0.075
2	(Constant)	98.971	1.049		94.372	0.000
	Training policy	-2.269	1.068	-0.271	-2.125	0.039
	Voting membership of board	-3.430	1.060	-0.413	-3.236	0.002
3	(Constant)	98.884	1.017		97.260	0.000
	Training policy	-2.313	1.035	-0.277	-2.236	0.030
	Voting membership of board	-3.399	1.027	-0.409	-3.310	0.002
	Interaction term	-2.112	1.043	-0.250	-2.024	0.049

Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.254	0.064	0.045	8.069	0.064	3.307	1	48	0.075
2	0.485	0.235	0.202	7.375	0.170	10.470	1	47	0.002
3	0.545	0.297	0.252	7.143	0.063	4.096	1	46	0.049

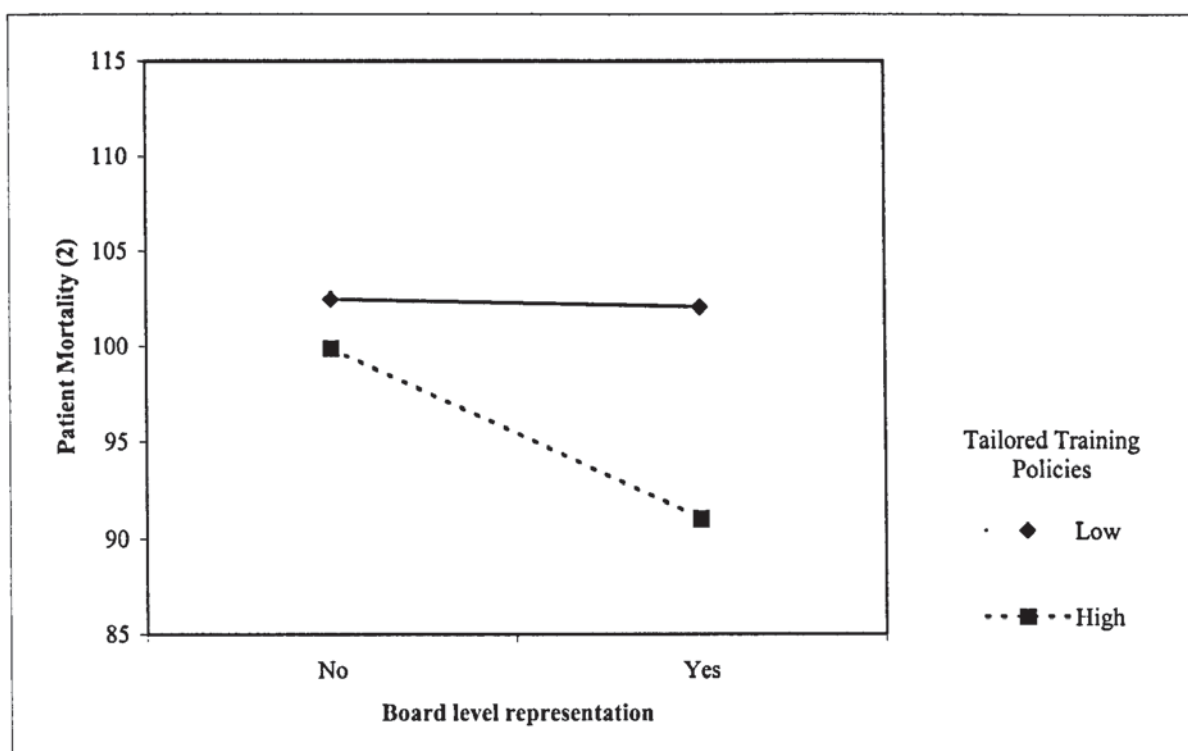
It was hypothesised that board level representation of the HR/personnel function would moderate the association between tailored training policies and patient mortality. Figure 5.5 shows a main effect between board representation and patient mortality, however board representation had little influence upon the association between tailored training policies and patient mortality (1).

Figure 5.5: Interaction effect between tailored training policy, board representation & patient mortality (1).



However, when prior patient mortality was controlled, there was evidence that board representation moderated the association between tailored training policies and patient mortality. Figure 5.6 shows within Trusts with no board level representation for the HR/personnel function, the presence of tailored training policies had little effect upon patient mortality(2) as the top line remains constant. However, within Trusts with board level representation, there was a gradual reduction in patient mortality when Trusts had tailored training policies across occupational groups. Hence this would only offer partial support for hypothesis 4c that board representation moderated the association between the presence of tailored training policies and patient mortality.

Figure 5.6: Interaction effect between tailored training policy, board representation & patient mortality (2).



5.11.4 Regression analysis: HRM practices - Assessment of training needs

Hypothesis 1d: There will be evidence of lower patient mortality amongst NHS Trust hospitals which have more frequent assessment of training needs.

Hypothesis 4d: There will be evidence of lower patient mortality among NHS Trust hospitals that have board level representation for the HR/personnel function, and they have more frequent assessment of training needs.

It was hypothesised that Trusts which had more frequent assessment of training needs would display better health outcomes (i.e. lower patient mortality). Table 5.15 shows that the frequency with which training needs are assessed was largely unrelated with patient

mortality, and accounted for 0.7% of the variance in patient mortality (1). Once the effects of prior mortality were controlled for, a similar association was evident. Table 5.16 shows that the frequency with which training needs are assessed was more strongly (but not significantly) associated with patient mortality (β -.234), and accounted for 1.8% of the variance in patient mortality (2). This would suggest that hypothesis 2d, that the frequency of training need assessment would be related with lower patient mortality, should be rejected

Table 5.15 Relationships between frequency of training needs assessment, board representation and patient mortality (1)

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant)	99.748	1.236		80.688	0.000			
	Training needs assessment	-0.705	1.236	-0.084	-0.570	0.571			
2	(Constant)	99.889	1.198		83.368	0.000			
	Training needs assessment	-0.643	1.197	-0.076	-0.537	0.594			
	Voting membership of board	-2.455	1.207	-0.289	-2.033	0.048			
3	(Constant)	99.801	1.197		83.347	0.000			
	Training needs assessment	-3.713	2.992	-0.441	-1.241	0.221			
	Voting membership of board	-2.374	1.206	-0.280	-1.968	0.055			
	Interaction term	3.325	2.971	0.398	1.119	0.269			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.084	0.007	-0.015	8.565	0.007	0.325	1	46	0.571
2	0.301	0.091	0.050	8.287	0.084	4.134	1	45	0.048
3	0.340	0.116	0.055	8.264	0.025	1.252	1	44	0.269

Table 6.16 Relationships between frequency of training needs assessment, board representation and patient mortality (2)

patient mortality (2)									
		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant)	99.344	1.177		84.439	0.000			
	Training needs assessment	-1.920	1.177	-0.234	-1.632	0.109			
2	(Constant)	99.507	1.116		89.186	0.000			
	Training needs assessment	-1.849	1.114	-0.225	-1.659	0.104			
	Voting membership of board	-2.827	1.124	-0.341	-2.514	0.016			
3	(Constant)	99.538	1.128		88.207	0.000			
	Training needs assessment	-0.751	2.819	-0.092	-0.266	0.791			
	Voting membership of board	-2.856	1.137	-0.345	-2.512	0.016			
	Interaction term	-1.189	2.800	-0.146	-0.425	0.673			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.234	0.055	0.034	8.151	0.055	2.664	1	46	0.109
2	0.414	0.171	0.134	7.717	0.116	6.322	1	45	0.016
3	0.418	0.175	0.118	7.788	0.003	0.180	1	44	0.673

It was hypothesised that board level representation of the HR/personnel function would moderate the association between the frequency of training needs assessment and patient mortality. However, the analysis reported in table 5.11 and 5.12 would indicate that board representation had little or no influence upon the association between frequency of training needs assessment and patient mortality. Hence, hypothesis 4d was rejected.

5.11.5 Regression analysis: HRM practices - Integration of training and appraisal

Hypothesis 1e: There will be evidence of lower patient mortality amongst NHS Trust hospitals which have integrated training and appraisal practices.

Hypothesis 4e: There will be evidence of lower patient mortality among NHS Trust hospitals that have board level representation for the HR/personnel function, and when they have an integrated training and appraisal practices.

It was hypothesised that Trusts with more highly integrated training & appraisal practices would display better health outcomes (i.e. lower patient mortality). Table 5.17 shows that the integration training & appraisal practices was associated with lower patient mortality (β -0.253), and accounted for 6.4% of the variance in patient mortality (1).

Table 5.17: The relationships between training integration, board representation and patient mortality (1).

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant)	100.328	1.033		97.133	0.000			
	Training integration	-1.974	1.068	-0.253	-1.849	0.070			
2	(Constant)	100.278	1.013		99.018	0.000			
	Training integration	-1.669	1.061	-0.214	-1.573	0.122			
	Voting membership of board	-1.808	1.035	-0.238	-1.748	0.087			
3	(Constant)	100.620	0.997		100.960	0.000			
	Training integration	-1.882	1.034	-0.241	-1.820	0.075			
	Voting membership of board	-1.682	1.006	-0.221	-1.672	0.101			
	Interaction term	-2.113	1.045	-0.265	-2.023	0.049			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.253	0.064	0.045	7.443	0.064	3.418	1	50	0.070
2	0.345	0.119	0.083	7.295	0.055	3.054	1	49	0.087
3	0.434	0.188	0.137	7.075	0.069	4.092	1	48	0.049

Once the effects of prior patient mortality were controlled for, table 5.18 shows that there was evidence of a significant association where integrated training & appraisal practices were associated with lower patient mortality (β -.338 P =.003), and accounted for 14.4% of the variance in patient mortality (2).

Table 5.18: The relationships between training integration, board representation and patient mortality (2)

Table 5.16: The relationships between training integration, board representation and patient mortality (2)									
		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	T	Sig.			
1	(Constant)	99.971	1.099		91.004	0.000			
	Training integration	-3.382	1.136	-0.388	-2.978	0.004			
2	(Constant)	99.897	1.047		95.455	0.000			
	Training integration	-2.935	1.096	-0.337	-2.677	0.010			
	Voting membership of board	-2.649	1.069	-0.312	-2.477	0.017			
3	(Constant)	100.018	1.068		93.654	0.000			
	Training integration	-3.010	1.108	-0.346	-2.716	0.009			
	Voting membership of board	-2.604	1.077	-0.306	-2.417	0.020			
	Interaction term	-0.747	1.119	-0.084	-0.668	0.507			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.388	0.151	0.134	7.916	0.151	8.869	1	50	0.004
2	0.495	0.245	0.214	7.539	0.095	6.136	1	49	0.017
3	0.502	0.252	0.205	7.582	0.007	0.446	1	48	0.507

Taken together, this would offer support for hypothesis 2e. That is, Trusts which have integrated training & appraisal practices reported lower patient mortality. Indeed, there was evidence that having integrated training & appraisal practices was associated with a *reduction* in patient mortality once prior mortality was accounted for.

It was hypothesised that board level representation of the HR/personnel function would moderate the association between integrated training & appraisal practices and patient mortality. Table 5.13 shows that the interaction term between integrated training & appraisal practices and board representation accounted for 6.9% ($P=.049$) of the variance in patient mortality (1). Figure 6.7 shows that amongst Trusts with lowly integrated training & appraisal practices, board representation had little impact upon patient mortality. However, within Trusts with highly integrated training & appraisal practices, there was evidence board representation impacted upon patient mortality. Within Trusts with highly integrated training & appraisal practices, but no board representation, patient mortality was at a similar level to that of the Trusts with lowly integrated training & appraisal practices. However, where there was board representation, patient mortality was substantially lower amongst Trusts with highly integrated training & appraisal practices when compared with lowly integrated training & appraisal practices.

This would offer support for hypothesis 3e. However, table 5.14 shows that once the effects of prior mortality are controlled for, board representation did not moderate the association between training integration and patient mortality. Figure 6.8 shows a direct

effect of board representation. Hence this would only offer partial support for hypothesis 3e that board representation moderated the association between training integration and patient mortality.

Figure 5.7: Interaction effect between training integration, board representation and patient mortality (1).

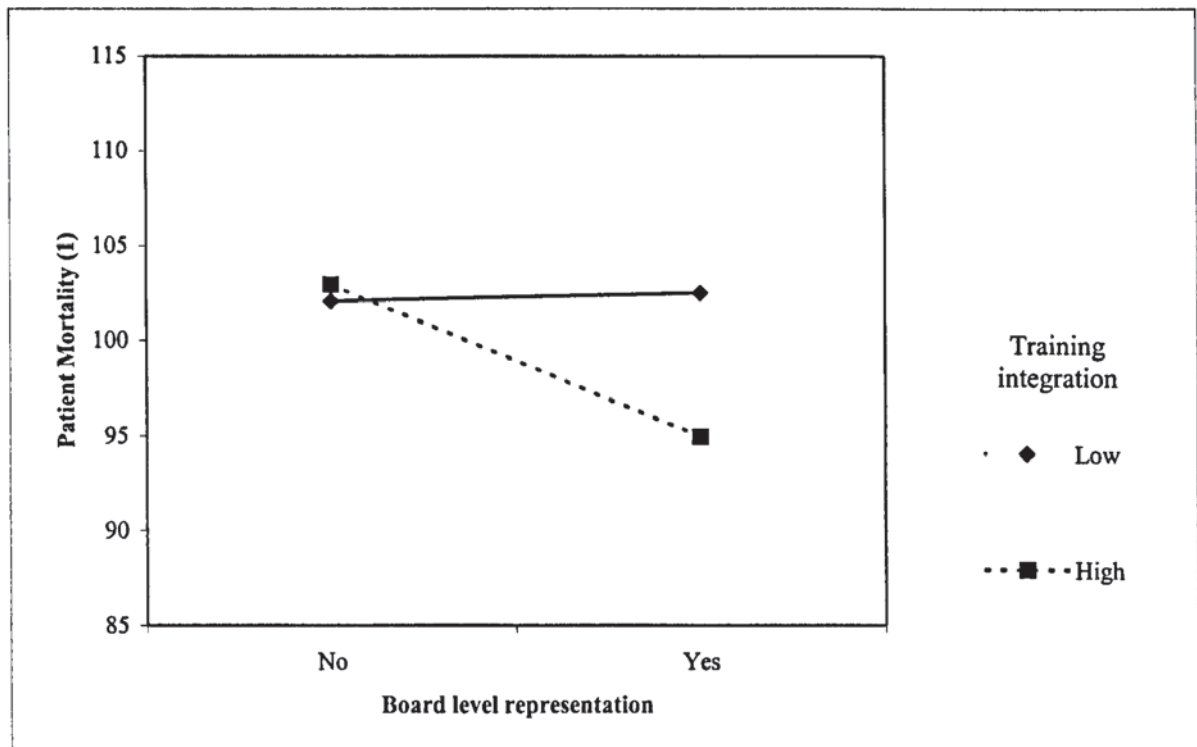
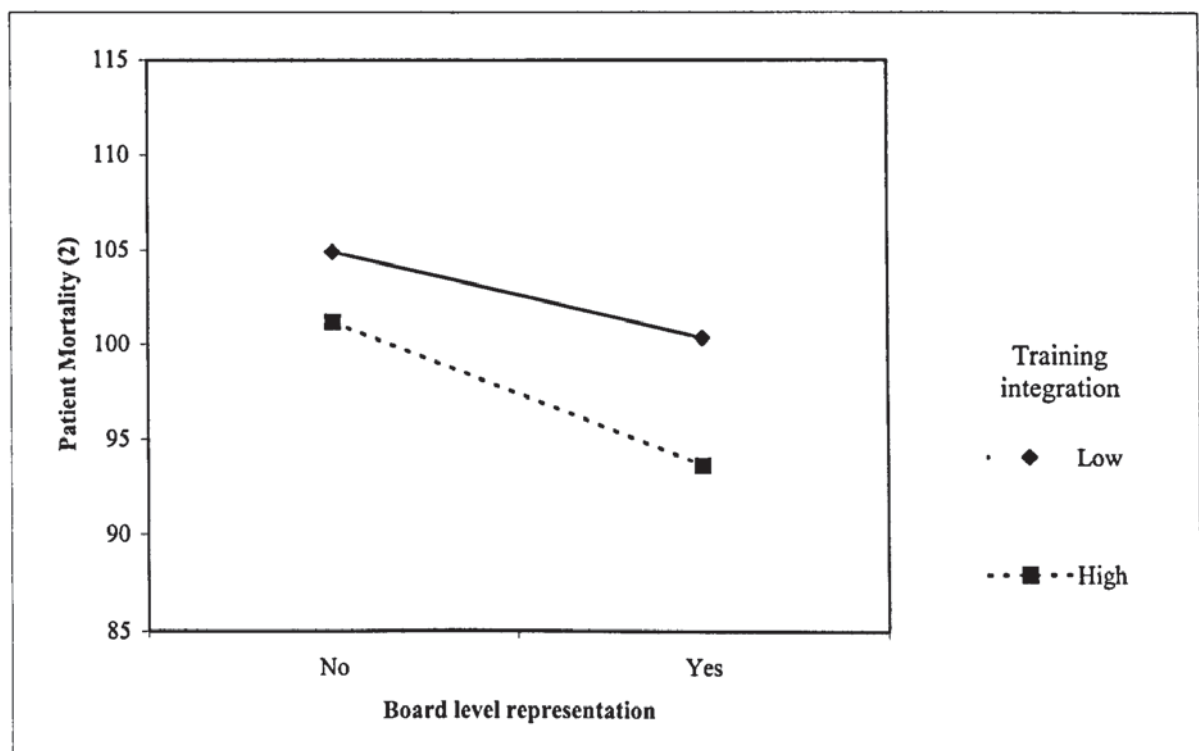


Figure 5.8: Interaction effect between training integration, board representation and patient mortality (2).



5.11.6 Regression analysis: HRM practices - Coverage of appraisal

Hypothesis 1f: There will be evidence of lower patient mortality amongst NHS Trust hospitals with a higher percentage of staff have received an appraisal.

Hypothesis 4f: There will be evidence of lower patient mortality among NHS Trust hospitals that have board level representation for the HR/personnel function, and they have a higher percentage of staff have received an appraisal.

It was hypothesised that Trusts with a higher number of staff have received an appraisal would display better health outcomes (i.e. lower patient mortality). Table 5.19 shows that coverage of appraisal was strongly associated with patient mortality (β -.547 P =.000), and accounted for 27.9% of the variance in patient mortality (1).

Table 5.19: The relationship between coverage of appraisal board representation and patient mortality (1).

Table 3.13: The relationship between coverage of appraisal board representation and patient mortality (1).									
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.			
		B	Std. Error	Beta					
1	(Constant)	99.692	1.223		81.511	0.000			
	Coverage of appraisals	-5.130	1.241	-0.547	-4.133	0.000			
2	(Constant)	99.309	1.149		86.420	0.000			
	Coverage of appraisals	-4.979	1.158	-0.531	-4.298	0.000			
	Voting membership of board	-3.083	1.162	-0.328	-2.652	0.011			
3	(Constant)	99.407	1.112		89.371	0.000			
	Coverage of appraisals	-5.699	1.181	-0.608	-4.827	0.000			
	Voting membership of board	-3.090	1.124	-0.328	-2.750	0.009			
	Interaction term	-2.306	1.197	-0.242	-1.927	0.061			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.547	0.299	0.282	7.923	0.299	17.083	1	40	0.000
2	0.637	0.406	0.376	7.386	0.107	7.036	1	39	0.011
3	0.678	0.459	0.417	7.141	0.053	3.714	1	38	0.061

Table 5.16 shows that once the effects of prior mortality were controlled for coverage of appraisal was associated with lower in patient mortality (β -.297 P =.056), and accounted for 8.7% of the variance in patient mortality (2). This would support hypothesis 2g that the coverage of appraisal was associated with lower patient mortality. Indeed, there was evidence that a larger percentage of staff receiving an appraisal was associated with a *reduction* in patient mortality once prior mortality was accounted for.

It was hypothesised that board level representation of the HR/personnel function would moderate the association between coverage of appraisals and patient mortality. Table 5.20 shows that the interaction term between integrated training & appraisal practices and

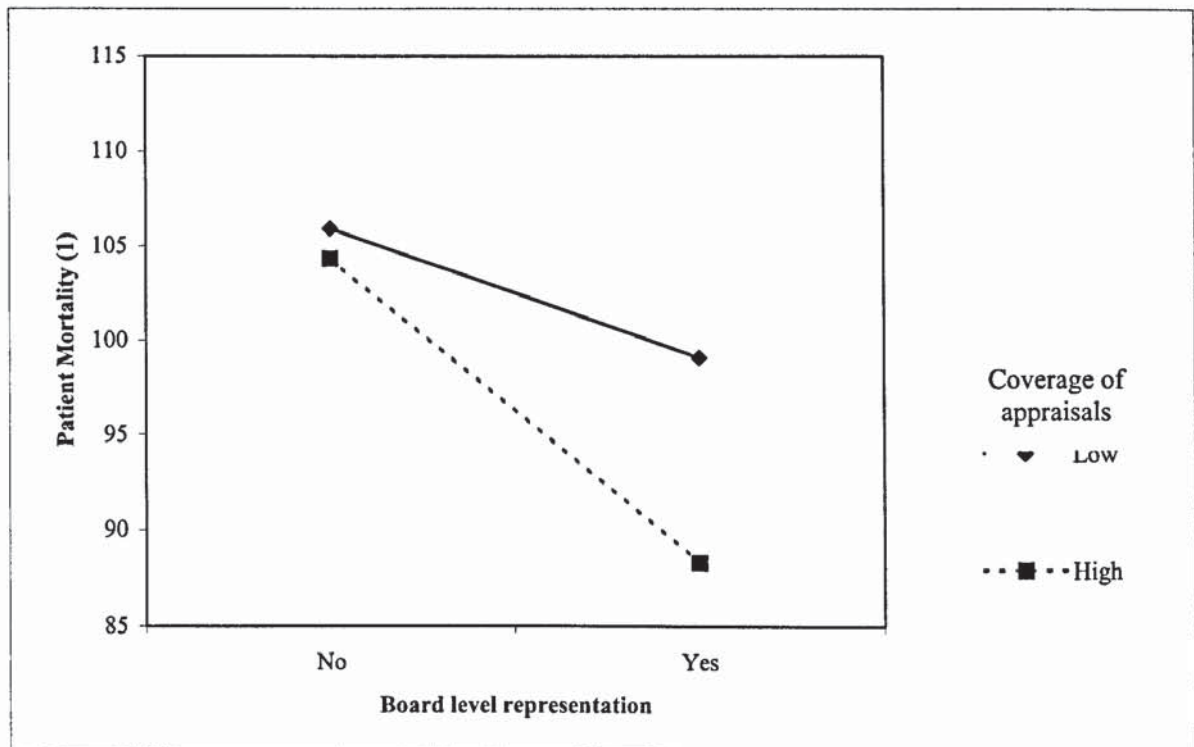
board representation accounted for 5.39% ($P=.061$) of the variance in patient mortality (1). Figure 5.9 shows an increase in the percentage staff receiving, was associated with a proportionally higher reduction in patient morality for Trusts with board representation when compared with Trusts with no board representation.

Table 5.20: The relationship between coverage of appraisal board representation and patient mortality (2).

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	99.093	1.332		74.413	0.000
	Coverage of appraisals	-2.656	1.351	-0.297	-1.965	0.056
2	(Constant)	98.615	1.215		81.177	0.000
	Coverage of appraisals	-2.467	1.225	-0.276	-2.015	0.051
	Voting membership of board	-3.853	1.229	-0.429	-3.136	0.003
3	(Constant)	98.663	1.220		80.890	0.000
	Coverage of appraisals	-2.826	1.295	-0.316	-2.183	0.035
	Voting membership of board	-3.857	1.232	-0.429	-3.130	0.003
	Interaction term	-1.149	1.312	-0.126	-0.875	0.387

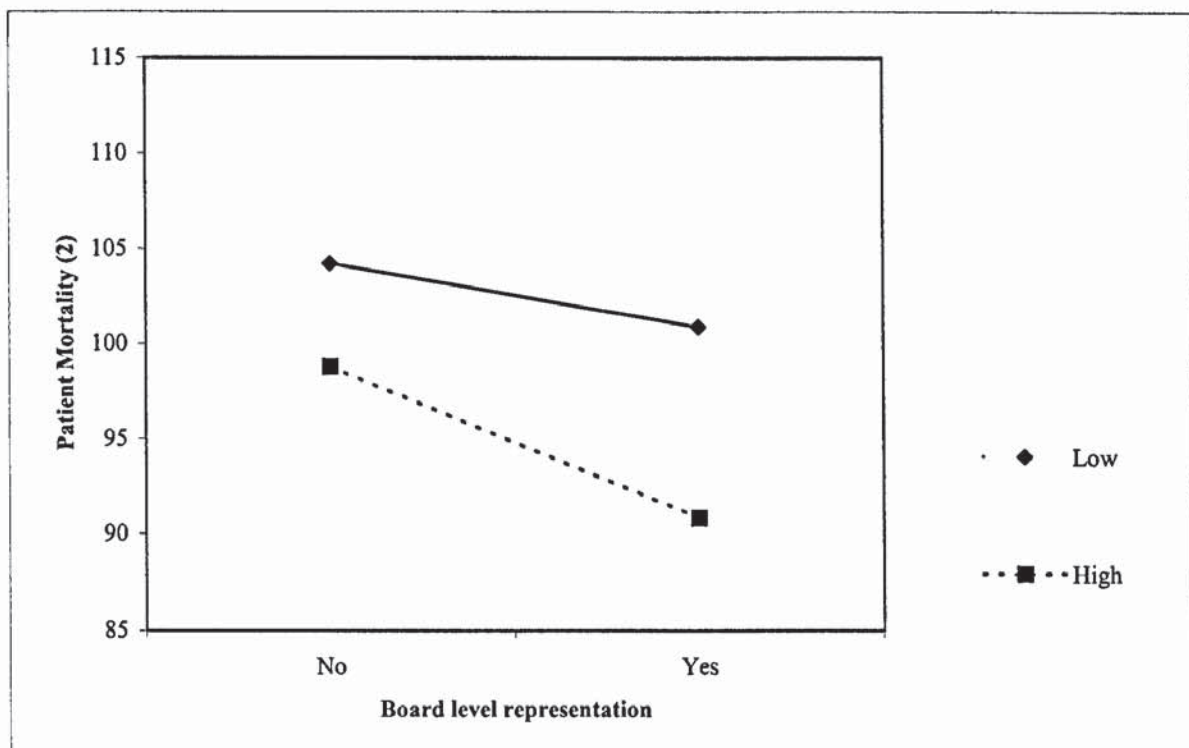
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.297	0.088	0.065	8.627	0.088	3.863	1	40	0.056
2	0.521	0.272	0.234	7.808	0.184	9.835	1	39	0.003
3	0.535	0.286	0.230	7.831	0.014	0.766	1	38	0.387

Figure 5.9: Interaction effect between coverage of appraisal, board representation and patient mortality (1).



However, once the effects of prior mortality are controlled for, the moderation effect of board representation is no longer significant. Figure 5.10 clearly illustrates the benefit of more staff members having an appraisal (main effect), and the benefits of more staff members having an appraisal can be enhanced where there is board level representation. However, the reduction in patient mortality was not sufficiently larger enough. Taken together, this would offer partial support hypothesis 3g that board representation would moderate the association between the coverage of appraisal and patient mortality.

Figure 5.10: Interaction effect between coverage of appraisal, board representation and patient mortality (2).



5.11.7 Regression analysis: HRM practices - Frequency of appraisal

Hypothesis 2g: There will be evidence of lower patient mortality amongst NHS Trust hospitals which have more frequent appraisals.

Hypothesis 3g: There will be evidence of lower patient mortality among NHS Trust hospitals that have board level representation for the HR/personnel function, and they have more frequent appraisal across occupational groups

It was hypothesised that Trusts with more frequent appraisal would display better health outcomes (i.e. lower patient mortality). However, table 5.21 shows that the frequency of appraisal did not display a significant association with patient mortality (β .227), and accounted for 5.1% of the variance in patient mortality (1). Once the effects of prior mortality are controlled for, table 5.22 shows that the frequency of appraisal did not display a strong association with patient mortality (β .242), and accounted for 5.8% of the

variance in patient mortality (2). Examination of the responses given by the Trusts would indicate there was comparatively small variation, with 33 of the 46 Trusts (71.7%) indicating that appraisals were conducted on an annual basis. Hence hypothesis 2g, that frequency of appraisal would be associated with lower patient mortality was rejected.

Table 5.21 The relationship between frequency of appraisal, board representation & patient mortality (1)

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	T	Sig.			
1	(Constant)	99.911	1.309		76.301	0.000			
	Frequency of appraisal	2.128	1.395	0.227	1.525	0.135			
2	(Constant)	99.917	1.301		76.772	0.000			
	Frequency of appraisal	1.818	1.410	0.193	1.290	0.204			
	Voting membership of board	-1.646	1.332	-0.185	-1.236	0.223			
3	(Constant)	100.628	1.379		72.953	0.000			
	Frequency of appraisal	-1.001	2.420	-0.107	-0.414	0.681			
	Voting membership of board	-2.276	1.388	-0.256	-1.640	0.109			
	Interaction term	3.428	2.408	0.361	1.424	0.162			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.227	0.051	0.029	8.771	0.051	2.327	1	43	0.135
2	0.291	0.085	0.041	8.717	0.033	1.528	1	42	0.223
3	0.357	0.128	0.064	8.613	0.043	2.028	1	41	0.162

Table 5.22: The relationship between frequency of appraisal, board representation & patient mortality (2)

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant)	100.219	1.281		78.251	0.000			
	Frequency of appraisal	2.231	1.365	0.242	1.634	0.109			
2	(Constant)	100.228	1.251		80.099	0.000			
	Frequency of appraisal	1.809	1.355	0.196	1.334	0.189			
	Voting membership of board	-2.235	1.280	-0.257	-1.746	0.088			
3	(Constant)	100.709	1.343		75.009	0.000			
	Frequency of appraisal	-0.098	2.356	-0.011	-0.042	0.967			
	Voting membership of board	-2.661	1.351	-0.305	-1.970	0.056			
	Interaction term	2.320	2.343	0.249	0.990	0.328			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.242	0.058	0.037	8.579	0.058	2.671	1	43	0.109
2	0.350	0.122	0.080	8.381	0.064	3.048	1	42	0.088
3	0.378	0.143	0.080	8.383	0.020	0.980	1	41	0.328

It was hypothesised that board level representation of the HR/personnel function would moderate the association between the frequency of appraisals and patient mortality. However, the analysis reported in tables 5.21 and 5.22 would indicate that board level representation had little effect upon this association, therefore hypothesis 3g was rejected.

5.11.8 Regression analysis: HRM practices - Personal Development Plans (PDP)

Hypothesis 1h: There will be evidence of lower patient mortality amongst NHS Trust hospitals where a higher percentage of staff receive an updated Personal Development Plan (PDP).

Hypothesis 4h: There will be evidence of lower patient mortality among NHS Trust hospitals that have board level representation for the HR/personnel function, and a higher percentage of staff who receive an updated Personal Development Plan.

It was hypothesised that Trusts with a higher number of staff have received an PDP would display better health outcomes (i.e. lower patient mortality). Table 5.23 shows updated PDPs were associated with lower patient mortality (β -0.368 $P=0.038$), and accounted for 13.5% of the variance in patient mortality (1).

Table 5.23: Relationships between coverage of PDPs, board representation and patient mortality (1)

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant)	99.610	1.577		63.174	0.000			
	Coverage of PDPs	-3.471	1.602	-0.368	-2.167	0.038			
2	(Constant)	99.418	1.421		69.986	0.000			
	Coverage of PDPs	-4.514	1.488	-0.478	-3.034	0.005			
	Voting membership of board	-4.195	1.479	-0.447	-2.836	0.008			
3	(Constant)	99.219	1.484		66.843	0.000			
	Coverage of PDPs	-4.527	1.506	-0.480	-3.005	0.006			
	Voting membership of board	-4.215	1.498	-0.449	-2.814	0.009			
	Interaction term	-0.824	1.519	-0.084	-0.542	0.592			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.368	0.135	0.106	8.919	0.135	4.694	1	30	0.038
2	0.568	0.323	0.276	8.027	0.188	8.045	1	29	0.008
3	0.575	0.330	0.258	8.126	0.007	0.294	1	28	0.592

However, when the effects of prior mortality were accounted for, the association between PDPs and patient mortality was no longer significant (β -0.115 $p=0.530$), and accounted for 1.3% of the variance in patient mortality (2) (see table 5.24). This would indicate a general association rather than an improvement in patient mortality. Hence, this would offer partial support for hypothesis 1h that coverage of PDPs would be associated with lower patient mortality.

Table 5.24: The relationship between coverage of PDPs, board representation and patient mortality (2)

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant)	100.003	1.699		58.861	0.000			
	Coverage of PDPs	-1.096	1.726	-0.115	-0.635	0.530			
2	(Constant)	99.778	1.491		66.925	0.000			
	Coverage of PDPs	-2.319	1.561	-0.244	-1.485	0.148			
	Voting membership of board	-4.921	1.552	-0.520	-3.170	0.004			
3	(Constant)	99.625	1.562		63.794	0.000			
	Coverage of PDPs	-2.329	1.585	-0.245	-1.469	0.153			
	Voting membership of board	-4.935	1.576	-0.522	-3.132	0.004			
	Interaction term	-0.633	1.598	-0.064	-0.396	0.695			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.115	0.013	-0.020	9.611	0.013	0.403	1	30	0.530
2	0.517	0.267	0.217	8.424	0.254	10.046	1	29	0.004
3	0.521	0.271	0.193	8.549	0.004	0.157	1	28	0.695

It was hypothesised that board level representation of the HR/personnel function would moderate the association between the coverage of PDPs and patient mortality. However, the analysis reported in tables 5.19 and 5.20 would indicate that board level representation had little effect upon the association between coverage of PDPs and patient mortality, therefore hypothesis 3h was rejected.

5.12 Regression analysis: HRM practices - Additive effects

The analysis reported in this section would indicate that a range of HRM practices related to training and appraisal were associated with lower patient mortality. The analysis reported in the previous section of this chapter would indicate that IiP status, training strategy, training policy, integration of training, and coverage of PDPs and appraisals were also associated with lower patient mortality.

Hypothesis 5: There will evidence of an additive effect, where NHS Trust hospitals which adopt a high usage of training and appraisal related practices will display improved health outcomes (i.e. lower patient mortality).

Hypothesis 6: Board representation will moderate the additive effect of training and appraisal related practices upon health outcomes.

To examine whether there was an additive effect of adopting a range of sophisticated training practices the Trusts were clustered according to the number of training related practices they displayed. Research reported in chapter one (see: Hoque 1999) would

indicate that there may be an additive effect, where the adoption of more HRM practices could be associated with superior performance. Hence, hypothesis 4 proposed that Trusts adopted a greater range of training and appraisal related practices would report lower patient mortality. To test this hypothesis a new variable was created from the standardised z scores of the variables relating to: a) IiP status; b) training strategy documentation; c) tailored training policy documents across all occupational groups; d) integrated training & appraisal practices; e) coverage of appraisal across all occupational group, and; f) coverage of PDPs across all occupational group.

In total 36 trusts provided sufficient data to be included in this part of the analysis. Table 5.25 shows that there was a significant additive effect where Trusts with high utilisation of training and appraisal related practices reported lower patient mortality (β -.503), and this new variable accounted for 25.3% of the variance in patient mortality (1). This would initial support for hypothesis 4.

Table 5.25: The relationship between additive effect board representation and patient mortality (1) (n=35)

Table 9.23: The relationship between additive effect board representation and patient mortality (1) (n=33)									
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.			
		B	Std. Error	Beta					
1	(Constant)	100.854	1.187		84.954	0.000			
	Additive effect	-5.904	1.765	-0.503	-3.345	0.002			
2	(Constant)	100.265	1.081		92.788	0.000			
	Additive effect	-7.010	1.622	-0.597	-4.322	0.000			
	Voting membership of board	-3.396	1.122	-0.419	-3.028	0.005			
3	(Constant)	99.962	1.101		90.778	0.000			
	Additive effect	-7.087	1.611	-0.604	-4.398	0.000			
	Voting membership of board	-3.423	1.114	-0.422	-3.074	0.004			
	Interaction term	-1.976	1.626	-0.163	-1.215	0.233			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.503	0.253	0.231	7.018	0.253	11.189	1	33	0.002
2	0.648	0.420	0.383	6.283	0.166	9.169	1	32	0.005
3	0.668	0.446	0.392	6.237	0.026	1.477	1	31	0.233

Next analysis was conducted to examine whether the effect remained after prior mortality was controlled for. Table 5.26 shows that there was a marginally significant additive effect where Trusts with high utilisation of training and appraisal related practices reported lower patient mortality (β -.329 $p=.054$), and this new variable accounted for 10.8% of the variance in patient mortality (2). Taken together, this analysis would support hypothesis 4 that proposed there would be an additive effect.

Table 5.26: The relationship between additive effect board representation and patient mortality (2) (n=35)

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant)	99.639	1.492		66.798	0.000			
	Additive effect	-4.435	2.218	-0.329	-2.000	0.054			
2	(Constant)	98.747	1.267		77.913	0.000			
	Additive effect	-6.107	1.902	-0.453	-3.210	0.003			
	Voting membership of board	-5.137	1.316	-0.551	-3.904	0.000			
3	(Constant)	98.573	1.315		74.977	0.000			
	Additive effect	-6.152	1.924	-0.456	-3.198	0.003			
	Voting membership of board	-5.152	1.330	-0.552	-3.875	0.001			
	Interaction term	-1.137	1.941	-0.081	-0.586	0.562			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.329	0.108	0.081	8.818	0.108	3.999	1	33	0.054
2	0.629	0.396	0.358	7.370	0.288	15.245	1	32	0.000
3	0.634	0.402	0.345	7.447	0.007	0.343	1	31	0.562

To identify the level of patient mortality within the different Trust a trichotomous variable was created to represent *high*, *moderate* or *low* utilisation of training and appraisal practices related. This distinction was based upon where:

- The Trust had achieved IiP status;
- The Trust had a written training strategy document;
- The Trust had tailored training policies documents across all occupational groups;
- The Trust reported training & appraisal practices were integrated;
- The Trust reported appraisal was conducted for in excess of 75% (mean score) of its employees across occupational group, and;
- The Trust reported updated PDPs were present for in excess of 65% (mean score) of employees across occupational group.

Twelve trusts reported having *five* or more of the practices listed above. These trusts were considered to have *high* utilisation of HRM practices relating to training and appraisal. Eleven trusts reported having between three and four of the practices listed above. These trusts were considered to have *moderate* utilisation of HRM practices relating to training and appraisal. Finally, thirteen trusts reported less than three of the practices. These trusts were considered to have *low* utilisation of HRM practices relating to training and appraisal.

Patient mortality (1) was lowest for those Trusts within the cluster that utilised a high number of HRM practices related to training and appraisal (mean patient mortality

95.472) when compared with Trusts that adopted a moderate (mean 99.705) or low (mean 105.866) number of training and appraisal related practices. Once the effects of patient mortality are controlled for, patient mortality was lower for those trusts within the cluster which utilised a high number of HRM practices related to training and appraisal (mean patient mortality 94.897) when compared with Trusts that adopted a moderate (mean 100.199) or low (mean 102.865) number of training and appraisal related practices.

It was hypothesised that board level representation would moderate the additive effect and patient mortality. However, the analysis reported in tables 5.25 and 5.26 would indicate that board level representation had little effect upon the association between the additive effect and patient mortality, therefore hypothesis 6 was rejected.

5.13 Discussion: Overview of main findings

The analysis reported in this chapter provides evidence that a range of HRM practices related to training and appraisal were associated with lower patient mortality. The analysis reported in the previous section of this chapter would indicate that there was evidence to suggest the association between practices such as LiP status, training strategy, training policy, integration of training, and coverage appraisals was influenced by whether there was board level representation. Analysis reported earlier in this chapter would indicate that there may be an additive effect, where the adoption of more HRM practices would be associated with lower patient. The analysis reported in this chapter shows that HRM practices remain positively associated with improved health outcomes after controlling for the effects of prior health outcomes (c.f. Patterson, et al 1997). The findings reported in this chapter have particular implications because of the nature of the outcome measure adopted. Unlike most other studies that examine the association between HRM and profitability and productivity outcomes, this study examines the association with health outcomes (measured in relation to standardised patient mortality).

This study revealed a significant association between the management of employees in acute hospitals and the levels of health outcomes (i.e. patient mortality). Initially the study illustrated that after controlling for the number of doctors per bed, number of GPs and NHS facilities in the local vicinity, and live discharges to home residence (c.f. Jarman et al, 1999), HRM practices relating to employee skill development accounted for significant variance in patient mortality. Specifically the sophistication of appraisal and training practices, were positively associated with lower patient mortality. The analysis

reported in this section would indicate that although Trusts with a written training strategy, and tailored training policies for different occupational groups reported lower patient mortality (before the effects of prior mortality were accounted for).

The research also set out to examine whether changes in patient mortality could be attributed to HRM practices. The analysis reported in this chapter would indicate that IiP status, coverage of appraisal, and updated PDPs were associated with lower patient mortality after controlling for past patient mortality – this would indicate support of a cause-effect relationship where these practices are associated with improved patient mortality. The findings presented in this chapter would be consistent with the notion of a *learning* NHS organisation (DoH, 2001). The DoH (2001) illustrate a number of criteria which would mark out a successful NHS learning organisation. These could include:

- a) A coherent learning strategy. Hence, a formal training strategy document *may* provide information relative to how training is to be utilised to accomplish Trust objectives, and could also provide details of the mechanisms used to accomplish such objectives. The analysis reported indicated that tailored training policies across occupational groups was associated with lower patient mortality, This could possibly reflect that the specific needs of different occupational groups are likely to result in considerably different training requirements (see: DoH, 1999, 2000, 2001).
- b) A system of appraisal and PDPs for all staff groups, that is reviewed on a regular basis. The findings of study one would indicate that such practices are associated with improved health outcomes. The research reported in this chapter established that the sophistication of the appraisal process (i.e. coverage, and outcomes of appraisal such as updated PDPs) was associated with lower patient mortality.
- c) Having achieved IiP status. The analysis reported in chapter illustrated that IiP status was related with lower patient mortality.

The hypothesis proposed for study one reported in this thesis were largely accepted. However, the analysis reported in this chapter would indicate that hypothesis 1d and 1g, that the frequency of training need assessment and/or appraisal would be related with lower patient mortality should be rejected. Examination of the responses given by the Trusts would indicate there was comparatively small variation on this particular variable, where 36 of the 48 Trusts (73.5%) indicated TNA occurred annually. While, 71.7% of the Trusts reported that appraisal were conducted annually. This would offer an initial reason why the frequency of training needs assessment and appraisal was not associated with

lower patient mortality – however, it does not mean that is unimportant. Goldstein (1991) highlights that training needs assessment *drives* the design and evaluation of training. Therefore, it could be although trusts perform regular needs assessment, there may be variation in the outcomes of the process (i.e. the type *and* frequency of training provided) – although this was not measured in this study.

The analysis reported in this chapter indicates that there was evidence of a moderating effect between board representation for the HR function and HRM practices relating to training and appraisal. The findings have clearly demonstrated the effectiveness of training and appraisal practices is dependent upon board representation. This may be related to this individual having the power and authority to participate in the policy-making process sufficiently early to influence decisions that effect the management of the Trust's human resources. This would imply the presence of a board member offers greater *authority, status and influence* to the HR function, which is manifest in the application of HRM practices (c.f. Guest, 1987). Specifically, study one reported in this thesis illustrated that representation of the HR function on the board of directors can have both a direct effect on health outcomes, and moderate the association between HR practices and health outcomes. In addition there was evidence that within with board level representation, the Trusts current IiP status, and the sophistication of appraisal practices was associated with lower patient mortality. This finding has practical implications for the status afforded the HR function, and the potential effectiveness (perhaps via the implementation) of practices designed to improved the acquisition of KSAs.

5.13 Discussion: Limitations of study one

The following section will discuss the limitations with the two studies The first limitation of study one is related to sample size. The original sample size (n=81) represented approximately 40% of NHS Trusts in England offering acute services. However, when accounting for Trust mergers, and insufficient performance data the final sample was reduced to 61 Trusts. This problem was further exacerbated by Trusts not providing insufficient data on certain sections of the survey used in the study. However, the results obtained from this analysis were very strong despite the comparatively small sample size. Due to the failure of Trusts to supply adequate information about all HRM practices, only 21 hospitals gave information to all aspects of HRM investigated in this study. The sample size was already comparatively small, therefore it was decided that to use only

this sample would waste valuable information, and the statistical power of the analysis would be consequently smaller. To address this issue it was decided to include all the possible information collected from Trusts for each analysis. However, this represents the second limitation with the study – namely the variation in sample size across analysis of the association between HRM practices and health outcomes.

The research reported in this chapter reported that there are links between HRM practices and health outcomes (i.e. patient mortality). However, due to the cross sectional nature of the design employed in the study it is not possible to determine the direction of causality. There could be no direct *causal* relationship between HRM practices and lower patient mortality. It could be that within the Trusts with lower patient mortality, these Trust *also* employs better people management practices – however, patient mortality could be influenced by external factors, rather than people management practices. For example, geographical location (and the health needs of the local community) could influence the demands placed upon the resources of the Trusts. However, there is an increasing body of research that would support the direction of the relationship between HRM practices and subsequent performance (see chapter one of this thesis). In addition, the data relating to HRM practices was collected between 1999-2000 while the information relating to health outcomes (i.e. patient mortality) relates to the period 1999-2001. Therefore, using the logic reported by Patterson et al (1999) the effects of HRM practices (at the time the study was completed i.e. 1999-2000) should become within 18 months. The findings reported in this would be concurrent with this study. The analysis reported in this thesis also controlled for the effects of prior mortality (c.f. Paterson et al, 1997). Therefore, the findings reported in study one of this thesis represent strong evidence that HR practices relating to training and appraisal practices were related with a *reduction* in patient mortality. However, to clarify the direction of causality (if any such exists) between HRM practices and health outcomes additional performance data should be collected.

5.14 Review of the chapter

In this chapter a brief overview of the research project was reported. Details were given of the procedures undertaken to secure the healthcare organisations that participated, which formed the population of organisations and employees for the two studies reported in this thesis (chapter seven and eight). Details were given of how hospital performance was to be measured in study one used a measure of patient mortality (Jarman et al, 1999). This included a discussion of the rationale for *why* this particular measure of performance

was adopted, and the potential confounding factors which could influence the association between HRM practices and performance (i.e. health outcomes).

This chapter reported details of a study conducted within the NHS, where information relating to the sophistication of HRM practices was collected in 61 NHS Trusts offering acute services. The chapter illustrates that HR practices relating to the sophistication of training and appraisal practices are associated with improved health outcomes (i.e. lower patient mortality). Further it was highlighted that board level representation for the HR function can moderate the relationship between HRM and health outcomes. For example, it was reported that the presence of a strategy document relating to training; and the Trust has gained Investors in People (IiP) status this was associated with lower patient mortality, but only when there was board level representation for the HR function. The study also illustrated the importance of the strategic integration and alignment of HRM – this can be associated with improved health outcomes when there is also Board representation.

To examine why HRM practices may be associated with lower patient mortality, the second study reported in this thesis examined the mechanisms which may influence workplace behaviours following participation in a range of development activities (c.f. Noe et al, 1997). Details of this study are presented in the following chapter.

Chapter six: Study two - Examining the effects of training climate upon workplace behaviours.

Overview of chapter

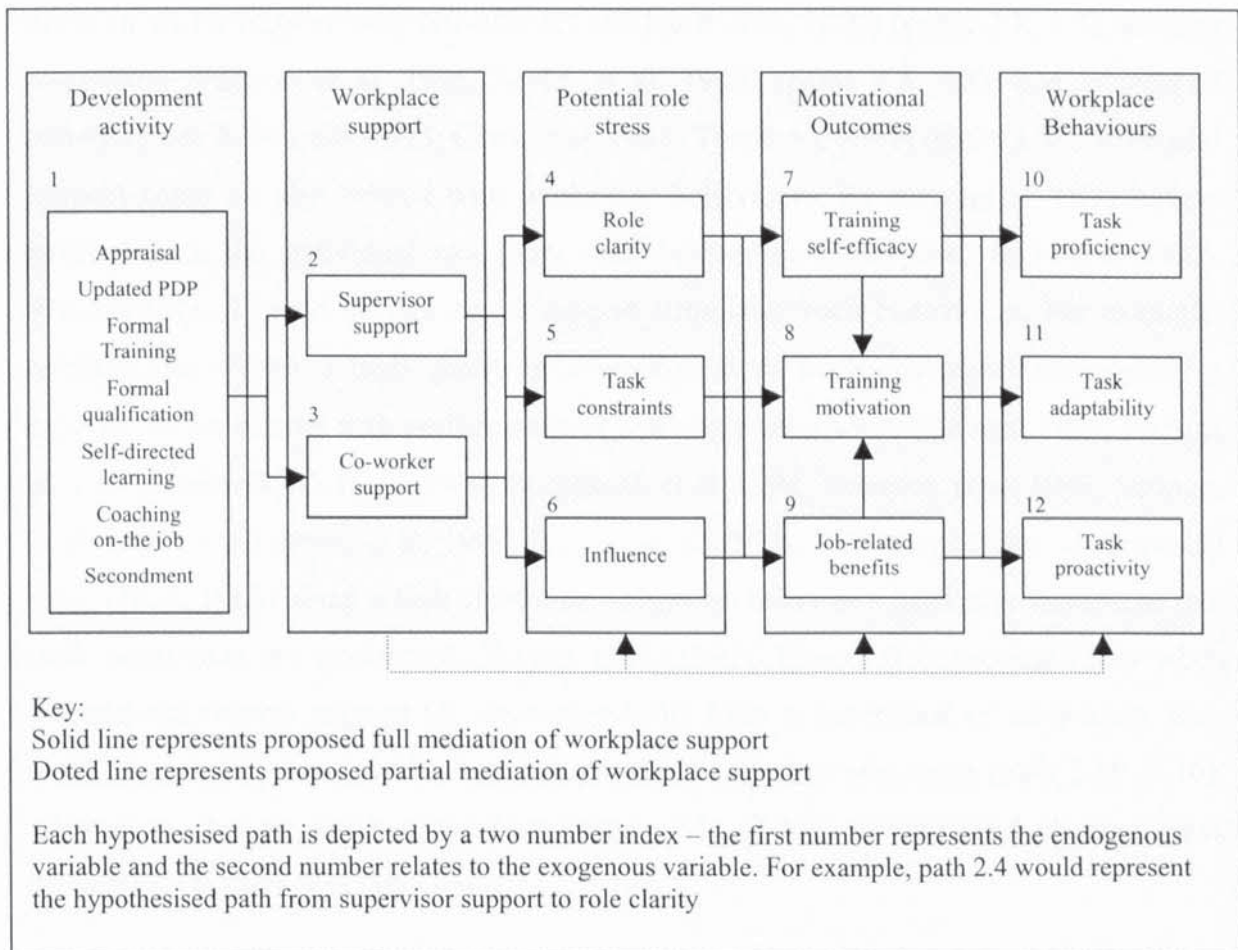
In this chapter details will be reported of the results obtained from study two that formed this thesis. The study reported in this chapter was conducted within five NHS Trusts that had participated in study one. The study relates to employees experiences on a wider range of developmental activities, with a focus on not only formal training opportunities, but also KSA's acquired from a range of informal activities (Noe et al, 1997), to examine the impact of work environment factors (social support and role stressors) on motivational and behavioural outcomes. The chapter will be divided into three sections. Firstly, a brief review of theoretical background of the research will be presented. Secondly, details will give details of the survey instrument used in the study, the Trusts that participated in the study, the methodology used to collect and analyse the data. This will include details of exploratory and confirmatory factor analysis conducted to examine the factor structures of scales used in the study. Finally, the third section will report details of the main research findings of study two. This will reflect two specific research questions designed to a) test the proposed theoretical model; and b) examine whether social support can mitigate the potential negative effects of high work role stressors upon motivational outcomes.

Theoretical background : Path model

Existing training research has utilised the *reaction, learning, behaviour change* and *results* classification of training evaluation (Kirkpatrick 1976) as a central tenet. However this classification has often been criticised for being simplistic (Holton, 1996). More complex training effectiveness models (Baldwin & Ford, 1988; Colquitt et al, 2000; Fecteau et al, 1995; Mathieu & Martineau, 1997; Noe, 1986; Tracey et al, 2001) propose the support a supervisor (Brinkerhoff & Montesino, 1995; Clark et al, 1993; Fecteau et al, 1995; Ford et al, 1992) or co-workers (Fecteau et al, 1995), task constraints (Ford et al, 1992), and motivational outcomes (Colquitt et al, 2000; Tannenbaum et al, 1992) could impact upon training outcomes. Based upon a review of existing literature, a model was developed for study two (see figure 6.1). The model differentiates between *proximal* and *distal* variables (Kanfer, 1991; Katzell & Thompson, 1990) - for example, the model proposed that motivational outcomes are the most proximal variables to workplace behaviour. While support (from a supervisor or co-workers) would a distal variable, and that the effects of social support would be mediated by variables (such as motivational

outcomes) more proximal to workplace behaviour. The research attempted to integrate the results from previous studies to develop and test a model that examined possible factors which influenced workplace behaviours. Specifically, the model examined: a) the relationship between development activity (see Birdi et al, 1997; Warr et al, 1997) and support from either a supervisor or co-workers; b) the link between support from either a supervisor or co-workers and potential role stressors (LeRocco et al, 1980); c) whether support from a supervisor or co-workers has a differential effect upon training outcomes (Facteau et al, 1995); d) the link between role stressors and motivational outcomes (Mathieu & Martineau, 1997), and e) the link between motivational outcomes and a range of workplace behaviours (Campbell, 1990).

Figure 4.1: Proposed relationships in study two



The theoretical model tested is based upon Colquitt et al (2000), they propose the effects of the training climate (i.e. social support) on training outcomes (such as learning and behaviour change) would be either fully or partially mediated by variables more proximal (i.e. motivational outcomes). Using the structural equation modelling technique they tested two nested models to depict both the full and partial mediation effects. A similar strategy was adopted with the proposed model, where two variants of the model would be

tested. Firstly, one where the effects of social support are fully mediated by proximal variables, and secondly where the effects are partially mediated by the proximal variables.

Research question six: There will be support for the structure of the proposed theoretical model where the effects of distal variables are mediated (fully or partially) via proximal variables.

The model proposed that social support from either a supervisor or co-workers will have a direct influence upon role stressors. That is, the level of social support will determine whether the respondent has an understanding of their task requirements (paths 2.4, 3.4) (Abramis, 1994), has influence over decisions (paths 2.6, 3.6) (Axtell et al, 1997) or believes they have the available resources (mental and physical) to utilise KSAs (paths 2.5, 3.5) (Noe & Wilk, 1993). Previous research has reported a strong association between social support with self-efficacy (Colquitt et al, 2000) (paths 2.7, 3.7), training motivation (Fecteau et al, 1995, Seyler et al, 1998) (paths 2.8, 3.8), and job-related benefits (Noe & Schmitt, 1993; Clark et al, 1993; Tharenou, 2001) (paths 2.9, 3.9). Social support could be also related with workplace behaviours, by creating an environment within which the individual can enact such behaviours (Huczynski & Lewis, 1980). Alternatively, it could be that social support stimulates such behaviours. For example, research has shown a high quality relationships with work colleagues (principally a supervisor) are related with performance of extra-role behaviours (Deluga, 1995; Farh, et al, 1990; Konovsky & Pugh, 1994; Podsakoff, et al, 1996; Schnake, et al, 1993; Settoon, et al, 1996; VanYperen, et al, 1999; Wayne, et al, 1997). This may be due to reciprocal norm (Blau, 1964) being which creates an obligation to act in a particular fashion so that such behaviours are performed (Wayne et al (1997). Hence, it is proposed that when respondents receive support (& encouragement) from a supervisor or co-worker, they would report they have utilised correct procedures (*task proficiency*) (path 2.10, 3.10), adapted to changes (*task adaptability*) (path 2.11, 3.11), and initiated changes (*task proactivity*) to their core tasks (path 2.12, 3.12).

The proposed model included a direct path from role stressors (task constraints, role clarity and influence) to motivational outcomes. For example, task constraints could have a *negative* impact on training outcomes such as training motivation (path 5.7) (Fecteau et al, 1995; Gist & Mitchell, 1992) or self-efficacy (Mathieu et al, 1993) (path 5.8). In addition, task constraints may also influence whether an individual believes they will receive rewards if they use their KSAs (path 5.8). Secondly, role ambiguity may result in

people being less clear of the context in which they perform tasks, and as a consequence they may not fully understand what they have to do (Bandura, 1986), which could impact upon self-efficacy beliefs (Stajkovic & Luthans, 1998) (path 4.7). Role ambiguity may also weaken performance-outcome and effort-performance expectancies (Dubin, 1990) – thus where individuals have low role clarity they believe they will not be rewarded for using KSAs (path 4.9), which could then impact upon the direction, persistence and intensity of future behaviour (i.e. training motivation) (path 4.8). Finally, if an individual also has control (or influence) over the work environment this effect self-efficacy beliefs (path 6.7) (Butt & Cordery, 2001), motivational outcomes (path 6.8) (Parker et al, 2001), and whether an individual attributes value will arise from using KSAs (path 6.9).

The model also specified a link between self efficacy and job-related benefits with training motivation. Although self-efficacy and job-related benefits are proposed to be motivational constructs, research would indicate there should be a positive relationship between self-efficacy (Birdi et al, 1997; Colquitt et al, 2000; Noe & Wilk, 1993; Seyler et al, 1998; Tannenbaum et al, 1991) (path 7.8) or perceived job-related benefits (Noe & Wilks, 1993; Clark et al, 1993; Tharenou, 2001) (path 9.8) with training motivation.

Typically, training research has examined training transfer as the application of KSAs in a non-training context (Baldwin & Ford, 1988). Previous research has examined the frequency or breadth of behaviours performed (Ford et al, 1992) and behaviour change (Axtell et al, 1997; Brinkerhoff & Montesino, 1995; Fecteau et al, 1995; Gumuseli & Ergin, 2002; Smith-Jentsch et al, 2001; Xiao, 1996) rather than examining the *type* of workplace behaviours that have been initiated. This study examined how training and development activities relate to three types of workplace behaviours, relating to whether the respondent had: a) utilised of correct procedures (*task proficiency*); b) adapted to changes (*task adaptability*); and c) initiated changes (*task proactivity*) in the way their core tasks are performed.

Performance requires that an individual possess the appropriate KSAs to engage in a specific set of activities (Fleishman, 1972). However, Campbell (1990; Campbell, et al, 1993) proposed that an individual may propose the require KSAs, but performance also involves choice over the type *and* degree of the activities an individual choose to engage. Expectancy theory (Landy, 1989; Pinder, 1984; Vroom, 1964) predicts behavioural choice or motivational force relates to the initiation, direction, intensity, duration and

quality of work behaviours – training motivation (Noe, 1986) represents the direction, intensity and persistence to utilise training. Whereas, social learning theory (Bandura, 1977) would indicate that behaviour is a function of efficacy and outcome expectancies. Bandura (1977, p.79) defines outcome expectancies as “a person’s estimate that a given behavior will lead to certain outcomes”, whereas efficacy expectancies represent “the conviction that one can successfully execute the behaviour required to produce the outcomes”. For example, prior research would indicate self-efficacy was associated with the level of effort and persistence to complete a task (Gist & Mitchell, 1992; Fisher & Ford, 1998), and performance (Bandura, 1986; Judge & Bono, 2001; Kozlowski et al, 2001; Stajkovic & Luthans, 1998). Hence when respondents report high training motivation, believe they would be able to overcome potential obstacles (high self-efficacy), and that they will be rewarded for using KSAs (high job-related benefits), then respondents would be more likely to report they have utilised correct procedures (*task proficiency*) (paths 7.10, 8.10, 9.10), adapted to changes (*task adaptability*) (paths 7.11, 8.11, 9.11), and initiated changes (*task proactivity*) to their core tasks (paths 7.12, 8.12, 9.12).

6.2.2 Theoretical background: Interaction effects

Noe (1986) proposed that situational or task constraints, which represent those elements of the environment that interferes with, or restrict an individual’s performance. No training research has failed to establish a strong relationship between task constraints and training outcomes (Facteau, et al, 1995; Mathieu, et al, 1992, 1993). The study utilised the demand-control model (Karasek, 1979) in an attempt to examine *why* individuals are able to overcome potential task constraints. Within the demand-control model, Karasek (1979) proposed job demands represent work load or time pressures, and control relates to the ability of the person to control decisions within the work environment. From this, two main hypothesis (*strain* and *buffering* hypothesis) are proposed. These represent:

- a) *Strain* hypothesis: High strain jobs (high demands-low control) will be associated with the most adverse reactions to psychological strain and physical illness.
- b) *Buffering* hypothesis: Hence, although employees may have a heavy work load and are stretched, control will *buffer* the potential negative effects of high demands

There is a growing body of research that has shown social support could ameliorate the potential negative effects of stressors (Bliese & Castro, 2000; Karasek & Theorell, 1989; LaRocco, et al, 1980; Van der Doef & Maes, 1999; Viswesvaran, et al, 1999). Hence, the

strain and *buffering* hypothesis can be modified to represent the level of social support an individual receives. This represents

- c) *Iso-Strain* hypothesis: High strain jobs (high demands-low control) coupled with low social support will be associated with the most adverse reactions to psychological strain and physical illness.
- d) *Buffering* hypothesis: There will be an interaction between demand and control, so that control will buffer the potential negative effects of high demands. However, this will only occur in situations where social support (of work colleagues) is received.

In addition, Fackeau et al (1995) has reported that different sources of social support (i.e. supervisor or co-worker) may impact in different ways. Therefore, study two examined whether effects were attributable to the source from where support was received. No current study has tested for the *iso-strain* or *buffering* hypothesis within a training context on motivational outcomes. Hence, analysis was conducted to examine whether the *strain* and *buffering* hypothesis could be applied to explain motivational outcomes.

Research question seven: There will be support for the iso-strain hypothesis, where motivational outcomes will be lowest in conditions where there is high task constraints, low job control and low social support, and highest in conditions where there is low task constraints, high job control and high social support.

Research question eight: There will be support for the buffering hypothesis, where there will be interaction effects between task constraints, job control and social support upon motivational outcomes.

6.2.3 Theoretical background: Study two hypothesis

Hypothesis 1: High task constraints and low role clarity coupled with low supervisor support will be associated with the low: a) job-related benefits, b) training self-efficacy, and c) training motivation (*iso-strain* hypothesis)

Hypothesis 2: There will be evidence of an interaction effect between task constraints and role clarity and supervisor support on: a) job-related benefits, b) training self-efficacy, and c) training motivation (*buffering* hypothesis)

Hypothesis 3: High task constraints and low influence coupled with low supervisor support will be associated with the low: a) job-related benefits, b) training self-efficacy, and c) training motivation (*iso-strain* hypothesis)

Hypothesis 4: There will be evidence of an interaction effect between task constraints and influence and supervisor support on: a) job-related benefits, b) training self-efficacy, and c) training motivation (*buffering* hypothesis)

Hypothesis 5: High task constraints and low role clarity coupled with low co-worker support will be associated with the low: a) job-related benefits, b) training self-efficacy, and c) training motivation (*iso-strain* hypothesis)

Hypothesis 6: There will be evidence of an interaction effect between task constraints and role clarity and co-worker support on: a) job-related benefits, b) training self-efficacy, and c) training motivation (*buffering* hypothesis)

Hypothesis 7: High task constraints and low influence coupled with low co-worker support will be associated with the low: a) job-related benefits, b) training self-efficacy, and c) training motivation (*iso-strain* hypothesis)

Hypothesis 8: There will be evidence of an interaction effect between task constraints and influence and co-worker support on: a) job-related benefits, b) training self-efficacy, and c) training motivation (*buffering* hypothesis)

6.4 Method

The following section will describe the methods employed in study two reported in this chapter. This section will provide the research instrument used, including details of the specific scales used in the study, and the analytical approach adopted with details given of analysis conducted to a) establish the factor structure of scales employed in the study, and b) to examine the impact of control measures (NHS tenure, occupational group and employment location) upon the scales used in the study.

6.5 Study design

The study reported in this chapter was of a cross sectional survey design. Five NHS Trusts (all offering acute services) were selected to participate in this study. These trusts had also participated in phase one of the '*Organization, management and effectiveness in NHS Trusts*' research project conducted by the Aston Centre for Health Service Organization Research (ACHSOR) – further details of the research project are reported in chapter five. The following sections will provide details of: a) the criteria for selection in study two; b) description of the sampling strategy adopted; and, c) description of the survey instrument used.

6.6 Selection of Trusts for in-depth phase

The focus of study two reported in this thesis was more in-depth research in a smaller number of NHS Trusts. Table 6.1 gives details of the five NHS Trusts who participated in the second study reported in this thesis. These Trusts had also participated in study one – inclusion in study two was based upon whether the Trust had utilised a particular initiative aimed at improving people management practices.

Table 6.1: Details of participant Trusts in study two.



Source: Binley's Directory of NHS Management: Summer 2000 (Figures relate to March 1999)

To identify the Trusts that participated in phase two of the research project we conducted initial statistical analysis of the data collected from phase one of the research project. Initial analysis was conducted upon the survey to examine the responses given to the main sections of the survey instrument (see appendix five). This was undertaken to identify Trusts that displayed a range of HR practices (as discussed in chapter one of this thesis). The research instrument comprised 67 questions, and covered 10 areas relating to: a) basic information about the trust; b) Trust strategy and HRM; c) recruitment and selection; d) training; e) harmonisation; f) job security; g) reward and flexibility; h) job design and team working; i) involvement and decision-making, and j) appraisal. From this a standardised *z score* was calculated for each of the Trusts, and this allowed us to rank the Trusts by the sophistication of their HRM systems.

From this, members of the research team then met to discuss which Trusts we wished to approach for the in-depth phase of the research project. Once we arrived at a shortlist of Trusts the researcher responsible for the initial contact with the Trust, or who had conducted the telephone interview with the Trust, then approached the contact person within the Trust to invite them to participate in the in-depth phase of the research. As part of data collection process for study one reported in this thesis, approximately half of the data was collected via telephone interview. As part of this process certain questions within the research instrument afforded the respondent to provide details of particular initiatives introduced by the Trust. The second phase of the research project was designed to examine the impact of the specific HR initiatives that the Trust had introduced.

A range of research methods were adopted in this phase of the research project. For example, members of the research team conducted interviews with representatives from the HR department to establish details of the HR initiatives, and how effective they felt it had been. Secondly, focus group interviews were conducted with a staff representatives from a range of occupational groups to ascertain how the particular HR initiative had impacted upon them. Finally, this phase of the research also utilised a staff attitudinal survey (see appendix seven) which was sent to a representative sample of the workforce. This was design to supplement the focus group interviews, and capture an understanding how the HR initiative had impacted upon the wider workforce. The analysis reported in the second study is focused upon the data collected from the staff attitudinal survey. Data collection for the survey phase of the research project was completed between September 2000 and January 2001.

6.7 Sampling strategy

A stratified random of employees was drawn to form the sample. Each of the Trusts that participated in study two had over 1,000 staff members. Therefore, a stratified random sample of 500 employees was drawn from each Trust to include representatives from all major occupational groups – specifically these were: Nurses, Doctors, Administrative and Clerical (A&C) staff, managers, Professionals Aligned to Medicine (PAMs), Professional and Technical (P&T) staff, and ancillary staff. To ensure confidentiality, respondents were assured that it would not be possible for either me or the management of the Trust to identify who had completed the survey. Appendix x shows an example of the letter distributed with the survey to the respondents selected at random.

6.8 The research instrument

The following section will provide details of the survey (see appendix seven) used in study two, and describe in detail the specific origins and examples of the scale items used. The survey was divided into four parts:

- Part one related to basic biographical data (i.e. age, gender, marital status, and dependants) and work information (i.e. sickness absence rates, job title, tenure in the NHS, tenure in the hospital, and tenure in current job, type of contract, hours contracted and hours worked). This information was to be used as a control measure in statistical analysis.
- Part two related to aspects of the job they performed. This section consisted of nineteen questions relating to role stressors, social support, feedback, workplace behaviours, and training experiences.
- Part three related to aspects of the Trust where they work. This included scales relating to the prevailing climate within the Trust, and details of practices relating to flexible working, team briefing, and team working within the Trust.
- Part four related to measures of staff well-being. This included measures of psychological strain, turnover intentions, and job satisfaction.

The research reported in this chapter related to a small number of the variables collected from the survey instrument. The next section will outline details of each scale used in study two, and its relevance to the research project.

6.8.1 The research instrument: Development activities

Typically, research has either examined participation in formal training sessions (Facteau et al, 1995; Mathieu et al, 1992; 1993; Noe & Schmitt, 1986; Tracey et al, 2001), or a narrow range of development activity, such as participation external development courses (Bartlett, 2001; Noe & Wilk, 1993; Maurer & Tarulli, 1994; Tharenou, 2001). Typically such studies have collected self-report data to measure developmental activity (see: Bartlett, 2001; Birdi et al, 1997; Maurer & Tarulli, 1994, and Noe & Wilk, 1993). For example, Noe & Wilk (1993) collected data relating to self-reported participation (i.e. number of courses taken), hours spent on development activity, and future intentions (i.e. development activities planned for the next year). Self-reported participation tends to display a stronger association with training outcomes than objective measures (c.f. Bartlett, 2001). However, Noe & Schmitt (1993) argue that it is appropriate to use self-report data as it is likely that firms do not systematically collect information or employees may not report participation in sessions (c.f. Maurer & Tarulli, 1994; Birdi et al, 1997).

The study reported in this chapter operationalised development activity to include a wider range of activities (c.f. Noe et al (1997; Birdi et al, 1997; & Tharenou, 2001). These included the formal development activities, and also more informal activities identified by Noe et al (1997). Respondents were asked to indicate on a *Yes – No* scale, in the last year have you:

- a) Attended a formal training course offered by the Trust;
- b) Undertaken a formal qualification i.e. to degree or NVQ level;
- c) Conducted self-directed work-related learning i.e. study leave;
- d) Received coaching on-the-job from work colleagues or your supervisor;
- e) Had the opportunity to work in a different part of the Trust;
- f) Received a appraisal or performance review in the last 12 months, and/or;
- g) Received a Personal Development Plan (PDP) that had been reviewed and updated.

In addition, respondents were given the opportunity indicate whether they had participated in other developmental activities. They were given the instruction: *“Please indicate below (space provided) if you have participated in any other training and development activities during the past, which have not been covered above.”*

6.8.2 The research instrument: Workplace support

The study used a number of scales designed to measure aspects of the immediate work environment which may either facilitate or hinder the acquisition and utilisation of KSAs (c.f. Tannenbaum & Yukl, 1992). Fecteau et al (1995) argues that the location of support may impact upon the transfer process in subtly different ways. Hence, in this study rather than a global measure of workplace support, two types of support were measured:

- a) Supervisor support: Supervisor support was measured using scale items from Holton et al (1997, 2000), and reflects the extent to which supervisors support and reinforce the use of newly acquired KSAs. This could include a range of activities, including: a) clarifying performance expectation; b) identifying opportunities to apply skills; c) setting realistic goals; d) working with individuals on problems encountered, and e) providing feedback. Respondents were asked on a five point scale, ranging from *strongly disagree* to *strongly agree*, to register their agreement with eight positively worded items. This study used the 6 scale items developed by Holton et al (2000), with slight wording changes being made to certain scale items. For example, one scale item was changed from “My supervisor meets with me to discuss ways to apply training on the job” to “My supervisor meets with me to discuss ways to apply what I have learnt on the job”. When changes were made, the revised scale items were sent to the authors to check whether the revised scale item was representative of the authors initial conceptualisation. In addition, two new scale items were added to scale which related to encouragement to undertake development activity, and advice about the utilisation of KSAs. An example of a scale item was “My supervisor encourages me to undertake activities that will help enhance my knowledge and skills”.
- b) Co-worker support: Co-worker support was measured using scale items from Tracey et al (1995), and reflects the extent to which co-worker support and reinforce the use of newly acquired KSAs. This could include a range of activities, including: a) supporting co-workers to undertake activities; b) providing feedback; c) suggesting new ideas; and d) encouraging co-workers to use KSAs. Respondents were asked on a five point scale, ranging from *strongly disagree* to *strongly agree*, to register their agreement with five positively worded items. An example of a scale item was “work colleagues suggest new approaches of solving work related problems”.

6.8.3 The research instrument: Work role stressors

For study two, consideration was given to the workrole stress literature (see: Abramis, 1994; Cohen & Wills, 1985; LaRocco et al, 1980; Viswesvaran et al, 1999) than is typical reviewed within training research. In this study, potential workrole stressors were measured in relation to:

- a) **Role clarity:** Role clarity reflects an individuals understanding of the tasks that forms the basis of the job they are required to perform (Rizzo et al, 1970). When the individual does not have clarity of understanding then they are experiencing role ambiguity, which can be a potential role stressors. The measure used in the study reported in this chapter is based upon the original scale developed by Rizzo et al (1970) study of 290 technical and managerial staff. Several research projects within similar healthcare organisations has established a strong and consistent negative association between role ambiguity and job-related attitudes such as organisational commitment and job satisfaction (Borrill et al, 1996, 1998; Kelloway & Brling, 1991). The version used in this study measured role clarity via a five item measure on a five point scale ranging from *not at all* to *a great deal*, and was identical to that used by Borrill et al (1996, 1998). An example of the scale items used would be “I have clear, planned goals and objectives for my job”.

- b) **Influence over decisions:** Influence over decisions reflects the extent to which the respondents immediate supervisor allows the respondent to participate in decision making and changes that effect their job. Research has illustrated that the inability to influence decisions is associated with high levels of reported job strain in health care organisation (Bates & Moore, 1975; Borrill et al, 1996, 1998; Landsbergis, 1988). The scale used in this study reflects the extent to which the respondent believes that have the capacity to contribute to decisions that affect decision making at work. The scale was based upon measure of participation developed by Vroom (1960) and adapted for healthcare organisations for a study of 7,698 healthcare employee (Borrill et al, 1996, 1998). The scale items were measured via a five item measure on a five point scale ranging from *not at all* to *a great deal*. An example of a item would be: “Does your immediate supervisor ask for your opinion before making decisions affecting your work”.

- c) Task constraints: Task constraints was measured using scale items developed by Holton et al (2000). Task constraints represents the extent to which respondents have the time, energy and mental space within their work lives to make any changes required to transfer newly learned KSAs back to the job (c.f. Ford et al, 1992). Specifically, the scale is a context specific measures of potential work demands which may prevent the respondent from completing work tasks utilising KSAs that have been learnt (c.f. Caplan, 1971, Karasek, 1979; Rizzo et al, 1970). Respondents were asked on a five point scale, ranging from *strongly disagree* to *strongly agree*, to register their agreement with nine items. An example of a scale item would be: “My workload allows me time to try the new skills I have learned”.

6.8.4 The research instrument: Motivational outcomes

Mathieu & Martineau (1997) identify three types of motivation constructs typically measured within training research, these relate to:

- a) Job-related benefits: Job-related benefits relate to the potential benefits which an individual may obtain from using their KSAs in the workplace. Noe & Wilk (1993) identify different types of benefits , such as *personal benefits* (perform job better, increase social network, assist personal development and avoid skill obsolesce), *career benefits* (achieve career objectives, provide opportunities or alternative career path and clarify career objectives), and *job-related benefits* (improve relationships with manager and co-workers) from participation in development activity (c.f. Birdi et al, 1997; Maurer and Tarulli, 1994). In this study, respondents were asked the extent to which they agreed on a five point scale, ranging from *strongly disagree* to *strongly agree*, with six statements (based on Noe & Wilk, 1993) designed to measure the perceived (*intrinsic* and *extrinsic*) benefits attributable to developmental activities. An example of the questions was: “I will receive more freedom to perform the activities that form my job if I use the skills I have learned”.
- b) Training self-efficacy: Training self-efficacy represents the extent respondents felt confident about applying new acquired KSAs back to their jobs, and are able to overcome obstacles that could hinder the use of new KSAs. This was based upon scale items developed by Holton et al (2000). Respondents were asked on a five point scale, ranging from *strongly disagree* to *strongly agree*, to register their agreement with four positively worded An example of the scale items would be: “I am confident I’m my ability to use new skills at work”.

- c) Training motivation: Training motivation represents the direction, intensity and persistence in effort directed at the transfer KSA's acquired in training to the workplace (c.f. Colquitt et al, 2000; Kanfer, 1991). Three of the scale items used were drawn from Noe & Wilks (1993). Respondents were asked to register their agreement, on a five point scale, ranging from *strongly disagree* to *strongly agree*. An example of a scale item would be: "I believe my job performance will improve if I use the knowledge and skills I have acquired". The original motivation to transfer scale was measured using seven scale items – four scale items from the original motivation to transfer scale were used because they were not relevant. For example, Noe & Wilk (1993) used scale items such as: "Before I attend training programs I usually identify particular problems or projects that I would like the training to help me with" or "Before I attend training programs I usually consider how I use the content of the program". These items were not relevant in this study as respondents were asked to consider participation in a wider range of development activities (on-the-job coaching). For such activities it may be that the respondent would not actively engage in such thinking prior to the development activity.

In addition to the scale items taken from the Noe & Wilk (1993), two new scale items were included that were designed to represent the direction and intensity of subsequent workplace behaviours (c.f. Fecteau et al, 1995; Tesluk, et al, 1995). These items were designed to represent the extent the respondent has attempted to, and been successful in changing their behaviour in order to utilise newly acquired knowledge and skills. An example of the scale items used would be: "I have been able to incorporate the knowledge and skills I have learned back into my actual job".

6.8.5 The research instrument: Workplace behaviours

Research (Borman & Motowidlo, 1993, 1997) would indicate workplace performance is multi-dimensional construct (c.f. Campbell, 1990; Campbell et al, 1993). Griffin (2001) proposed an integrative model of workplace performance (see figure 4.6) that considered performance on two dimensions: a) behavioural *form*, relating to *proficient*, *adaptive*, and *proactive* behaviours, and b) behavioural *direction*, relating to the level of workplace behaviours i.e. *task*, *team*, and *organisational*. The study reported in this chapter used the three sub-sections relating to task *proficiency*, *adaptivity* and *proactivity*.

Respondents were given the following instructions: “*The following questions ask you to describe the way in which you carry out the core tasks that are listed in your job description. Over the past six months, to what extent have you:*” This instruction is known as a ‘behavioural anchor’ and allows the individual to more accurately consider their behaviours. Each performance dimension was measured via three scale items, on a five point likert scale ranging from *not at all* to *a great deal*.

- a) Task proficiency was designed to represent the intensity and persistence of standard behaviours required to complete core tasks. An example of a scale item used to measure task compliance would be: “To what extent have you ensured that work standards are maintained?”.
- b) Task adaptability was designed to represent the intensity and persistence of adaptive behaviours (i.e. individual changing in response to the task environment) used to complete core tasks. An example of a scale item used to measure task adaptability would be: “To what extent have you coped well with changes to the way you have to do your core jobs?”.
- c) Task proactivity was designed to represent the intensity and persistence of proactive behaviours (i.e. task environment changing in response to the individual) used to complete core tasks. An example of a scale item used to measure task proactivity would be: “To what extent have you initiated better ways of doing you core job?”

6.9 Pilot work: analysis of scale structures

The following section will describe details of analysis conducted on a sample collected from one Trust to examine the latent factor structure(s) of the data collected. This acted as pilot work prior. The factor structure was then checked against the remaining cases from the other four Trusts which formed the overall sample. The scales relating to training motivation and job-related benefits were based upon existing scales (i.e. Noe & Wilk, 1993), however, these were amended because of the manner in which development was operationalised. In addition, this study proposed that behaviour change attributable to development activity was conceptually distinct from training motivation. A similar procedure was adopted for the scales relating to workplace behaviour (*task proficiency, adaptability* and *proactivity*) were new scales.

6.9.1 Analysis of scale structures for motivational outcome scales

The theoretical model (see figure 6.1) proposed the most proximal factors to workplace behaviour would be motivational outcomes – training motivation, job-related benefits and training self-efficacy. Training self efficacy was a pre existing scale validated by Holton et al (2000). However, the training motivation and job-related benefits scales included revised scale items used were based upon existing research (Noe & Schmitt, 1993; Birdi et al, 1997; Maurer & Tarulli, 1994; Fecteau et al, 1995; Tesluk et al, 1995). This approach was taken because these studies have focused upon single training sessions, or a narrow range of development activity (such as participation on external courses). The study operationalised ‘training’ to include a wider range of development activities (c.f. Noe et al, 1997; Birdi et al, 1997). As a consequence, the wording of these scales was such that certain scale items were inappropriate.

Two strategies were adopted to minimise the potential detrimental effect of using newly developed scales. Firstly, an ‘expert opinion’ was gained from Raymond Noe (a leading exponent of training research) regarding the nature of the study conducted (i.e. how training was to be operationalised), and the proposed versions of training motivation and job-related benefits. Training motivation consisted of five scale items – three were taken directly from studies reported by Noe & Schmitt (1986) and Noe & Wilk (1993). Two additional items were included to represent the actual utilisation of newly acquired KSAs – these were based upon Fecteau et al (1995) and Tesluk et al (1995). Job-related benefits was measured using scale items related to (but not the same) as that used in prior studies (see: Noe & Wilk, 1993; Maurer & Tarulli, 1994; Birdi et al, 1997).

In an effort to examine the factor structure of the three motivational outcome scales, exploratory factor analysis (EFA) was conducted upon half of the final sample (n=360). There was evidence to support a three factor solution. However, one item (“I will receive more freedom to perform the activities that form my job if I use the skills I have learned”) displayed a cross-loading onto both job-related benefits and motivation to transfer. Conceptually, this may be because the scale item was very similar to the scale item “the knowledge and skills I have learned will be helpful in solving work-related problems” developed by Noe & Schmitt (1986) to measure training motivation. The factor loadings for other scale items onto job related benefits and training motivation were comparatively high (ranging from 0.5 to 0.8). However, this particular item was less strongly related with either job related benefits (0.471) or training motivation (-0.371). Due to the cross

loading effect this item was removed, and the analysis was repeated, and this resulted in clean factor structure. Table 6.2 shows the six training motivation scale items loaded strongly onto factor one, while five of the job-related benefits scale items loaded strongly onto factor two. Reliability analysis indicated the reliability of either scale was not adversely affected by the removal of the cross loading scale item.

Table 6.2: Exploratory factor analysis of training motivation, job-related benefits, and self-efficacy scale items (n=360)

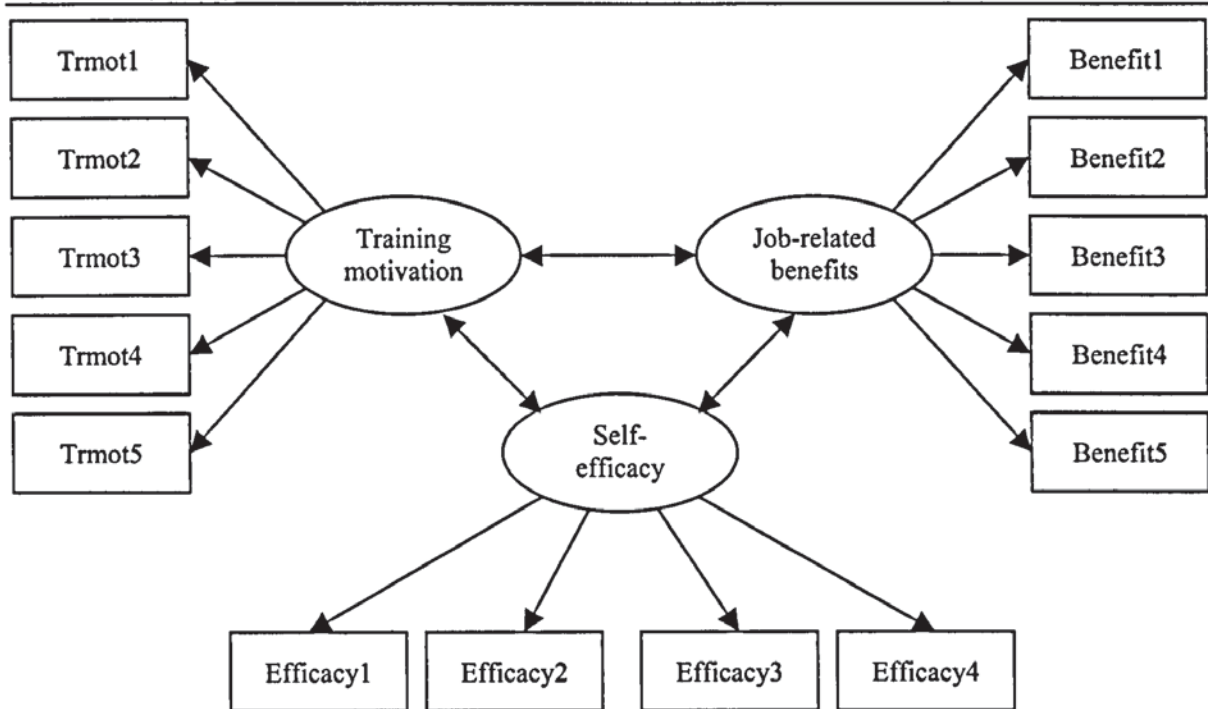
	Factor 1	Factor 2	Factor3
I have changed my job behaviour in order to be consistent with what I have learned (trmot1).			-.548
I have been able to incorporate the knowledge and skills I have learnt back into my actual job (trmot2).			-.699
I will be able to use the knowledge and skills I have acquired back in my normal daily activities (trmot3).			-.767
I believe my job performance will improve if I use the knowledge and skills in have acquired (trmot4).			-.738
The knowledge and skills I have learned will be helpful in solving work-related problems (trmot5).			-.747
I will be given more authority in my job, if I use the new skills I have learned (benefit1).	.604		
My chances of promotion will be improved, if I use the new skills I have learned (benefit2).	.837		
My chances of moving up my pay scale will be improved, if I use the skills I have learned (benefit3).	.821		
I am more likely to be recognised for my work if I use the skills I have learned (benefit4).	.724		
If I use the new skills I have learned, it will help me get a higher performance rating in my appraisal (benefit5).	.707		
I am confident in my ability to use new skills at work (efficacy1).		.612	
I never doubt my ability to use newly learned skills on the job (efficacy2).		.647	
I am sure I can overcome obstacles on the job that may hinder my use of new knowledge or skills (efficacy3).		.647	
At work, I feel very confident I have learned even in face of difficult or taxing situations (efficacy4).		.871	

Extraction method: Principal Axis Factoring with oblimin rotation.

Confirmatory factor analysis (figure 6.2) was conducted using a statistical package called AMOS (Arbuckle, 1999). The AMOS statistical package produces a number of fit indices that allow one to examine the relative fit of the proposed model being tested. Bentler (1990) report a figure approaching 1 on the Comparative Fit Index (CFI) index represents a very good fit, the CFI for the proposed model was .915. The Tucker-Lewis co-efficient

(TLI) was .895, as with the CFI a figure approaching 1 would indicate that the model represents a good fit or the data. Browne and Cudeck (1993) indicate that for the Root Mean Square Error of Approximation (RMSEA), values of .05 or less indicate good fit, around .08 represents a reasonable approximation, where as greater than .1 would represents a poor fit – the RMSEA for the proposed model was .091. Consideration of the fit indices reported would indicate that the proposed model represented a reasonable approximation of the data. Therefore, the factor structures reported from factor analysis was retained for future analysis.

Figure 6.2: Confirmatory factor analysis of training motivation, job-related benefits, and self-efficacy scale items (n=359).



Note: the wording of the scale items can be found in Table 7.2.

6.9.2 Analysis of scale structures for workplace behaviour scales

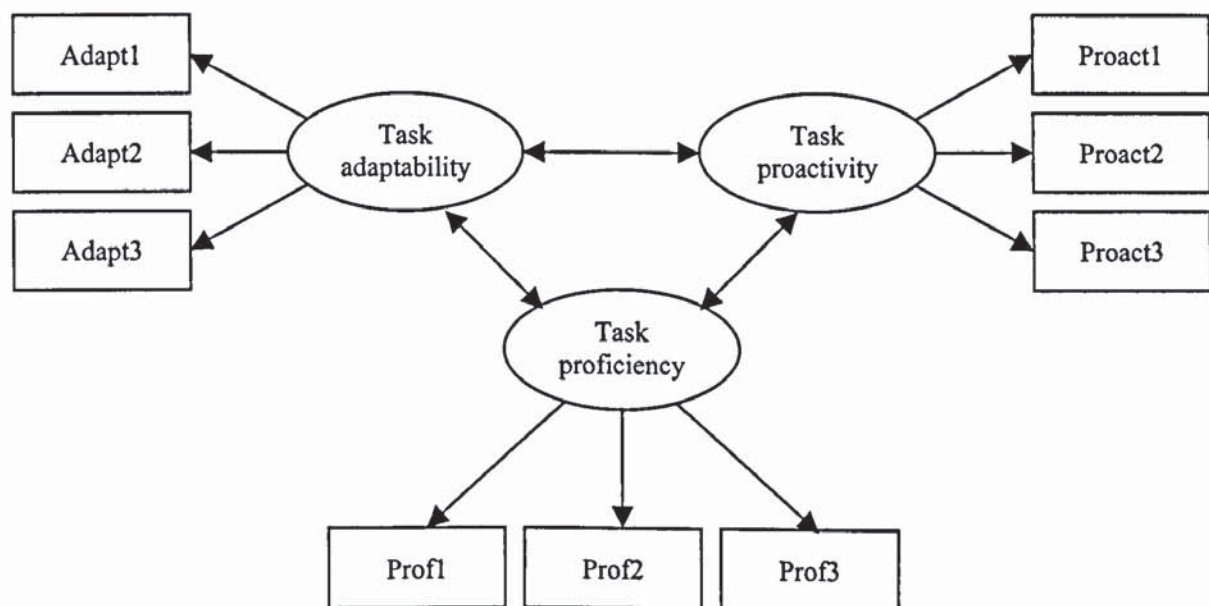
Three dimensions of workplace behaviour were examined – these related to how the respondents performed aspects of their core tasks to a) comply with rules and procedures (*task proficiency*), b) adapt to changes in their work environment (*task adaptability*), and c) initiated changes within their work environment (*task proactivity*). Details of these measures can be found in chapter four of these thesis. To examine the factor structure of the three workplace performance scales exploratory factor analysis (EFA) was conducted on the data from half of the sample (n=355). Table 6.3 shows the scale items for task *adaptability* (factor one), *proficiency* (factor two) and *proactivity* (factor three) cleanly loading onto the expected factor.

Table 6.3: Exploratory factor analysis conducted on the task proficiency, adaptability and proactivity items (n=359).

	Factor 1	Factor 2	Factor3
Over the last 6 months, to what extent have you:			
Used correct procedure and complied with rules? (prof1)		.503	
Carried out you tasks to an acceptable standard? (prof2)		.929	
Ensured that work standards are maintained? (prof3)		.830	
Coped well with changes to the way you have to do you core job? (adapt1)			-.673
Adapted well to any major changes in your core job? (adapt3)			-.670
Learnt skills or taken on new tasks to cope with changes in your core job? (adapt3)			-.883
Initiated better ways of doing your job? (proact1)	.768		
Developed new and improved work methods? (proact2)	.934		
Taken charge to bring about changes in the way your core tasks are done? (proact3)	.821		

Extraction method: Principal Axis Factoring with oblimin rotation.

Confirmatory factor analysis was conducted on the remaining sample (n=371), using a statistical package called AMOS (Arbuckle, 1999). The CFI for the proposed model was .966, the TLI was .949, and the RMSEA for the proposed model was .076. Consideration of the fit indices reported would indicate the proposed factor structure represented a reasonable approximation of the data. Therefore, the factor structures reported from factor analysis was retained for future analysis.

Figure 6.3: Confirmatory factor analysis of task compliance, task adaptability and task proactivity scale items (n=360).

Note: the wording of the scale items can be found in table 6.3.

6.10 Results

Surveys were distributed to 2500 employees in five NHS Trust hospital (500 to each). In total, 873 were returned – this represented a response rate of 34.9% (c.f. Borrill et al, 1996, 1998). The average age of the overall sample was 39.81 years. The majority of the sample were females (84%), and they worked more hours (37.43 hours) than they were contracted (34.32 hours) – this displayed a similar pattern with previous research conducted within the NHS (Borrill et al, 1996, 1998). The focus of the second study was participation in development activity – hence, where respondents reported they had *not* undertaken development activities (n=33), these cases were removed from further analysis. A respondent was considered to have participated in a development activity if they responded Yes to any of activities during the past year. In addition, there was some missing data where respondents failed to complete sufficient scale items. These cases were removed from the analysis. When accounting for missing data, and development activity this left 732 valid cases for further statistical analysis.

6.11: Results: Data reduction – factor analysis

Factor analysis (principal axis factoring with oblimin rotation) was conducted on the scales items used in the study (n=732) to examine the latent factor structure, and whether there were cross loadings between the scale items. Appendix eight shows the output of this analysis. This shows the scale items cleanly loaded on 11 factors with factor loadings of above 0.3.

6.12 Results: Descriptive statistics

In the following section the mean scores, standard deviations, alpha reliabilities and inter-correlations between the scales measured in the study are reported (see table 6.4). Table 6.4 shows that all of the scales were reliable, with alpha reliabilities above the .70 level suggested by Nunnally (1970). Table 6.11 shows all relationships were significant to the $P = .05$ level, however, there was variation in the strength of the relationships between the variables. This would indicate that the relationships were not solely due to common method bias. Cohen (1988) indicates the strength of the correlation can be classified as either being weak ($r .10$), moderate ($r .30$) or strong ($r .50$).

Facteau et al (1995) highlight the importance of considering the different types of support (i.e. supervisor and co-worker) separately, as they may influence the training transfer process in different ways. Previous research (Huczynski & Lewis, 1980) has shown the importance of the supervisor in the transfer process. This was generally supported in this study. Table 6.4 shows there were moderate to strong correlations with role clarity, task constraints, job-related benefits and training motivation. Similar relationships were also present for co-worker support – although the relationships were generally weaker than for supervisor support. The theoretical model (see figure 6.1) proposed workplace support would influence workrole stressors (i.e. role clarity, influence and task constraints).

Table 6.4 shows role clarity, influence and task constraints were moderately correlated with self-efficacy, job-related benefits, training motivation, and workplace behaviours. This would offer initial support for the theoretical framework, which proposed that social support may be related to performance via the motivational outcomes. For example, the correlation matrix illustrates that supervisor support was strongly related to job-related benefits ($r = .48$), and job-related benefits was related to training motivation ($r = .31$), and training motivation was associated with task adaptability and task proactivity. While, co-worker support was associated with training self-efficacy, and training self-efficacy was related with all three workplace behaviours measures.

Figure 6.4: Correlation matrix for variables in study two

Appraisal	alpha	Mean	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
		0.57																	
Reviewed PDP		0.37	0.50																
Formal training course		0.72	-0.02	0.05															
External course		0.25	0.07	0.14	-0.05														
Self-directed learning		0.69	0.05	0.11	0.00	0.11													
Caching 'on-the-job'		0.59	-0.02	0.06	0.03	0.01	0.11												
Secondment		0.18	-0.07	-0.07	0.07	0.11	0.08	0.17											
Supervisor support	.9487	2.99	0.21	0.23	0.08	0.09	0.09	0.30	0.15										
Co-worker Support	.9145	3.71	0.07	0.09	0.03	0.05	0.12	0.19	0.07	0.32									
Role clarity	.7717	3.83	0.06	0.10	-0.01	0.05	0.02	0.08	0.03	0.31	0.22								
Task constraints	.8357	3.03	0.01	-0.01	-0.02	-0.09	-0.03	-0.14	-0.19	-0.39	-0.19	-0.34							
Influence over decisions	.8823	3.02	0.18	0.22	0.06	0.07	0.13	0.02	0.03	0.46	0.27	0.24	-0.26						
Training Self-efficacy	.8190	3.65	0.00	0.05	-0.02	0.10	0.03	-0.03	-0.03	0.15	0.24	0.28	-0.23	0.14					
Job-related benefits	.8806	2.73	0.03	0.07	0.03	0.18	0.17	0.23	0.19	0.47	0.23	0.15	-0.29	0.28	0.17				
Training motivation	.8331	3.80	0.07	0.10	0.05	0.21	0.29	0.20	0.15	0.32	0.27	0.20	-0.24	0.26	0.22	0.38			
Task Proficiency	.8019	4.41	0.02	0.07	-0.01	0.06	0.00	0.11	0.00	0.13	0.14	0.25	-0.25	0.11	0.23	0.08	0.12		
Task Adaptability	.8048	3.93	0.09	0.17	0.04	0.13	0.14	0.16	0.10	0.21	0.22	0.19	-0.23	0.22	0.38	0.18	0.26	0.38	
Task Proactivity	.8747	3.16	0.12	0.14	0.03	0.08	0.12	0.01	-0.01	0.20	0.22	0.15	-0.11	0.37	0.31	0.17	0.25	0.22	0.46

6.12.1 Differences according to the Trusts where the respondent is employed

The sample consisted of respondents from five NHS Trusts. To examine whether this influenced responses to the scale items, a MANOVA test was performed – this would indicate there was evidence of significant Trust differences. Respondents from Trust 4 had more favorable perceptions of their current situation (see table 6.5). Accordingly, this was controlled for in the statistical analysis reported later in this chapter.

Table 6.5: Table of mean score differences in sample according to NHS Trust

	F	Sig.	Trust 1 (n=160)	Trust 2 (n=127)	Trust 3 (n=126)	Trust 4 (n=183)	Trust 5 (n=136)
Supervisor support	2.469	0.044	2.873	2.961	2.903	3.154	3.015
Co-worker support	0.710	0.585	3.723	3.638	3.759	3.741	3.660
Role clarity	4.079	0.003	3.756	3.934	3.687	3.924	3.815
Task constraints	3.725	0.005	3.114	3.035	3.006	2.882	3.135
Influence	3.007	0.018	2.865	2.904	3.143	3.191	2.974
Self-efficacy	0.853	0.492	3.633	3.746	3.634	3.649	3.616
Job-related benefits	2.995	0.018	2.814	2.660	2.597	2.871	2.628
Training motivation	0.800	0.525	3.819	3.844	3.852	3.774	3.741
Task compliance	0.974	0.421	4.381	4.430	4.394	4.390	4.493
Task adaptability	1.063	0.374	3.960	3.908	3.923	3.989	3.824
Task proactivity	1.223	0.300	3.158	3.150	3.320	3.168	3.039

6.12.2 Differences according to occupational grouping

Previous research in a healthcare setting (Borrill et al, 1996, 1998) has illustrated there may be occupational group differences in the how respondents perceive the Trust where they work, their work environment, and aspects of the job they perform. To examine whether occupational groups could explain differences, a MANOVA test was performed – as can be seen in table 6.6, there were significant differences within the sample for respondents of different occupational groups. Post-hoc tests (LSD) were conducted to examine for significant differences between occupational groups. Co-worker support was lowest amongst ancillary staff when compared against all other occupational groups. Role clarity was lower among managers than for either nurses or A&C staff. Perceived job-related benefits was higher for nurses and managers, than Doctors; A&C staff or PAMs. Training motivation was lower among ancillary and A&C staff when compared with all medical staff groupings and managers. In addition, supervisor support was lower for ancillary staff than for nurses, managers, PAMs or P&T staff. While task proactivity was higher for managers than for any other occupational grouping.

Table 6.6: Table of mean score differences in sample according to occupational group

	F	Sig.	Nurses (n=349)	Doctors (n=44)	Admin (n=107)	Manager (n=43)	PAMs (n=107)	P&Ts (n=42)	Ancill (n=41)
Supervisor support	1.107	0.356	3.049	2.952	2.914	3.086	2.989	2.893	2.726
Co-worker support	2.243	0.037	3.772	3.750	3.688	3.540	3.713	3.633	3.395
Role clarity	2.034	0.059	3.877	3.832	3.877	3.558	3.778	3.745	3.776
Task constraints	0.689	0.659	2.978	3.042	3.053	3.056	3.077	3.112	3.122
Influence	9.561	0.000	2.947	3.295	2.841	3.913	3.153	3.131	2.439
Self-efficacy	2.021	0.061	3.632	3.443	3.764	3.601	3.630	3.738	3.811
Job-related benefits	2.831	0.010	2.849	2.624	2.523	2.805	2.634	2.538	2.732
Training motivation	9.062	0.000	3.898	3.932	3.501	3.866	3.902	3.620	3.512
Task compliance	1.611	0.141	4.420	4.303	4.483	4.217	4.415	4.452	4.480
Task adaptability	1.494	0.177	3.929	3.811	4.044	4.016	3.950	3.754	3.748
Task proactivity	1.811	0.094	3.122	3.061	3.206	3.620	3.211	3.079	3.024

6.12.3 Differences according to length of time in NHS (tenure)

Previous research in a healthcare setting (Wall, 1996/7; Carter, 2000) has illustrated tenure may impact upon how respondents perceive the Trust where they work, their work environment, and aspects of the job they perform. To examine whether tenure in the NHS influenced responses a MANOVA test was performed.

Table 6.7: Table of mean score differences in sample according to tenure in NHS.

	F	Sig.	Less than 1 year (n=67)	1 to 5 years (n=124)	5 to 11 years (n=154)	11 to 16 years (n=121)	Over 16 years (n=266)
Supervisor support	2.400	0.049	3.239	2.983	2.856	3.080	2.967
Co-worker support	1.280	0.276	3.800	3.608	3.658	3.760	3.734
Role clarity	0.437	0.782	3.812	3.824	3.779	3.875	3.841
Task constraints	1.804	0.126	2.834	3.010	3.076	3.081	3.033
Influence	6.207	0.000	2.940	2.714	2.878	3.161	3.205
Self-efficacy	0.511	0.728	3.634	3.593	3.682	3.634	3.680
Job-related benefits	9.446	0.000	3.290	2.819	2.623	2.724	2.611
Training motivation	0.888	0.470	3.929	3.805	3.812	3.760	3.786
Task compliance	0.831	0.506	4.373	4.457	4.444	4.347	4.420
Task adaptability	1.220	0.301	3.881	3.992	3.961	3.804	3.944
Task proactivity	2.826	0.024	2.940	2.957	3.249	3.209	3.249

Table 6.7 shows that new recruits to the NHS reported higher mean scores on supervisor support, task constraints and job-related benefits, than respondents with between 1 and 11 years service. Overall, this would indicate that new recruits and those who have worked

in the NHS for over 16 years have more favorable perceptions of their current situation. Length of service was also positively associated with task proactivity – this may be due to the respondent progressing up the organisational hierarchy, and hence working within roles which afford them autonomy in how they complete their core tasks. Accordingly, tenure in the NHS was controlled for in the analysis reported later in this chapter.

The analysis reported over the previous pages would illustrate that a) the trust where respondent works, b) the occupational group of the respondent and c) the length of time that the respondent has spent within the NHS had an impact upon how respondents had answered the questions as set out in the questionnaire. These factors were used as control variables in the regression analysis reported in later sections of this chapter.

6.13.1 Development activity

The following section will provide details of analysis conducted to examine differences in mean scores on social support, work role stressors, motivational outcomes, and workplace behaviours across a range of development activities. The following section will also provide details of a series of chi-square tests performed to examine for differences across development activities attributable to: a) where the respondent worked, b) occupational group, and c) length of time (tenure) within the NHS.

Have you had an appraisal in the last year? 417 respondents (57%) reported they had had an appraisal in the past year. Table 6.8 shows respondents who had received an appraisal reported significantly higher supervisor and co-worker support, influence, training motivation, and task adaptability and proactivity. There was evidence that experiences of the appraisal process was influenced by the Trust where the respondent worked (χ^2 , 16.261, df,4, $p=.003$), length of time spent in the NHS (χ^2 19.696, df,4, $p=.001$), and occupational group (χ^2 23.951, df,6 $p=.001$). Respondents from Trust 4 and Trust 5 were more likely to have received an appraisal than Trust 1. Doctors were most likely to have received an appraisal (75%), whereas 68.3% of ancillary workers had not received an appraisal. Surprisingly, new recruits were least likely to not have had an appraisal (40.3%), this compared with 66.5% of respondents who had been in the NHS for over 16 years (see appendix 9).

Have you received an updated personal development plan (PDP) in the last year? 272 respondents (37%) reported they had an updated PDP. Table 6.8 shows respondents who had an PDP reported significantly higher supervisor support, influence, job satisfaction, training motivation, and task adaptability and proactivity. There was evidence that the Trust where the respondent work (χ^2 38.239, df,4 $p=.000$), occupational group (χ^2 27.159, df,6 $p=.000$) and NHS tenure (χ^2 16.814, df,4 $p=.000$) influenced whether respondents received an updated PDP. Respondents from Trust 5 (56.6%) were more likely to have reviewed and updated PDP than those in Trust 2 (26%) and Trust 3 (27%). Ancillary staff (4.9%) were least likely, and managers most likely (46.5%) to have an reviewed and updated PDP. Perhaps surprisingly, updated PDPs were least likely to be reported by new recruits (23.9%), indeed frequency of PDPs increased proportionally with NHS tenure (45.5% of respondents employed with over 16 years experience reported having an updated PDP) (see appendix 9).

Figure: 6.8 Table to show mean differences across development activities for social support, work role stressors, motivational outcomes and workplace performance dimensions

	Appraisal		Updated Personal Development Plan		Formal Training		Formal Qualification		Self-directed learning		Coaching on-the-job		Job rotation	
	Yes n=417	No n=315	Yes n=272	No n=460	Yes n=524	No n=208	Yes n=185	No n=547	Yes n=508	No n=224	Yes n=430	No n=302	Yes n=130	No n=602
Supervisor Support	3.159 F=34.520***	2.766	3.267 F=41.777***	2.826	3.035 F=4.526*	2.876	3.130 F=5.829*	2.943	3.046 F=6.211*	2.863	3.222 F=73.042***	2.660	3.295 F=17.839***	2.924
Co-worker Support	3.753 F=3.824*	3.647	3.792 F=5.966	3.657	3.723 F=0.882	3.667	3.764 F=1.545	3.688	3.764 F=10.433**	3.577	3.824 F=27.906***	3.541	3.812 F=3.340†	3.684
Role Clarity	3.863 F=2.987†	3.781	3.907 F=6.839*	3.781	3.825 F=0.028	3.834	3.887 F=2.153	3.808	3.836 F=0.274	3.809	3.870 F=4.511*	3.769	3.869 F=0.671	3.819
Influence	3.185 F=24.404***	2.804	3.319 F=36.506***	2.845	3.063 F=2.920†	2.916	3.142 F=3.269†	2.981	3.110 F=12.013**	2.820	3.039 F=0.297	2.996	3.098 F=0.842	3.005
Task Constraints	3.033 F=0.064	3.020	3.015 F=0.141	3.035	3.019 F=0.319	3.050	2.918 F=6.545*	3.065	3.012 F=0.872	3.063	2.950 F=14.028***	3.138	2.758 F=26.181***	3.086
Job-related benefits	2.754 F=0.734	2.698	2.811 F=3.785†	2.681	2.744 F=0.503	2.693	3.005 F=25.559***	2.636	2.829 F=22.094***	2.504	2.900 F=41.728***	2.488	3.077 F=25.891***	2.655
Self-efficacy	3.654 F=0.001	3.653	3.695 F=1.795	3.629	3.644 F=0.416	3.678	3.764 F=7.364*	3.617	3.665 F=0.521	3.628	3.636 F=0.793	3.679	3.615 F=0.567	3.662
Training Motivation	3.843 F=4.013*	3.750	3.887 F=7.891*	3.754	3.821 F=1.564	3.758	4.024 F=32.409***	3.729	3.924 F=68.189***	3.530	3.907 F=30.045***	3.656	4.003 F=16.550	3.760
Task Proficiency	4.425 F=0.340	4.401	4.464 F=3.463†	4.386	4.410 F=0.160	4.428	4.472 F=2.632	4.395	4.417 F=0.018	4.411	4.466 F=8.891*	4.342	4.415 F=0.000	4.415
Task Adaptability	3.985 F=5.868*	3.850	4.088 F=20.651***	3.831	3.943 F=0.915	3.885	4.092 F=12.214**	3.871	3.998 F=15.339***	3.765	4.029 F=20.110***	3.780	4.087 F=7.311*	3.892
Task Proactivity	3.277 F=11.479**	3.017	3.350 F=14.206***	3.055	3.181 F=0.467	3.123	3.299 F=4.192*	3.119	3.250 F=11.421**	2.972	3.173 F=0.063	3.153	3.146 F=0.052	3.169

Key: † p < .01 * p < .05 ** p < .001 *** p < .0001

Have you attended a formal training course in the past year? 524 respondents (71%) reported they had attended a formal training course in the past year. Table 6.8 shows respondents who had participated in formal training session reported significantly higher supervisor support, were generally more satisfied with the job they performed. There was no evidence that participation in formal training was influenced by the Trust where the respondent worked (χ^2 5.303, df,4 p=.258), or NHS tenure (χ^2 1.155, df,4 p=.885). However, occupational grouping had an effect on training participation rates (χ^2 31.023, df,6 p=.000), where nurses (78.8%) were more likely to have participated in formal training than doctors (45.5%) (see appendix 9).

Have you undertaken a formal qualification (i.e. to degree or NVQ level) in the past year? 185 respondents (25%) reported they had undertaken a formal qualification in the past year (i.e. to degree or NVQ level). Table 6.8 shows respondents who had engaged in such activity reported significantly higher supervisor support, job related benefits, self-efficacy, training motivation, and task adaptability and proactivity. There was no evidence to suggest participation in formal qualification was influenced by the Trust where the respondent work (χ^2 5.047, df,4 p=.283), or NHS tenure (χ^2 4.075, df,4 p=.393). However, occupational grouping did have an effect upon participation rates on development courses (χ^2 45.620, df 6 p=.000), where nurses (35.8) were most likely to have undertaken a formal qualification then ancillary staff (4.9%) (see appendix 9).

Have you conducted self-directed learning (such as study level) in the past year? 508 respondents (69%) reported they had conducted self-directed learning (such as study level) in the past year. Table 6.7 shows respondents who had engaged in self-directed work related learning reported significantly higher supervisor and co-worker support, influence, job-related benefits, training motivation and task adaptability and proactivity. There was no evidence to suggest self-directed learning was influenced by the Trust where the respondent work (χ^2 3.841, df, 4 p=.428), or NHS tenure (χ^2 2.358, df,4 p=.670). However, occupational grouping had an effect (χ^2 83.614, df,6 p=.000), where doctors (88.6%) were more likely to have undertaken self-directed learning than ancillary staff (36.6%) – this may reflect the professional self-regulation of doctors (see appendix 9).

Have you received coaching on-the-job from a supervisor or co-workers in the past year? 430 respondents (58%) reported they had received coaching on-the-job in the past year. Table 6.8 shows coaching on-the-job was associated higher supervisor and co-worker support, role clarity, job-related benefits, training motivation, and task compliance and adaptability. In addition, coaching on-the-job was associated with lower task constraints. There was no evidence that on-the-job coaching was influenced by the Trust where the respondent work (χ^2 4.555, df,4 p=.336). However, occupational grouping (χ^2 13.975, df,6 p=.030) and NHS tenure (χ^2 58.507, df,6 p=.000) had an effect upon reported coaching on-the job. Nurses (63.6%) and PAMs (62.3%) were more likely to have received on-the-job coaching than managers (39.5%). In addition, new recruits with less than one years experience (91%) were most likely to report receiving on-the-job coaching – there then appears to be a gradual reduction in reported coaching the longer the respondent has be within the NHS (i.e. reported levels of coaching progressively decreased until only 45.9% of respondents with over 16 years experience reported receiving coaching from work colleagues) (see appendix 9).

Have you had the chance to work in a different part of the Trust in the past year? 132 respondents (18%) reported they had worked in a different part of the Trust in the past year. Table 6.8 shows this associated with lower task constraints, and higher supervisor support, job-related benefits, training motivation, and task adaptability. This was marginally influenced by the Trust where the respondent worked (χ^2 6.647, df,4 p=.156) and NHS tenure (χ^2 8.630, df,4 p=.070). Respondents from Trust 2, and respondents at the beginning of their NHS careers were more likely to have worked in a different part of the Trust. In addition, occupational grouping had an effect upon job rotation (χ^2 22.474, df,6 p=.001)., where nurses (24.1%) were more likely to have worked in a different part of the Trust than P&T staff (6.6%) (see appendix 9).

6.13.2 Overview of development activities

The analysis reported in this section illustrates formal training course participation was *not* related with workplace behaviours. However, the analysis reported in this section showed other proposed development activities such as self-directed learning, on-the-job coaching, and job experiences (c.f. Birdi et al, 1997; Noe et al, 1997). The analysis reported would indicate that development activities such as self-directed learning and coaching on-the-job have a major impact, but have largely been ignored in training research. The research would indicate that development activity was most strongly related with perceived supervisor support (c.f. Holton, 1996). That is, when respondents reported they had conducted self-directed learning, participated in external courses, received on-the-job coaching, or had had an appraisal or updated PDP, then they were more likely to report they received the support of their supervisor. Holton et al (2000) refers to the dual role of the supervisor. A supervisor may act as a *gatekeeper* to training, and they may facilitate the creation of a more favourable working environment (Huczynski & Lewis, 1980) where respondents work within an environment where support, guidance and encouragement is offered (and perhaps expected) from other work colleagues. This may have a *domino* effect, where more favourable working conditions enhance motivation to engage in development activity (Noe & Wilk, 1993), and transfer KSAs to the workplace (Fecteau et al, 1995).

This chapter established a strong association between self-directed learning, participated in external courses, received on-the-job coaching, or had had an appraisal or updated PDP were related with job-related benefits attributable from utilised KSAs, and motivation to transfer KSAs back to the workplace (c.f. Baldwin & Ford, 1988). Development activity reflecting self-directed learning, participation in external courses, on-the-job coaching and updated PDPs were all strongly related with *task adaptability* (or the extent to which the respondent had adapted to changed in their core tasks) and *task proactivity* (or the extent to which the respondent had initiated changes to their core tasks). This would illustrate the importance of examining a wider range of development activities.

6.14 Path analysis: Hypothesised model(s)

In the following section details are given of the fit statistics for structural equation models developed to test the hypothesised models depicting full and partial mediation of social support (see figure 6.1). From this details will be provided of modifications suggested to the hypothesised model, and details of a series of regression models to test for a revised model. Details will then be report the fit indices of this revised model, and how this compared with the original hypothesised (full and partial mediation) models.

6.14.1 Path analysis: Hypothesised model(s)

In the following section details are given of fit statistics for structural equation models developed to test the hypothesised models depicting full and partial mediation of social support. Structural equation models were used to test the proposed model(s) as this technique allows for the simultaneously consideration of relationships amongst variables (Andersen & Gebring, 1988). The results relate to standardised beta coefficients, as these give an indication of the relative strength of the relationships depicted with the proposed models. Andersen & Gebring (1988) suggest that it is possible to test proposed theoretical models by examining a series of nested models via a chi-square difference test.

Firstly, the hypothesised models depicting full and partial mediation of social support were tested. Secondly, a variants of the hypothesised models depicting full and partial mediation of social support were all relationship were constrained (to indicate no relationships amongst variables) was tested. Finally, a revised model was tested by adopting a theory trimming approach was adopted, where all significant relationships from a series of regression analysis were presented in the form of a revised model. A number of fit statistics were used to test the various models – these were the goodness of fit index (GFI), the adjusted goodness of fit index (AGFI), the confirmatory fit index (CFI), the Tucker-Lewis inventory (TLI), and the root mean square residual (RMSEA). The chi-square statistics is also reported, but will not be used to assess the relative fit of the model. Instead, it will be used a chi-square difference test to examine whether nested models are a more viable representation of the data than the hypothesised models.

The path model used the standardised residuals of each dependent variable where the effects of the control variables (tenure, occupational group and Trust) were removed. By first regressing the original dependent variable onto the control variables, the residuals produce a linear transformation of the original dependent variable, minus the effects of

the control variables as indicated in the regression equation. This approach was taken because the control variables were categorical non-ratio variables. For example, if a respondent was a nurse they were categorised as 1, a doctor was assigned 2 and so on. Hence, there is no hierarchical relationship for these variables. It was decided to use the standardised residuals in the path model – this reduced the complexity of the path model (by not including seven variables for occupational group, five variables for tenure, and five variables for Trust), but at the same time still taking into consideration the control factors.

Firstly, a model was tested which specified the hypothesised model with full mediation of social support (see table 6.9). The chi-square statistic for the hypothesised model with full mediation was statistically significant ($\chi^2 = 429.364$; df. 84; $p = .000$). Examination of the fit indices shows that only the GFI the conventionally accepted value of 0.90 (Bollen, 1989), where the GFI was 0.95, the AGFI 0.88, the TLI 0.70, the CFI 0.84 and RMSEA 0.075. Therefore this demonstrated only moderate support for hypothesised model that specified with full mediation of the effects of social support. Table 6.10 shows all paths within the hypothesised model were significant at $p < 0.05$ except for some of the paths relating to development activity to social support (formal training, formal qualifications and self-directed learning to supervisor support; appraisal, updated PDPs, formal training, formal qualifications, and secondment to co-worker support), and from influence to self-efficacy; role clarity to job-related benefits; and job-related benefits to task proficiency, and task adaptability.

Table 6.9: Fit indices for AMOS path models (n=732)

	Chi-square	GFI	AGFI	TLI	CFI	RMSEA
Hypothesised (full mediation)	429.364 (df. 84)	.948	.884	.699	.835	.075
Latent Null (constrained – full mediation)	1040.857 (df. 123)	.857	.801	.454	.561	.101
Hypothesised (partial mediation)	278.937 (df. 72)	.960	.906	.790	.901	.063
Latent Null (constrained – partial mediation)	876.004 (df. 123)	.885	.841	.552	.640	.092
Revised (trimmed)	40.154 (d.f. 22)	.990	.970	.872	.989	.034

Table 6.10: AMOS Regressions weights for hypothesised model – full medication (n=732)

		Estimate	S.E.	C.R.	P	β
Appraisal	Supervisor support	0.153	0.038	3.982	0.000	0.153
Updated PDP	Supervisor support	0.126	0.039	3.231	0.001	0.126
Formal training	Supervisor support	0.058	0.034	1.705	0.088	0.058
Formal qualifications	Supervisor support	0.048	0.034	1.384	0.166	0.048
Self-directed learning	Supervisor support	0.033	0.034	0.980	0.327	0.033
Coaching on-the-job	Supervisor support	0.258	0.035	7.481	0.000	0.258
Secondment	Supervisor support	0.120	0.034	3.481	0.000	0.120
Appraisal	Co-worker support	0.051	0.041	1.242	0.214	0.051
Updated PDP	Co-worker support	0.034	0.042	0.810	0.418	0.034
Formal training	Co-worker support	0.029	0.036	0.811	0.417	0.029
Formal qualifications	Co-worker support	0.028	0.037	0.763	0.446	0.028
Self-directed learning	Co-worker support	0.075	0.036	2.071	0.038	0.075
Coaching on-the-job	Co-worker support	0.173	0.037	4.694	0.000	0.173
Secondment	Co-worker support	0.040	0.037	1.079	0.281	0.040
Supervisor support	Role clarity	0.265	0.037	7.200	0.000	0.265
Co-worker support	Role clarity	0.140	0.037	3.812	0.000	0.140
Supervisor support	Task constraints	-0.356	0.036	-9.893	0.000	-0.356
Co-worker support	Task constraints	-0.070	0.036	-1.941	0.052	-0.070
Supervisor support	Influence	0.429	0.034	12.622	0.000	0.429
Co-worker support	Influence	0.139	0.034	4.101	0.000	0.139
Role clarity	Training self-efficacy	0.220	0.038	5.771	0.000	0.220
Influence	Training self-efficacy	0.060	0.037	1.602	0.109	0.060
Task constraints	Training self-efficacy	-0.147	0.038	-3.875	0.000	-0.147
Role clarity	Job-related benefits	0.012	0.037	0.310	0.757	0.012
Influence	Job-related benefits	0.275	0.036	7.546	0.000	0.275
Task constraints	Job-related benefits	-0.188	0.037	-5.069	0.000	-0.188
Role clarity	Training motivation	0.074	0.037	2.002	0.045	0.074
Influence	Training motivation	0.116	0.037	3.172	0.002	0.116
Task constraints	Training motivation	-0.072	0.037	-1.970	0.049	-0.072
Training self-efficacy	Training motivation	0.153	0.035	4.348	0.000	0.153
Job-related benefits	Training motivation	0.263	0.036	7.303	0.000	0.263
Training self-efficacy	Task proficiency	0.198	0.037	5.292	0.000	0.198
Job-related benefits	Task proficiency	0.032	0.039	0.825	0.410	0.032
Training motivation	Task proficiency	0.081	0.039	2.070	0.038	0.081
Training self-efficacy	Task adaptability	0.330	0.035	9.463	0.000	0.330
Job-related benefits	Task adaptability	0.069	0.036	1.897	0.058	0.069
Training motivation	Task adaptability	0.159	0.037	4.324	0.000	0.159
Training self-efficacy	Task proactivity	0.252	0.036	7.058	0.000	0.252
Job-related benefits	Task proactivity	0.103	0.037	2.794	0.005	0.103
Training motivation	Task proactivity	0.162	0.038	4.318	0.000	0.162

Next the hypothesised model which specified a partial mediation of the effects of social support was considered. Table 6.11 shows that the chi-square statistic for this model was statistically significant ($\chi^2 = 278.937$; df. 72; $p = .000$). Examination of the fit indices shows they were around the conventionally accepted value of 0.90 (Bollen, 1989), where the GFI was 0.96, the AGFI 0.91, the TLI 0.79, the CFI 0.90 and the RMSEA 0.063. This demonstrated a moderate level of support for hypothesised model with partial mediation. Indeed, comparison of the differences in chi-square scores shows the partial mediation model was significantly better fit of the data than the full mediation model ($\chi^2 429.364 - 278.937 = 150.427$; df.84 - 72 = 12).

Table 6.11: AMOS Regressions weights for hypothesised model – partial medication (n=732)

		Estimate	S.E.	C.R.	P	β
Appraisal	Supervisor support	0.153	0.038	3.982	0.000	0.153
Updated PDP	Supervisor support	0.126	0.039	3.231	0.001	0.126
Formal training	Supervisor support	0.058	0.034	1.705	0.088	0.058
Formal qualifications	Supervisor support	0.048	0.034	1.384	0.166	0.048
Self-directed learning	Supervisor support	0.033	0.034	0.980	0.327	0.033
Coaching on-the-job	Supervisor support	0.258	0.035	7.481	0.000	0.258
Secondment	Supervisor support	0.120	0.034	3.481	0.000	0.120
Appraisal	Co-worker support	0.051	0.041	1.242	0.214	0.051
Updated PDP	Co-worker support	0.034	0.042	0.810	0.418	0.034
Formal training	Co-worker support	0.029	0.036	0.811	0.417	0.029
Formal qualifications	Co-worker support	0.028	0.037	0.763	0.446	0.028
Self-directed learning	Co-worker support	0.075	0.036	2.071	0.038	0.075
Coaching on-the-job	Co-worker support	0.173	0.037	4.694	0.000	0.173
Secondment	Co-worker support	0.040	0.037	1.079	0.281	0.040
Supervisor support	Role clarity	0.265	0.037	7.200	0.000	0.265
Co-worker support	Role clarity	0.140	0.037	3.812	0.000	0.140
Supervisor support	Task constraints	-0.356	0.036	-9.893	0.000	-0.356
Co-worker support	Task constraints	-0.070	0.036	-1.941	0.052	-0.070
Supervisor support	Influence	0.429	0.034	12.622	0.000	0.429
Co-worker support	Influence	0.139	0.034	4.101	0.000	0.139
Supervisor support	Training self-efficacy	-0.017	0.042	-0.409	0.682	-0.017
Co-worker support	Training self-efficacy	0.185	0.037	5.002	0.000	0.185
Role clarity	Training self-efficacy	0.197	0.038	5.177	0.000	0.197
Influence	Training self-efficacy	0.026	0.040	0.656	0.512	0.026
Task constraints	Training self-efficacy	-0.137	0.039	-3.552	0.000	-0.137
Supervisor support	Job-related benefits	0.359	0.039	9.172	0.000	0.359
Co-worker support	Job-related benefits	0.064	0.035	1.865	0.062	0.064
Role clarity	Job-related benefits	-0.041	0.036	-1.156	0.248	-0.041
Influence	Job-related benefits	0.127	0.037	3.395	0.001	0.127
Task constraints	Job-related benefits	-0.100	0.036	-2.769	0.006	-0.100
Supervisor support	Training motivation	0.077	0.042	1.836	0.066	0.077
Co-worker support	Training motivation	0.111	0.036	3.098	0.002	0.111
Role clarity	Training motivation	0.053	0.037	1.445	0.148	0.053
Influence	Training motivation	0.074	0.038	1.926	0.054	0.074
Task constraints	Training motivation	-0.055	0.037	-1.484	0.138	-0.055
Training self-efficacy	Training motivation	0.136	0.035	3.841	0.000	0.136
Job-related benefits	Training motivation	0.228	0.038	6.003	0.000	0.228
Supervisor support	Task proficiency	0.084	0.042	2.007	0.045	0.084
Co-worker support	Task proficiency	0.060	0.039	1.531	0.126	0.060
Training self-efficacy	Task proficiency	0.184	0.038	4.841	0.000	0.184
Job-related benefits	Task proficiency	-0.009	0.042	-0.214	0.830	-0.009
Training motivation	Task proficiency	0.058	0.040	1.453	0.146	0.058
Supervisor support	Task adaptability	0.084	0.039	2.152	0.031	0.084
Co-worker support	Task adaptability	0.081	0.036	2.233	0.026	0.081
Training self-efficacy	Task adaptability	0.312	0.035	8.848	0.000	0.312
Job-related benefits	Task adaptability	0.025	0.039	0.645	0.519	0.025
Training motivation	Task adaptability	0.132	0.037	3.544	0.000	0.132
Supervisor support	Task proactivity	0.077	0.040	1.937	0.053	0.077
Co-worker support	Task proactivity	0.091	0.037	2.453	0.014	0.091
Training self-efficacy	Task proactivity	0.232	0.036	6.434	0.000	0.232
Job-related benefits	Task proactivity	0.061	0.040	1.539	0.124	0.061
Training motivation	Task proactivity	0.135	0.038	3.537	0.000	0.135

However, table 6.11. shows there were non-significant paths from supervisor support to self-efficacy, and training motivation; co-worker support to job-related benefits and task proficiency; influence to self-efficacy; role clarity to job-related benefits and training motivation; task constraints to training motivation; job-related benefits to task

proficiency, adaptability, and proactivity; and training motivation to task proficiency. In addition the path from supervisor support to task proactivity; co-worker support to task constraints, and influence to training motivation did not reach the $p = .05$ level of significance. In addition, the modification indices for both hypothesised models supported the inclusion of additional paths not specified in either of the hypothesised (full and partial mediation) models. Specifically, these involved direct paths from the development activities and role stressors. This would indicate that revisions were required to the model.

To address this requirement, a *theory-trimming* approach (see: Motowidlo, Packard, & Manning, 1986) was taken where a series of regression analysis were performed where each endogenous variable was regressed onto *all* other variables that were proposed to precede this within the model. Motowidlo et al (1986) argue “this procedure assumes a general model in which all variables that precede a particular variable in the casual sequence have a direct causal effect on it” (p.623). For example, analysis was first performed with the three task behaviours (i.e. *proficiency*, *adaptability* and *proactivity*) as endogenous variables. The analysis was then repeated with training motivation as the endogenous variable and so forth (c.f. Colquitt et al, 2000; Motowidlo, et al, 1986). Then when all variables are entered into the regression equation, the non-significant variables are then *trimmed* from the model. The path coefficients were then recalculated by regressing *only* the significant variables onto the endogenous variable with the assumption that it is “only those antecedent variables that are now presumed to have a direct path to it” (Motowidlo et al, 1986,p.623). This gives an indication of the relative strength of the association between the variables. A structural equation model which was representative of the overall model established from the regression analysis was then fitted, and a chi-square comparison test was used to examine the difference between the revised model and both hypothesised models.

6.15 Regression analysis: Theory trimming

Variables were entered into the regression equation at different steps. At step one, the *control variables* (occupational group, NHS tenure and NHS Trust) were entered. These were chosen as control measures in the analysis because of the diverse nature of sample. Firstly, the sample consisted of five different NHS Trusts. Although the Trusts provide the same basic services - the analysis reported earlier in this chapter shows that there were significant differences between the Trusts. Secondly, the survey was completed by a representative sample of the workforce. It is likely that the types of tasks performed,

expectations about the job and work environment and attitudes towards development activity will be significantly different (c.f. Borrill et al, 1996, 1998) - the analysis reported earlier in this chapter shows that there were significant differences according to *occupational groups*. Finally, the length of time an individual works in the NHS may influence how respondents viewed the Trust (c.f. Borrill et al, 1996, 1998) - the analysis earlier in the chapter shows there were significant differences according to *tenure*.

The tables presented in the following section shows the standardised beta coefficients (β) (where the variable means are standardised to equal 0. This means that the illustrated β figure allows some comparison of the relative strength of the association between variables). The variables were entered at different steps in the regression equation – a series of regression analysis were performed to establish the relative strength of potential antecedents as proposed in the theoretical model (see figure 6.1). At step one, the *control variables* (occupational group, NHS tenure and NHS Trust) were entered – these were all categorical variables. Therefore, a series of dummy variables were first calculated. For example, the sample consisted of seven different occupational groups, therefore to represent the differences between Nursing staff and other staff groupings a new variable named ‘occgrp1’ was created where: 1 represented Nurses and 0 represented all other staff members. To account for potential differences across occupational groups, six categorical variables (representing occgrp1 to occgrp6) were entered into the regression equation. A significant change in the value of r^2 would indicate the control variable(s) accounted for significant variance in the dependent variable(s).

6.15.1 Regression analysis: Theory trimming - supervisor support

Supervisor support represents the extent to which an individual has received support, advice and encouragement from the immediate supervisor to undertake development activity and utilise their KSAs. Table 6.12 shows that development activity was able to explain 15.8% of the variance in supervisor support. Specifically, this shows supervisor support was associated with a) having an appraisal, b) having an updated personal development plan, c) receiving coaching on-the-job, and d) secondment.

Table 6.12 Regression analysis of possible antecedents to supervisor support (n=732)

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant)	2.703	0.173		15.623	0.000			
	TRUST1	-0.105	0.107	-0.047	-0.974	0.330			
	TRUST2	-0.033	0.113	-0.014	-0.290	0.772			
	TRUST3	-0.113	0.113	-0.046	-0.996	0.320			
	TRUST4	0.148	0.105	0.070	1.415	0.157			
	OCC1	0.313	0.153	0.171	2.046	0.041			
	OCC2	0.213	0.199	0.055	1.069	0.286			
	OCC3	0.152	0.169	0.059	0.901	0.368			
	OCC4	0.339	0.200	0.087	1.692	0.091			
	OCC5	0.275	0.169	0.106	1.624	0.105			
	OCC6	0.157	0.201	0.040	0.780	0.436			
	TEN1	0.312	0.126	0.098	2.466	0.014			
	TEN2	0.058	0.100	0.024	0.579	0.563			
	TEN3	-0.074	0.094	-0.033	-0.792	0.429			
	TEN4	0.133	0.101	0.054	1.319	0.188			
2	Appraisal	0.290	0.074	0.157	3.925	0.000			
	PDP	0.248	0.078	0.131	3.184	0.002			
	Formal training	0.119	0.071	0.059	1.680	0.093			
	Formal qualifications	0.103	0.076	0.049	1.364	0.173			
	Self-directed learning	0.070	0.072	0.035	0.966	0.334			
	Coaching on-the-job	0.503	0.068	0.270	7.373	0.000			
	Secondment	0.291	0.085	0.121	3.431	0.001			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.187	0.035	0.016	0.910	0.035	1.854	14	717	0.028
2	0.439	0.193	0.169	0.836	0.158	19.870	7	710	0.000

6.15.2 Regression analysis: Theory trimming - Co-worker support

Co-worker support represents the extent to which an individual has received support, advice and encouragement from their co-worker to undertake development activity and utilise their KSAs. Table 6.13 illustrates that development activity was able to explain 4.9% of the variance in co-worker support. Specifically, this shows co-worker support was associated with a) self-directed learning, and b) receiving coaching on-the-job.

Table 6.13: Regression analysis of possible antecedents to co-worker support (n=732)

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta		t		Sig.	
1	(Constant)	3.343	0.137			24.336		0.000	
	TRUST1	0.092	0.085	0.052		1.075		0.283	
	TRUST2	-0.004	0.090	-0.002		-0.043		0.966	
	TRUST3	0.105	0.090	0.055		1.170		0.242	
	TRUST4	0.088	0.083	0.053		1.065		0.287	
	OCC1	0.371	0.121	0.256		3.058		0.002	
	OCC2	0.356	0.158	0.117		2.252		0.025	
	OCC3	0.287	0.134	0.140		2.147		0.032	
	OCC4	0.136	0.159	0.044		0.858		0.391	
	OCC5	0.320	0.134	0.155		2.380		0.018	
	OCC6	0.239	0.160	0.077		1.498		0.135	
	TEN1	0.105	0.100	0.042		1.051		0.294	
	TEN2	-0.081	0.080	-0.042		-1.023		0.307	
	TEN3	-0.039	0.074	-0.022		-0.518		0.605	
	TEN4	0.050	0.080	0.026		0.624		0.533	
2	Appraisal	0.077	0.062	0.052		1.224		0.221	
	PDP	0.053	0.066	0.035		0.799		0.425	
	Formal training	0.048	0.060	0.030		0.799		0.424	
	Formal qualifications	0.048	0.064	0.029		0.752		0.452	
	Self-directed learning	0.125	0.061	0.079		2.041		0.042	
	Coaching on-the-job	0.267	0.058	0.181		4.626		0.000	
	Secondment	0.076	0.072	0.040		1.063		0.288	
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.167	0.028	0.009	0.722	0.028	1.468	14	717	0.117
2	0.278	0.077	0.050	0.707	0.049	5.412	7	710	0.000

6.15.3 Regression analysis: Theory trimming - Role clarity

Role clarity represents the extent to which an individual has a clear understanding of the task that they are required to perform. Table 6.14 illustrates that this block of variables was able to explain 11.3% of the variance in role clarity. Specifically, this shows that role clarity was associated with whether the respondent received support from a) a supervisor or b) their co-workers.

Table 6.14: Regression analysis of possible antecedents to role clarity (n=732)

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant)	3.785	0.119		31.712	0.000			
	TRUST1	-0.039	0.074	-0.025	-0.526	0.599			
	TRUST2	0.144	0.078	0.086	1.841	0.066			
	TRUST3	-0.116	0.078	-0.069	-1.485	0.138			
	TRUST4	0.127	0.072	0.087	1.762	0.078			
	OCC1	0.064	0.105	0.050	0.603	0.547			
	OCC2	0.009	0.137	0.003	0.063	0.950			
	OCC3	0.056	0.116	0.031	0.478	0.633			
	OCC4	-0.274	0.138	-0.101	-1.980	0.048			
	OCC5	-0.004	0.117	-0.002	-0.034	0.973			
	OCC6	-0.076	0.139	-0.028	-0.544	0.586			
	TEN1	-0.026	0.087	-0.012	-0.297	0.766			
	TEN2	-0.006	0.069	-0.003	-0.084	0.933			
	TEN3	-0.051	0.065	-0.032	-0.782	0.435			
	TEN4	0.061	0.070	0.036	0.878	0.380			
2	Appraisal	-0.020	0.053	-0.016	-0.382	0.703			
	PDP	0.044	0.056	0.033	0.787	0.432			
	Formal training	-0.043	0.050	-0.031	-0.861	0.390			
	Formal qualifications	0.023	0.054	0.016	0.432	0.666			
	Self-directed learning	-0.007	0.051	-0.005	-0.137	0.891			
	Coaching on-the-job	-0.047	0.050	-0.037	-0.938	0.349			
	Secondment	-0.053	0.061	-0.032	-0.869	0.385			
	Supervisor support	0.174	0.025	0.274	6.883	0.000			
	Co-worker support	0.091	0.024	0.144	3.854	0.000			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.204	0.042	0.023	0.628	0.042	2.227	14	717	0.006
2	0.393	0.154	0.127	0.593	0.113	10.487	9	708	0.000

6.15.4 Regression analysis: Theory trimming - Task constraints

Task constraints represents the extent to which an individual has the mental and physical resources to utilise the KSAs that they have learnt. Table 6.15 illustrates that this block of variables was able to explain 16.7% of the variance in role clarity. Specifically, this shows that task constraints were negatively associated with development activities such as secondment, and whether the respondent has received support from a) their supervisor or b) their co-workers.

Table 6.15: Regression analysis of possible antecedents to task constraints (n=732)

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant)	3.265	0.127		25.634	0.000			
	TRUST1	-0.035	0.079	-0.021	-0.442	0.659			
	TRUST2	-0.105	0.084	-0.059	-1.255	0.210			
	TRUST3	-0.129	0.083	-0.072	-1.554	0.121			
	TRUST4	-0.249	0.077	-0.160	-3.234	0.001			
	OCC1	-0.156	0.113	-0.116	-1.387	0.166			
	OCC2	-0.069	0.147	-0.024	-0.473	0.637			
	OCC3	-0.072	0.124	-0.038	-0.578	0.564			
	OCC4	-0.061	0.148	-0.021	-0.413	0.679			
	OCC5	-0.074	0.125	-0.039	-0.597	0.551			
	OCC6	-0.037	0.148	-0.013	-0.251	0.802			
	TEN1	-0.223	0.093	-0.095	-2.394	0.017			
	TEN2	-0.057	0.074	-0.031	-0.766	0.444			
	TEN3	0.019	0.069	0.011	0.272	0.786			
	TEN4	0.025	0.074	0.014	0.341	0.733			
2	Appraisal	0.099	0.055	0.073	1.811	0.071			
	PDP	0.043	0.057	0.031	0.750	0.453			
	Formal training	0.039	0.052	0.026	0.746	0.456			
	Formal qualifications	-0.085	0.055	-0.054	-1.523	0.128			
	Self-directed learning	0.035	0.053	0.024	0.653	0.514			
	Coaching on-the-job	0.016	0.052	0.011	0.300	0.764			
	Secondment	-0.200	0.063	-0.113	-3.188	0.001			
	Supervisor support	-0.246	0.026	-0.365	-9.422	0.000			
	Co-worker support	-0.048	0.024	-0.070	-1.943	0.052			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.186	0.035	0.016	0.670	0.035	1.844	14	717	0.029
2	0.449	0.202	0.176	0.613	0.167	16.429	9	708	0.000

6.15.5 Regression analysis: Theory trimming - Influence over decisions

Influence over decisions represents the extent to which an individual has the capability to influence decisions that affect the way in they perform their job. Table 6.16 illustrates that this block of variables was able to explain 11.3% of the variance in role clarity. Specifically, this shows influence was associated with coaching on-the-job, but positively associated with having an updated personal development, and whether the respondent has received support from a) their supervisor or b) their co-workers.

Table 6.16: Regression analysis of possible antecedents to influence (n=732)

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant)	2.709	0.190		14.294	0.000			
	TRUST1	-0.118	0.118	-0.047	-1.004	0.316			
	TRUST2	-0.122	0.124	-0.044	-0.983	0.326			
	TRUST3	0.123	0.124	0.044	0.992	0.322			
	TRUST4	0.176	0.115	0.073	1.537	0.125			
	OCC1	0.356	0.167	0.170	2.127	0.034			
	OCC2	0.787	0.218	0.178	3.608	0.000			
	OCC3	0.336	0.185	0.113	1.821	0.069			
	OCC4	1.364	0.220	0.306	6.215	0.000			
	OCC5	0.610	0.185	0.205	3.292	0.001			
	OCC6	0.605	0.220	0.134	2.744	0.006			
	TEN1	-0.249	0.138	-0.068	-1.798	0.073			
	TEN2	-0.461	0.110	-0.165	-4.201	0.000			
	TEN3	-0.311	0.103	-0.121	-3.025	0.003			
	TEN4	-0.054	0.110	-0.019	-0.489	0.625			
2	Appraisal	-0.016	0.077	-0.008	-0.209	0.834			
	PDP	0.173	0.081	0.080	2.136	0.033			
	Formal training	0.095	0.073	0.041	1.300	0.194			
	Formal qualifications	0.111	0.078	0.046	1.425	0.155			
	Self-directed learning	0.131	0.075	0.058	1.752	0.080			
	Coaching on-the-job	-0.160	0.073	-0.075	-2.186	0.029			
	Secondment	0.037	0.088	0.014	0.422	0.673			
	Supervisor support	0.423	0.037	0.404	11.517	0.000			
	Co-worker support	0.141	0.034	0.134	4.085	0.000			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.342	0.117	0.100	0.996	0.117	6.795	14	717	0.000
2	0.589	0.347	0.326	0.862	0.230	27.652	9	708	0.000

6.15.6 Regression analysis: Theory trimming - Self-efficacy

Self-efficacy represents the respondents belief that they can overcome potential barriers to implement the KSAs they have acquired from development activities. Table 6.17 illustrates that this block of variables was able to explain 15.7% of the variance in self-efficacy. Specifically, this shows that self-efficacy was associated with a) development activity such as coaching on-the-job and formal qualifications; and whether the respondent has b) opportunities to utilise KSAs (low task constraints); c) an understanding of the tasks they are required to perform (role clarity), and c) received support from their co-workers.

Table 6.17: Regression analysis of possible antecedents to training self-efficacy (n=732)

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant)	3.836	0.121		31.635	0.000			
	TRUST1	0.017	0.075	0.011	0.220	0.826			
	TRUST2	0.141	0.080	0.083	1.769	0.077			
	TRUST3	0.026	0.079	0.015	0.326	0.745			
	TRUST4	0.038	0.073	0.026	0.522	0.602			
	OCC1	-0.208	0.107	-0.162	-1.939	0.053			
	OCC2	-0.401	0.139	-0.149	-2.876	0.004			
	OCC3	-0.069	0.118	-0.038	-0.581	0.561			
	OCC4	-0.243	0.140	-0.089	-1.729	0.084			
	OCC5	-0.203	0.119	-0.112	-1.716	0.087			
	OCC6	-0.092	0.141	-0.034	-0.654	0.514			
	TEN1	-0.077	0.089	-0.035	-0.873	0.383			
	TEN2	-0.108	0.070	-0.063	-1.539	0.124			
	TEN3	-0.029	0.066	-0.019	-0.447	0.655			
	TEN4	-0.062	0.071	-0.036	-0.880	0.379			
2	Appraisal	-0.046	0.053	-0.036	-0.876	0.381			
	PDP	0.056	0.055	0.042	1.013	0.311			
	Formal training	-0.034	0.050	-0.024	-0.679	0.497			
	Formal qualifications	0.140	0.053	0.095	2.623	0.009			
	Self-directed learning	0.073	0.051	0.053	1.426	0.154			
	Coaching on-the-job	-0.107	0.050	-0.082	-2.122	0.034			
	Secondment	-0.101	0.061	-0.061	-1.668	0.096			
	Supervisor support	0.007	0.029	0.011	0.246	0.806			
	Co-worker support	0.123	0.024	0.192	5.137	0.000			
	Role clarity	0.122	0.025	0.190	4.919	0.000			
	Task constraints	-0.092	0.025	-0.144	-3.629	0.000			
	Influence	0.006	0.027	0.009	0.201	0.840			
	Model summary								
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.160	0.026	0.007	0.637	0.026	1.352	14	717	0.171
2	0.428	0.183	0.153	0.589	0.157	11.298	12	705	0.000

6.15.8 Regression analysis: Theory trimming - Job-related benefits

Job-related benefits represent the perceived outcomes that arise from the utilisation of KSAs gained during development activities (c.f. Noe & Wilk, 1993; Maurer & Tarulli, 1994, and Birdi et al, 1997). Table 6.18 illustrates that this block of variables was able to explain 24.4% of the variance in job-related benefits. Specifically, this shows that self-efficacy was associated with a) development activity such formal qualifications and self-directed learning; and whether the respondent has b) opportunities to utilise KSAs (low task constraints); c) influence over decisions, and d) received support from a supervisor.

Table 6.18: Regression analysis of possible antecedents to job-related benefits (n=732)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.			
		B	Std. Error	Beta					
1	(Constant)	2.393	0.159		15.042	0.000			
	TRUST1	0.226	0.099	0.107	2.293	0.022			
	TRUST2	0.061	0.104	0.027	0.586	0.558			
	TRUST3	-0.046	0.104	-0.020	-0.439	0.661			
	TRUST4	0.241	0.096	0.120	2.508	0.012			
	OCC1	0.223	0.141	0.128	1.588	0.113			
	OCC2	-0.081	0.183	-0.022	-0.441	0.659			
	OCC3	-0.201	0.155	-0.081	-1.297	0.195			
	OCC4	0.136	0.184	0.037	0.737	0.461			
	OCC5	0.014	0.156	0.005	0.087	0.931			
	OCC6	-0.122	0.185	-0.032	-0.658	0.511			
	TEN1	0.765	0.116	0.253	6.588	0.000			
	TEN2	0.253	0.092	0.109	2.749	0.006			
	TEN3	0.054	0.086	0.025	0.625	0.532			
	TEN4	0.151	0.093	0.064	1.632	0.103			
2	Appraisal	-0.028	0.064	-0.016	-0.430	0.667			
	PDP	-0.044	0.068	-0.024	-0.643	0.521			
	Formal training	-0.060	0.061	-0.031	-0.976	0.329			
	Formal qualifications	0.193	0.065	0.096	2.960	0.003			
	Self-directed learning	0.196	0.063	0.103	3.127	0.002			
	Coaching on-the-job	0.040	0.061	0.022	0.645	0.519			
	Secondment	0.117	0.074	0.051	1.577	0.115			
	Supervisor support	0.298	0.035	0.342	8.530	0.000			
	Co-worker support	0.045	0.029	0.052	1.535	0.125			
	Role clarity	-0.030	0.030	-0.034	-0.978	0.328			
	Task constraints	-0.070	0.031	-0.080	-2.268	0.024			
	Influence	0.105	0.033	0.120	3.133	0.002			
	Model summary								
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.315	0.100	0.082	0.836	0.100	5.661	14	717	0.000
2	0.586	0.344	0.320	0.720	0.244	21.861	12	705	0.000

6.15.9 Regression analysis: Theory trimming - Training motivation

Training motivation represents the extent respondents value the training activities they have participated in, and the extent to which they have tried to incorporate KSAs into their normal daily activities (c.f. Noe, 1986). Table 6.19 illustrates that this block of variables was able to explain 23.6% of the variance in training motivation. Specifically, this shows that self-efficacy was associated with a) development activities such as formal qualifications, self-directed learning and coaching on-the-job; and whether the respondent has b) belief in their ability to overcome obstacles to utilise KSAs (self-efficacy); c) beliefs that a favourable outcome would occur as a consequence of using training related KSAs (job-related benefits), and d) received support from co-workers.

Table 6.19: Regression analysis of possible antecedents to training motivation (n=732)

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant)	3.350	0.114		29.324	0.000			
	TRUST1	0.103	0.071	0.068	1.453	0.147			
	TRUST2	0.109	0.075	0.066	1.452	0.147			
	TRUST3	0.085	0.075	0.051	1.134	0.257			
	TRUST4	0.031	0.069	0.021	0.445	0.656			
	OCC1	0.438	0.101	0.352	4.344	0.000			
	OCC2	0.442	0.131	0.169	3.361	0.001			
	OCC3	0.004	0.111	0.002	0.038	0.970			
	OCC4	0.384	0.132	0.145	2.904	0.004			
	OCC5	0.425	0.112	0.240	3.800	0.000			
	OCC6	0.150	0.133	0.056	1.129	0.259			
	TEN1	0.243	0.083	0.113	2.916	0.004			
	TEN2	0.077	0.066	0.046	1.158	0.247			
	TEN3	0.099	0.062	0.065	1.603	0.109			
	TEN4	0.029	0.067	0.017	0.429	0.668			
2	Appraisal	0.018	0.047	0.015	0.392	0.695			
	PDP	0.000	0.049	0.000	0.003	0.998			
	Formal training	0.055	0.044	0.040	1.238	0.216			
	Formal qualifications	0.139	0.048	0.097	2.901	0.004			
	Self-directed learning	0.206	0.046	0.153	4.498	0.000			
	Coaching on-the-job	0.097	0.045	0.077	2.164	0.031			
	Secondment	0.071	0.054	0.043	1.305	0.192			
	Supervisor support	0.032	0.027	0.052	1.218	0.224			
	Co-worker support	0.056	0.022	0.090	2.587	0.010			
	Role clarity	0.037	0.022	0.060	1.671	0.095			
	Task constraints	-0.032	0.023	-0.051	-1.392	0.164			
	Influence	0.040	0.024	0.064	1.621	0.105			
	Job-related benefits	0.119	0.024	0.191	4.961	0.000			
	Self-efficacy	0.080	0.022	0.128	3.703	0.000			
	Model summary								
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.294	0.086	0.069	0.601	0.086	4.842	14	717	0.000
2	0.568	0.323	0.296	0.522	0.236	17.524	14	703	0.000

6.15.10 Regression analysis: Theory trimming - Task proficiency

Task proficiency represents the extent to which respondents report they have completed their core job task tasks to an acceptable standard, using correct procedures. Table 6.20 shows that in model two the block of variables explained an additional 12.7% of the variance in task proficiency. This would indicate task proficiency was associated with a) coaching on-the-job, and whether the respondent has b) an understanding of the tasks they perform (role clarity); c) has opportunities to utilise KSAs (low task constraints); and d) belief in their ability to overcome obstacles to utilise KSAs (self-efficacy).

Table 6.20: Regression analysis of possible antecedents to task compliance (n=732)

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant)	4.560	0.106		43.225	0.000			
	TRUST1	-0.110	0.065	-0.082	-1.683	0.093			
	TRUST2	-0.055	0.069	-0.037	-0.795	0.427			
	TRUST3	-0.086	0.069	-0.059	-1.254	0.210			
	TRUST4	-0.094	0.064	-0.074	-1.479	0.140			
	OCC1	-0.058	0.093	-0.052	-0.623	0.534			
	OCC2	-0.174	0.121	-0.074	-1.431	0.153			
	OCC3	0.009	0.103	0.006	0.085	0.932			
	OCC4	-0.249	0.122	-0.106	-2.039	0.042			
	OCC5	-0.074	0.103	-0.047	-0.716	0.474			
	OCC6	-0.022	0.123	-0.009	-0.182	0.856			
	TEN1	-0.061	0.077	-0.032	-0.797	0.426			
	TEN2	0.031	0.061	0.021	0.504	0.615			
	TEN3	0.019	0.057	0.014	0.332	0.740			
	TEN4	-0.082	0.061	-0.055	-1.337	0.182			
2	Appraisal	-0.009	0.047	-0.008	-0.196	0.845			
	PDP	0.042	0.049	0.037	0.856	0.393			
	Formal training	-0.017	0.045	-0.014	-0.390	0.697			
	Formal qualifications	0.033	0.048	0.026	0.692	0.489			
	Self-directed learning	-0.013	0.046	-0.011	-0.275	0.784			
	Coaching on-the-job	0.111	0.045	0.098	2.471	0.014			
	Secondment	-0.059	0.054	-0.041	-1.086	0.278			
	Supervisor support	-0.022	0.027	-0.040	-0.837	0.403			
	Co-worker support	0.018	0.022	0.033	0.832	0.406			
	Role clarity	0.073	0.022	0.131	3.241	0.001			
	Task constraints	-0.096	0.023	-0.174	-4.235	0.000			
	Influence	0.030	0.024	0.054	1.217	0.224			
	Job-related benefits	-0.011	0.024	-0.020	-0.458	0.647			
	Self-efficacy	0.073	0.022	0.131	3.348	0.001			
	Training motivation	0.014	0.023	0.025	0.586	0.558			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.151	0.023	0.004	0.555	0.023	1.189	14	717	0.278
2	0.387	0.149	0.114	0.523	0.127	6.975	15	702	0.000

6.15.10 Regression analysis: Theory trimming - Task adaptability

Task adaptability represents the extent to which respondents report they have been able to adapt to changes in their core tasks. Table 6.21 shows that in model two the block of variables explained an additional 24.6% of the variance in task adaptability. This would indicate that task adaptability was associated with a) development activities such as having an updated PDP, self-directed learning, coaching on-the-job and secondment; and whether the respondent b) has opportunities to utilise KSAs (low task constraints); c) has influence over decisions, d) believes in their ability to overcome obstacles to utilise KSAs (self-efficacy); and e) has initiated behaviour changes to incorporate KSAs they had acquired and valued (training motivation).

Table 6.21: Regression analysis of possible antecedents to task adaptability (n=732)

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant)	3.635	0.142		25.591	0.000			
	TRUST1	0.146	0.088	0.081	1.655	0.098			
	TRUST2	0.074	0.093	0.037	0.796	0.426			
	TRUST3	0.109	0.093	0.055	1.178	0.239			
	TRUST4	0.167	0.086	0.096	1.941	0.053			
	OCC1	0.205	0.126	0.137	1.631	0.103			
	OCC2	0.055	0.163	0.017	0.334	0.739			
	OCC3	0.328	0.138	0.155	2.371	0.018			
	OCC4	0.284	0.165	0.089	1.729	0.084			
	OCC5	0.241	0.139	0.113	1.735	0.083			
	OCC6	0.032	0.165	0.010	0.194	0.846			
	TEN1	-0.071	0.104	-0.027	-0.683	0.495			
	TEN2	0.072	0.082	0.036	0.871	0.384			
	TEN3	0.009	0.077	0.005	0.118	0.906			
	TEN4	-0.141	0.083	-0.070	-1.700	0.090			
2	Appraisal	0.041	0.058	0.027	0.703	0.482			
	PDP	0.163	0.062	0.105	2.642	0.008			
	Formal training	0.054	0.056	0.033	0.977	0.329			
	Formal qualifications	0.105	0.060	0.061	1.744	0.082			
	Self-directed learning	0.133	0.058	0.082	2.298	0.022			
	Coaching on-the-job	0.194	0.056	0.128	3.468	0.001			
	Secondment	0.133	0.068	0.068	1.968	0.049			
	Supervisor support	-0.026	0.033	-0.034	-0.775	0.438			
	Co-worker support	0.040	0.027	0.053	1.461	0.144			
	Role clarity	0.008	0.028	0.010	0.278	0.781			
	Task constraints	-0.061	0.028	-0.081	-2.128	0.034			
	Influence	0.067	0.031	0.090	2.200	0.028			
	Job-related benefits	-0.003	0.030	-0.004	-0.107	0.915			
	Self-efficacy	0.230	0.027	0.306	8.456	0.000			
	Training motivation	0.058	0.029	0.077	1.966	0.050			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.163	0.026	0.007	0.747	0.026	1.391	14	717	0.151
2	0.522	0.272	0.242	0.653	0.246	15.796	15	702	0.000

6.15.12 Regression analysis: Theory trimming – Task proactivity

Task proactivity represents the extent to which respondents report they have initiated changes to the way in which their core tasks are completed. Table 6.22 shows that in model two the block of variables explained an additional 21.8% of the variance in task proactivity. Specifically, this would indicate task proactivity was associated with whether the respondent has: a) belief in their ability to overcome obstacles to utilise KSAs (self-efficacy); b) was motivated to initiated behaviour changes to incorporate KSAs (training motivation); and c) had influence over decisions made within their work environment.

Table 6.22: Regression analysis of possible antecedents to task proactivity (n=732)

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant)	3.054	0.195		15.659	0.000			
	TRUST1	0.104	0.121	0.042	0.860	0.390			
	TRUST2	0.085	0.128	0.031	0.663	0.507			
	TRUST3	0.263	0.127	0.096	2.060	0.040			
	TRUST4	0.107	0.118	0.045	0.904	0.366			
	OCC1	0.034	0.172	0.017	0.199	0.842			
	OCC2	0.013	0.224	0.003	0.056	0.955			
	OCC3	0.170	0.190	0.058	0.896	0.370			
	OCC4	0.536	0.226	0.122	2.375	0.018			
	OCC5	0.140	0.191	0.048	0.732	0.464			
	OCC6	0.018	0.227	0.004	0.081	0.936			
	TEN1	-0.328	0.142	-0.092	-2.304	0.021			
	TEN2	-0.287	0.113	-0.104	-2.543	0.011			
	TEN3	-0.021	0.106	-0.008	-0.195	0.845			
	TEN4	-0.059	0.114	-0.021	-0.518	0.604			
2	Appraisal	0.112	0.082	0.053	1.366	0.172			
	PDP	0.067	0.086	0.031	0.782	0.434			
	Formal training	0.031	0.078	0.014	0.401	0.688			
	Formal qualifications	0.059	0.084	0.025	0.698	0.485			
	Self-directed learning	0.141	0.081	0.063	1.745	0.081			
	Coaching on-the-job	0.025	0.078	0.012	0.319	0.750			
	Secondment	-0.029	0.095	-0.011	-0.302	0.763			
	Supervisor support	-0.027	0.047	-0.026	-0.577	0.564			
	Co-worker support	0.061	0.038	0.059	1.606	0.109			
	Role clarity	0.002	0.039	0.002	0.052	0.959			
	Task constraints	0.044	0.040	0.042	1.102	0.271			
	Influence	0.290	0.043	0.280	6.789	0.000			
	Job-related benefits	0.035	0.043	0.034	0.833	0.405			
	Self-efficacy	0.235	0.038	0.226	6.178	0.000			
	Training motivation	0.105	0.041	0.102	2.562	0.011			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.189	0.036	0.017	1.025	0.036	1.901	14	717	0.023
2	0.504	0.254	0.223	0.911	0.218	13.688	15	702	0.000

6.16 Path analysis: revised model

From the regression analysis reported over the previous pages a path model depicting the revised model was fitted. Table 6.12 shows the chi-square statistic for the revised model was statistically significant ($\chi^2 = 98.914$; df. 78; $p = .055$). Examination of the fit indices shows that all were above the conventionally accepted value of 0.90 (Bollen, 1989), were the GFI was 0.99, the AGFI 0.97, the TLI 0.98, the CFI 0.99 and RMSEA 0.019. Table 23 shows that all paths were significant at $p < 0.05$.

Table 6.23: AMOS Regressions weights for revised model (n=732)

		Estimate	S.E.	C.R.	P	β
Appraisal	Supervisor support	0.138	0.037	3.704	0.000	0.138
Updated PDP	Supervisor support	0.128	0.037	3.430	0.001	0.129
Coaching on-the-job	Supervisor support	0.261	0.034	7.569	0.000	0.262
Secondment	Supervisor support	0.118	0.033	3.547	0.000	0.118
Self-directed learning	Co-worker support	0.071	0.035	2.012	0.044	0.071
Coaching on-the-job	Co-worker support	0.182	0.036	5.016	0.000	0.182
Supervisor support	Role clarity	0.265	0.037	7.215	0.000	0.263
Co-worker support	Role clarity	0.140	0.036	3.838	0.000	0.140
Supervisor support	Task constraints	-0.339	0.036	-9.421	0.000	-0.337
Co-worker support	Task constraints	-0.067	0.035	-1.893	0.058	-0.067
Secondment	Task constraints	-0.128	0.033	-3.875	0.000	-0.128
Supervisor support	Influence	0.427	0.035	12.055	0.000	0.427
Co-worker support	Influence	0.146	0.034	4.315	0.000	0.146
Updated PDP	Influence	0.086	0.032	2.648	0.008	0.086
Coaching on-the-job	Influence	-0.068	0.033	-2.036	0.042	-0.068
Co-worker support	Training self-efficacy	0.192	0.035	5.422	0.000	0.192
Role clarity	Training self-efficacy	0.202	0.037	5.504	0.000	0.202
Task constraints	Training self-efficacy	-0.136	0.037	-3.711	0.000	-0.136
Formal qualifications	Training self-efficacy	0.098	0.034	2.871	0.004	0.098
Coaching on-the-job	Training self-efficacy	-0.078	0.035	-2.257	0.024	-0.079
Supervisor support	Job-related benefits	0.362	0.038	9.632	0.000	0.363
Influence	Job-related benefits	0.113	0.036	3.128	0.002	0.114
Task constraints	Job-related benefits	-0.091	0.035	-2.626	0.009	-0.091
Formal qualifications	Job-related benefits	0.098	0.032	3.072	0.002	0.099
Self-directed learning	Job-related benefits	0.105	0.032	3.327	0.001	0.106
Co-worker support	Training motivation	0.132	0.034	3.845	0.000	0.133
Training self-efficacy	Training motivation	0.157	0.034	4.609	0.000	0.158
Job-related benefits	Training motivation	0.249	0.034	7.290	0.000	0.249
Formal qualifications	Training motivation	0.101	0.033	3.072	0.002	0.102
Self-directed learning	Training motivation	0.148	0.033	4.506	0.000	0.149
Coaching on-the-job	Training motivation	0.097	0.033	2.919	0.004	0.098
Role clarity	Task proficiency	0.138	0.036	3.797	0.000	0.137
Task constraints	Task proficiency	-0.174	0.037	-4.706	0.000	-0.174
Training self-efficacy	Task proficiency	0.146	0.037	3.995	0.000	0.146
Coaching on-the-job	Task proficiency	0.086	0.035	2.468	0.014	0.086
Influence	Task adaptability	0.080	0.033	2.453	0.014	0.080
Task constraints	Task adaptability	-0.093	0.033	-2.839	0.005	-0.093
Training self-efficacy	Task adaptability	0.320	0.034	9.412	0.000	0.322
Training motivation	Task adaptability	0.084	0.033	2.538	0.011	0.084

Updated PDP	L	Task adaptability	0.093	0.030	3.116	0.002	0.094
Self-directed learning	L	Task adaptability	0.062	0.030	2.059	0.040	0.062
Coaching on-the-job	L	Task adaptability	0.112	0.031	3.602	0.000	0.113
Secondment	L	Task adaptability	0.081	0.030	2.728	0.006	0.082
Influence	L	Task proactivity	0.280	0.033	8.425	0.000	0.281
Training self-efficacy	L	Task proactivity	0.237	0.034	6.933	0.000	0.239
Training motivation	L	Task proactivity	0.125	0.034	3.672	0.000	0.125

Comparison tests were performed to examine for differences in chi-square scores between the revised model and the hypothesised model depicting full mediation (χ^2 428.364 - 98.914 = 330.250; df.84 - 78 = 6) and the hypothesised model depicting partial mediation (χ^2 278.937 - 98.914 = 180.823; df.78 - 72 = 6). This shows that the revised model was a significantly better fit of the data than either the full or partial mediation models.

6.17 Discussion of structural equation model

The revised model would indicate that there is strong association between supervisor support, and having an appraisal and having an updated PDP. However, there was little association between co-worker support and having an appraisal and having an updated PDP. Noe et al (1997) indicates that such mechanism are useful for the identification of training needs and stimulating other developmental activities to address such training needs. Participation in formal training and/or development activity was largely unrelated with supervisor and co-worker support (c.f. Birdi et al, 1997). Indeed, participation in formal training was not associated with any of the variables in the path model, while participation in formal development activity (such as a degree courses) was associated with all three motivational outcomes. Secondment to a different was associated with supervisor support (but not co-worker support), and was also related with lower perceived task constraints and high task adaptability. Whereas, coaching on-the-job was also strongly associated with both supervisor and co-worker support. Coaching on-the-job was negatively associated with training self-efficacy, perhaps this would indicate that the receiving coaching has a *detrimental* effect upon an individuals ability to cope (c.f. Gist & Mitchell, 1992). However, coaching on-the-job was positively related with influence, training motivation, task proficiency and task adaptability Finally, co-worker support (but not supervisor support) was associated with self-directed learning, which in turn was associated with perceived job-related benefits, training motivation and task adaptability – this would show the importance of good working relationships.

The revised model shows supervisor support was positively related with role clarity and influence, and negatively related with task constraints. However, the association between

co-worker support and role stressors was less apparent. Co-worker support was associated with training self-efficacy and training motivation, whereas supervisor support was associated with job-related benefits. Closer examination of correlation matrix (table 6.10) showed supervisor support displayed a stronger association with training motivation than co-worker support. This would indicate the effects of supervisor support are partially mediated by another variable. For example, supervisor support was strongly associated with job-related benefits, which in turn was associated with training motivation (c.f. Birdi et al, 1997; Clark et al, 1993; Maurer & Tarulli, 1994; Noe & Wilk 1993).

Previous research has illustrated that task constraints displayed a modest relationship with training outcomes (Fecteau et al, 1995; Mathieu et al, 1992; 1993). This was consistent with the revised model, where there was a significant path between task constraints with job-related benefits and training self-efficacy. This could indicate that increased task constraints are associated with decreased expectancy about ability to overcome obstacles (self-efficacy) and/or outcome expectancies about being rewarded for using KSAs (job-related benefits). There were also significant paths between role clarity and self-efficacy, and influence with job-related benefits. Hence, respondents with a clearer understanding of role expectations (high role clarity) are more likely to believe they can overcome obstacles. While, respondents who have influence over decisions are more likely to being that they will be rewarded more participating in those decisions.

There were also additional paths between the role stressors and workplace behaviours. For example, role clarity and task constraints were associated with whether respondents had utilised core procedures (*task proficiency*) within their core task. While, influence was strongly associated with whether the respondent reported they had adapted to changes (*task adaptability*), or had initiate changes (*task proactivity*) within their core tasks (c.f. Parker & Unsworth, in press). The revised model also offered support for the path between motivational outcomes with workplace behaviours, where training self-efficacy (ability to overcome obstacles) and training motivation (direction, intensity and persistence of behaviours) was related to both task adaptability and proactivity.

The analysis reported in this section would offer support for the basic structure of the hypothesised model. The fit statistics for the two hypothesised models would indicate that the partial mediation model was a better fit of the data. However, the regression analysis conducted would indicate that there should be additional paths between role stressors and

workplace behaviours not originally specified in the hypothesised model(s). With the inclusion of these additional paths this produced a model which was a excellent fit of the data. It is acknowledged that this represents one interpretation of the data, and another model could also produce high fit statistics. However, the proposed model was based an extensive review of the training literature presented in chapters three and four.

6.18 Regression analysis – interaction effects

Typically, prior training research has failed to establish a strong association between task constraints and training outcomes. (Facteau et al, 1995, Mathieu et al, 1992, 1993). This study attempted to examine this association from a perspective not currently taken within existing training research. The theoretical reasoning behind why interaction terms should be present can be seen within the demand-control model of job strain (Karasek, 1979). This proposed the potential negative effects of high job demands could be mitigated by the degree of control the individual has over the job they perform.

Analysis was conducted to examine for potential interaction effects. Interaction terms were first calculated using a simple multiplication of the standardised z-scores for the independent variables. For example, the interaction terms for supervisor support and role clarity, would be calculated as the standardised z-scores for supervisor support multiplied by the standardised z-scores for role clarity. A series of regression analysis were then conducted to examine whether additional variance was explained by the interaction term. As with the analysis reported in the previous section, the control variables were entered at step one. Then the three independent variables were regressed onto the dependent variable at step two. The three interaction terms for the two-way interactions were entered at step three, and finally the three-way interaction term were then entered at step four of the regression equation. A significant change in R^2 at step four would indicate that the interaction was able to explain additional variance in the dependent variable would support the *buffering* hypothesis. To answer the *iso-strain* hypothesis, and to assist with interpretation of the interaction effects, diagrammatic representations of the associations were prepared which represented high (plus one standard deviation) and low (minus one standard deviation) mean scores (Aiken & West, 1991; Jaccard, Turrisi & Wan, 1990).

The following section will examined whether interaction effects were present between social support (from either a supervisor or co-workers), job control (measured as either role clarity or influence over decisions) and task constraints upon motivational outcomes (job-related benefits, self-efficacy and training motivation).

6.19.1 Interaction effects - Job-related benefits

Hypothesis 1a: High task constraints and low role clarity coupled with low supervisor support will be associated with the low job-related benefits (*iso-strain* hypothesis)

Hypothesis 2a: There will be evidence of an interaction effect between task constraints and role clarity and supervisor support on a) job-related benefits (*buffering* hypothesis)

It was hypothesised that supervisor support would moderate the association between role clarity and task constraints on job related benefits. Table 6.24 shows that the three-way interaction term accounted for 0.3% ($p=0.084$) additional variance in job-related benefits. This would offer marginal support for the buffering hypothesis (2a)

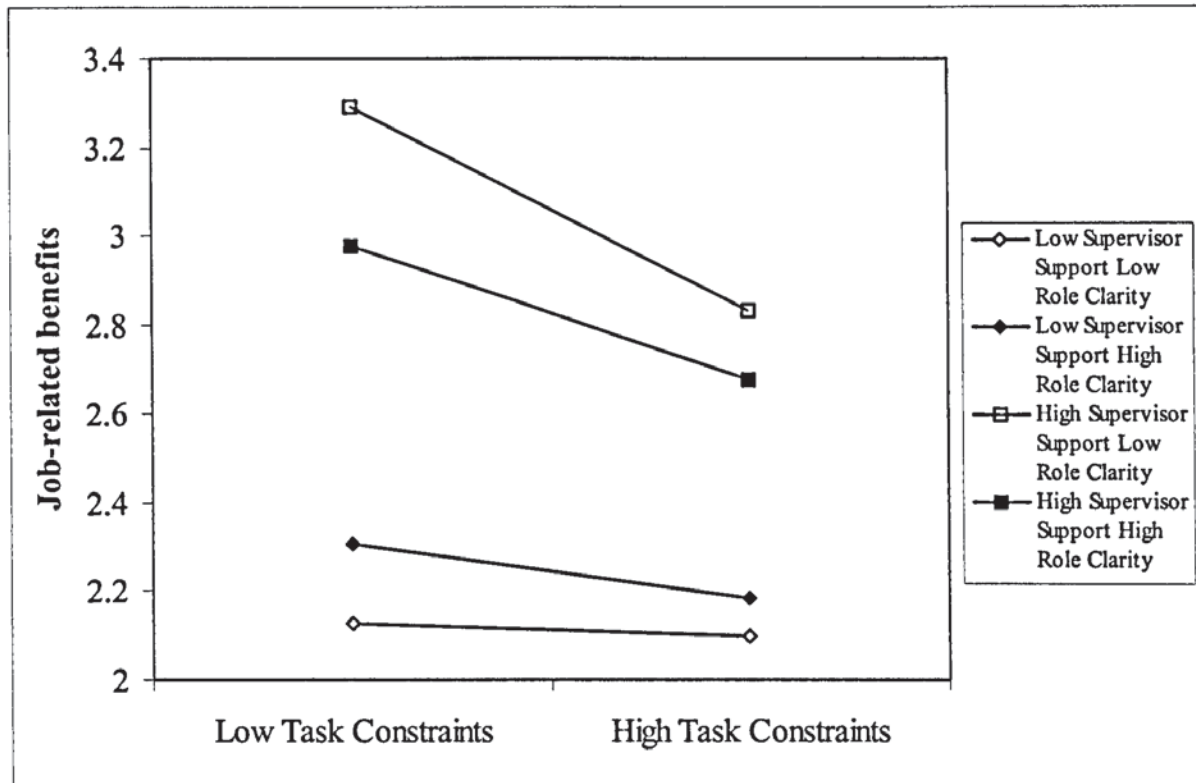
Table 6.24: Regression analysis for three-way interaction (supervisor support, role clarity and task constraints) on job-related benefits (n=732)

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant) Control measures	2.393	0.159		15.042	0.000			
2	Supervisor support (Sup)	0.360	0.031	0.413	11.757	0.000			
	Role clarity (Cla)	-0.013	0.030	-0.015	-0.433	0.665			
	Task constraints (Tsk)	-0.095	0.031	-0.109	-3.060	0.002			
3	Sup*Tsk	-0.068	0.026	-0.091	-2.586	0.010			
	Sup*Cla	-0.084	0.028	-0.108	-3.002	0.003			
	Cla*Tsk	0.012	0.026	0.016	0.451	0.652			
4	Sup*Cla*Tsk	0.032	0.019	0.063	1.718	0.086			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.315	0.100	0.082	0.836	0.100	5.661	14	717	0.000
2	0.551	0.304	0.287	0.737	0.204	69.724	3	714	0.000
3	0.562	0.316	0.296	0.732	0.012	4.208	3	711	0.006
4	0.564	0.319	0.298	0.731	0.003	2.953	1	710	0.086

Figure 6.4 shows that when respondents report low supervisor support, then the level of task constraints has little impact upon perceived job-related benefits regardless of the level of role clarity. Figure 6.4 shows perceived job-related benefits were highest when the respondent reported high supervisor support, low task constraints *and* low role clarity. This was unexpected as (perhaps) perceived job-related benefits should have been highest

when role clarity was also high. However, figure 6.4 shows that when supervisor support was high, but low role clarity, then an increase in task constraints is associated with large reduction in job-related benefits (than when role clarity was low). The relationships shown in figure 6.4 would support the *iso-strain* hypothesis (1a).

Figure 6.4: Interaction effects between supervisor support, role clarity and task constraints on job-related benefits.



Hypothesis 3a: High task constraints and low influence coupled with low supervisor support will be associated with the low job-related benefits (*iso-strain* hypothesis)

Hypothesis 4a: There will be evidence of an interaction effect between task constraints and influence and supervisor support on job-related benefits (*buffering* hypothesis)

It was hypothesised that supervisor support would moderate the association between influence and task constraints on job related benefits. Table 6.25 shows that the three-way interaction term accounted for 0.1% ($p=0.269$) additional variance in job-related benefits. This shows there was no evidence of a three-way interaction effect. This would indicate that there was no support for the buffering hypothesis (4a).

Figure 6.5 shows perceived job-related benefits were highest when respondents reported high supervisor support, high influence, and low task constraints. However, figure 6.5 clearly demonstrates a two-way interaction effect of influence and task constraints upon perceived job-related benefits. Specifically, this shows that where respondents report low

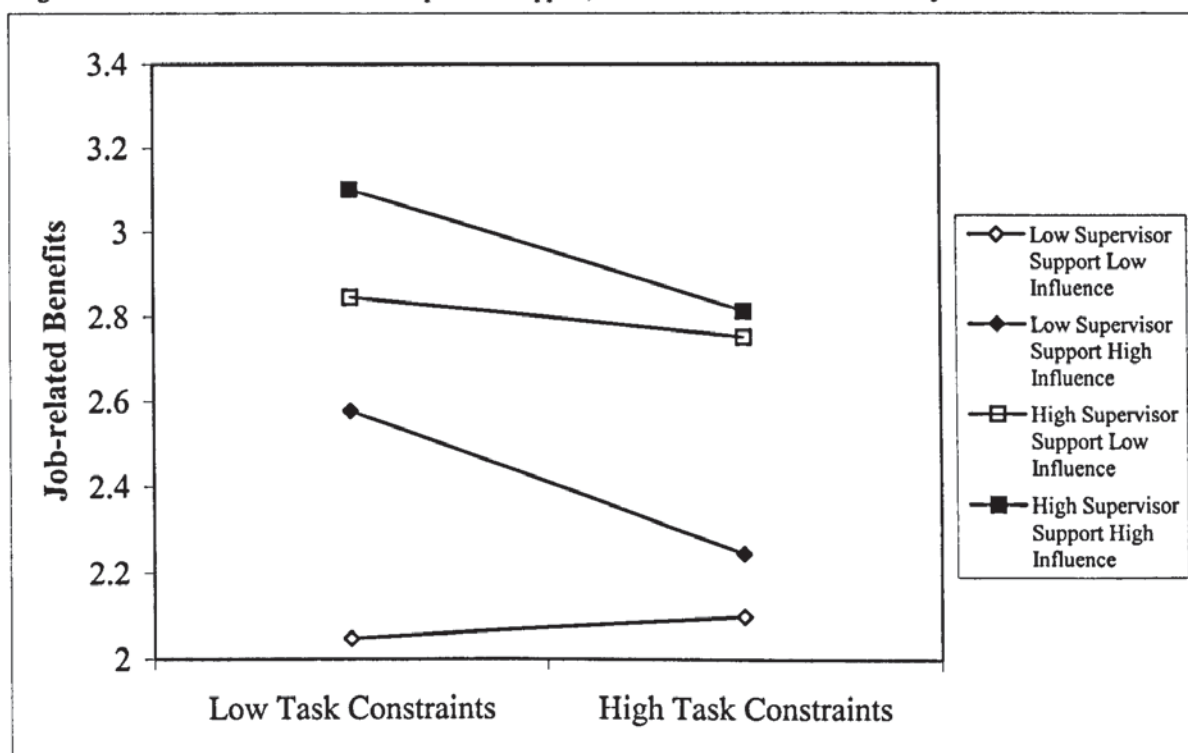
influence then increased task constraints has little impact upon perceived job-related benefits. However, when respondents report high levels of influence, then an increase in task constraints is associated with a reduction perceived job-related benefits. The relationships shown in figure 1 would support the *iso-strain* hypothesis (3a).

Table 6.25: Regression analysis for three-way interaction (supervisor support, influence and task constraints) on job-related benefits (n=732)

constraints) on job-related benefits (n = 752)

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant) Controls	2.393	0.159		15.042	0.000			
2	Supervisor support (Sup)	0.310	0.033	0.355	9.495	0.000			
	Influence (Inf)	0.115	0.033	0.132	3.509	0.000			
	Task constraints (Tsk)	-0.079	0.030	-0.090	-2.628	0.009			
3	Sup*Tsk	-0.015	0.028	-0.019	-0.521	0.602			
	Sup*Inf	-0.045	0.029	-0.055	-1.572	0.116			
	Inf*Tsk	-0.071	0.033	-0.083	-2.143	0.032			
4	Sup*Inf*Tsk	0.024	0.022	0.042	1.106	0.269			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.315	0.100	0.082	0.836	0.100	5.661	14	717	0.000
2	0.561	0.315	0.299	0.731	0.216	74.947	3	714	0.000
3	0.568	0.322	0.303	0.728	0.007	2.549	3	711	0.055
4	0.569	0.324	0.304	0.728	0.001	1.223	1	710	0.269

Figure 6.5 Interaction effects between supervisor support, influence and task constraints on job-related benefits.



Hypothesis 5a: High task constraints and low role clarity coupled with low co-worker support will be associated with the low job-related benefits (*iso-strain* hypothesis)

Hypothesis 6a: There will be evidence of an interaction effect between task constraints and role clarity and co-worker support on job-related benefits (*buffering* hypothesis)

It was hypothesised that co-worker support would moderate the association between role clarity and task constraints on job related benefits. Table 6.26 shows that the three-way interaction term accounted for 0.5% ($p=0.030$) additional variance in job-related benefits. This shows there was evidence of a three-way interaction effect. This would support the buffering hypothesis (6a)

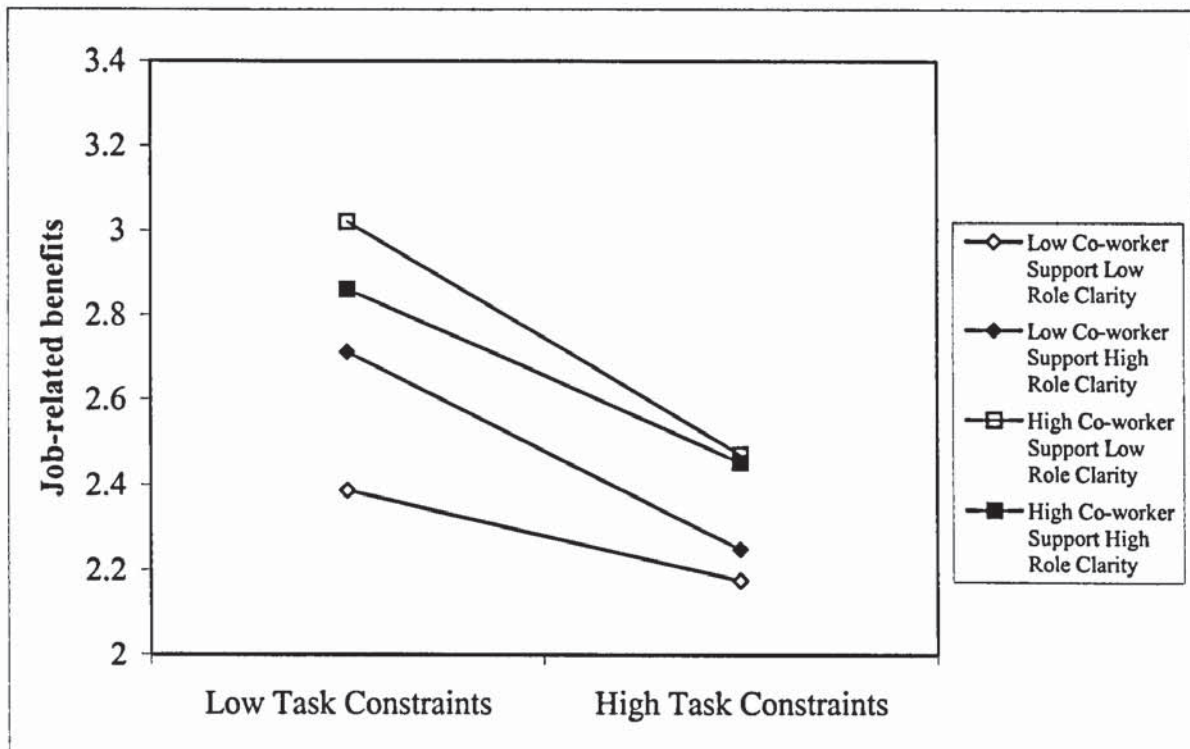
Table 6.26: Regression analysis for three-way interaction (co-worker support, role clarity and task constraints) on job-related benefits (n=732)

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant) Controls	2.393	0.159		15.042	0.000			
2	Co-worker Support (Cow)	0.145	0.031	0.167	4.729	0.000			
	Role clarity (Cla)	0.034	0.032	0.038	1.037	0.300			
	Task constraints (Tsk)	-0.189	0.032	-0.216	-5.895	0.000			
3	Cow*Tsk	-0.030	0.030	-0.038	-1.010	0.313			
	Cow*Cla	-0.065	0.027	-0.086	-2.352	0.019			
	Cla*Tsk	0.005	0.026	0.007	0.207	0.836			
4	Cow*Cla*Tsk	0.049	0.023	0.084	2.181	0.030			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.315	0.100	0.082	0.836	0.100	5.661	14	717	0.000
2	0.440	0.194	0.175	0.793	0.094	27.889	3	714	0.000
3	0.448	0.200	0.178	0.791	0.006	1.884	3	711	0.131
4	0.454	0.206	0.182	0.789	0.005	4.757	1	710	0.030

Figure 6.6 shows that perceived job-related benefits were highest when the respondent reported high co-worker support, low task constraints *and* low role clarity. In contrast, perceived job-related benefits were lowest when there was low co-worker support, low role clarity, and high task constraints. Figure 6.6 shows that where there is high co-worker support, then increased task constraints are associated with a proportionally larger reduction in perceived job-related benefits when role clarity is low. However, in contrast

where there is low co-worker support, then increased task constraints are associated with a proportionally larger reduction in perceived job-related benefits when role clarity is high. The relationships shown in figure 6.6 would support the *iso-strain* hypothesis (5a).

Figure 6.6: Interaction effects between co-worker support, role clarity and task constraints on job-related benefits.



Hypothesis 7a: High task constraints and low influence coupled with low co-worker support will be associated with the low job-related benefits (*iso-strain* hypothesis)

Hypothesis 8a: There will be evidence of an interaction effect between task constraints and influence and co-worker support on job-related benefits (*buffering* hypothesis)

It was hypothesised that co-worker support would moderate the association between influence and task constraints on job related benefits. Table 6.27 shows that the three-way interaction term accounted for 0.6% ($p=0.019$) additional variance in job-related benefits. This shows there was evidence of a three-way interaction effect. This would indicate that there was support for the buffering hypothesis (8a).

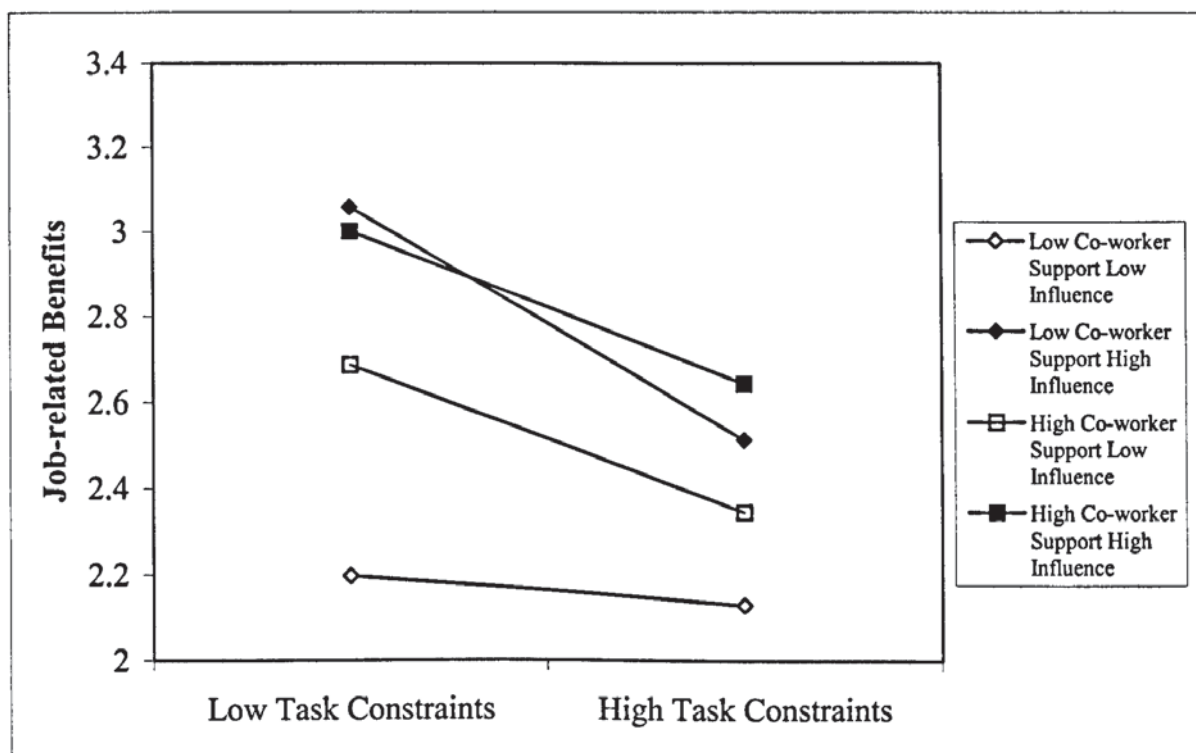
Figure 6.7 shows that perceived job-related benefits were highest when respondents reported low co-worker support, high influence and low task constraints. Perceived job-related benefits were lowest when the respondent reported low co-worker support, low influence and high task constraints. There was also evidence to support a three-way interaction effect. Specifically, figure 6.7 shows that where there is high co-worker support, an increase in task constraints is associated with a reduction in perceived job-

related benefits (however, the slope of the gradient is not related with influence). However, when co-worker support is low, figure 6.7 shows that an increase in task constraints has little impact upon perceived job-related benefits when influence is low. However, where there is low co-worker support and high influence, then an increase in task constraints is associated with a large reduction in perceived job-related benefits. The relationships shown in figure 6.7 would support the *iso-strain* hypothesis (7a).

Table 6.27: Regression analysis for three-way interaction (co-worker support, influence and task constraints) on job-related benefits (n=732)

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant) Controls	2.393	0.159		15.042	0.000			
2	Co-worker support (Cow)	0.102	0.030	0.117	3.389	0.001			
	Influence (Inf)	0.218	0.032	0.250	6.730	0.000			
	Task constraints (Tsk)	-0.150	0.030	-0.172	-4.934	0.000			
3	Cow*Tsk	-0.021	0.029	-0.027	-0.727	0.468			
	Cow*Inf	-0.077	0.031	-0.096	-2.494	0.013			
	Inf*Tsk	-0.049	0.029	-0.057	-1.663	0.097			
4	Cow*Inf*Tsk	0.058	0.025	0.088	2.353	0.019			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.315	0.100	0.082	0.836	0.100	5.661	14	717	0.000
2	0.491	0.241	0.223	0.769	0.141	44.332	3	714	0.000
3	0.499	0.249	0.228	0.767	0.008	2.603	3	711	0.051
4	0.505	0.255	0.233	0.764	0.006	5.536	1	710	0.019

Figure 6.7: Interaction effects between co-worker support, influence and task constraints on job-related benefits.



6.19.2 Overview: Interaction effects – Job-related benefits

The analysis reported in this section would offer more support for the *iso-strain* hypothesis where job-related benefits were generally highest when support was high, control (influence or role clarity) was high, and task constraints were low, and job-related benefits were lowest when support was low, control was low and task constraints were high. There was less support for the *buffering* hypothesis – the analysis shows there was evidence of significant three-way interaction effects with of the regression equations. However, they were related to co-worker support rather than supervisor support – specifically, these showed that the detrimental effects of increased task constraints was seen where co-worker support was low. The interaction effects were also different when either role clarity or influence were used as a measure of control. Specifically, job-related benefits were highest when individuals report high supervisor or co-worker support, low task constraints, but low role clarity. This could indicate that they over state the potential benefits available from training (due to having an inaccurate understanding of role requirements).

6.20.1 Interaction effects – Training self-efficacy

Hypothesis 1b: High task constraints and low role clarity coupled with low supervisor support will be associated with the low training self-efficacy (*iso-strain* hypothesis)

Hypothesis 2b: There will be evidence of an interaction effect between task constraints and role clarity and supervisor support on: training self-efficacy (*buffering* hypothesis)

It was hypothesised that supervisor support would moderate the association between role clarity and task constraints on self-efficacy. Table 6.28 shows there was no evidence of a three-way interaction effect. This would indicate there was no support for the *buffering* hypothesis (2b).

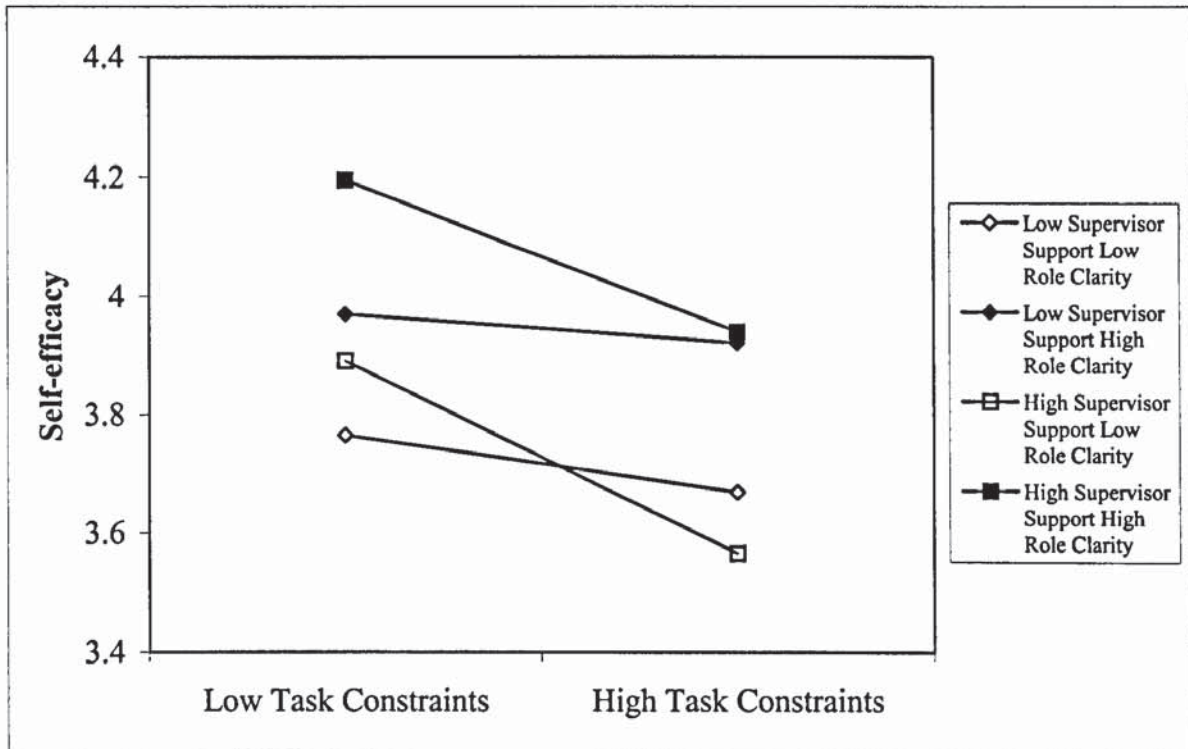
Table 6.28: Regression analysis for three-way interaction (supervisor support, role clarity and task constraints) on self-efficacy (n=732).

constraints) on self-efficacy (p = .752).

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant) Controls	3.836	0.121		31.635	0.000			
2	Supervisor support (Sup)	0.027	0.025	0.042	1.075	0.283			
	Role clarity (Cla)	0.145	0.025	0.226	5.821	0.000			
	Task constraints (Tsk)	-0.094	0.025	-0.147	-3.698	0.000			
3	Sup*Tsk	-0.054	0.022	-0.099	-2.505	0.012			
	Sup*Cla	0.029	0.023	0.050	1.239	0.216			
	Cla*Tsk	0.015	0.021	0.028	0.718	0.473			
4	Sup*Cla*Tsk	0.003	0.015	0.008	0.197	0.844			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.160	0.026	0.007	0.637	0.026	1.352	14	717	0.171
2	0.359	0.129	0.108	0.604	0.104	28.292	3	714	0.000
3	0.378	0.143	0.119	0.600	0.014	3.733	3	711	0.011
4	0.378	0.143	0.117	0.601	0.000	0.039	1	710	0.844

Figure 6.8 shows that training self-efficacy was highest when respondents reported high supervisor support, role clarity and low task constraints, and lowest when respondents reported high supervisor support, low role clarity and high task constraints. Figure 6.8 shows the two-way interaction effect between supervisor support and task constraints (irrespective of role clarity) upon training self-efficacy. Specifically, figure 6.8 shows that with low supervisor support, then an increase in task constraints was associated with a slight reduction in training self-efficacy. However, where supervisor support was high, an increase in task constraints was associated with large reduction in training self-efficacy. The relationships shown in figure 6.8 would support the *iso-strain* hypothesis (1b).

Figure 6.8: Interaction effects between supervisor support, role clarity and task constraints on training self-efficacy.



Hypothesis 3b: High task constraints and low influence coupled with low supervisor support will be associated with the low training self-efficacy (*iso-strain* hypothesis)

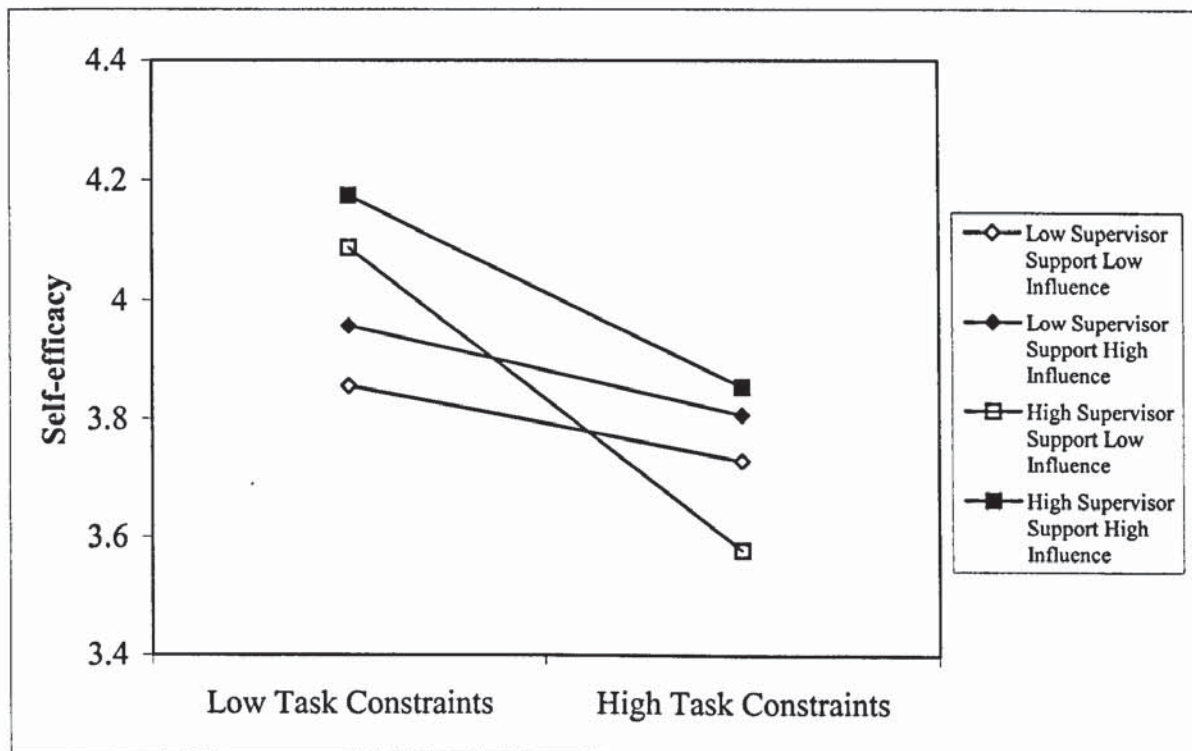
Hypothesis 4b: There will be evidence of an interaction effect between task constraints and influence and supervisor support on training self-efficacy (*buffering* hypothesis)

It was hypothesised that supervisor support would moderate the association between influence and task constraints on self-efficacy. Table 6.29 shows there was no evidence of a three-way interaction effect. This would indicate there was no support for the *buffering* hypothesis (4b). Figure 6.9 shows training self-efficacy was highest when respondents reported high supervisor support, high influence and low task constraints, and lowest when respondents reported high supervisor support, low influence and high task constraints. There was no support for a three-way interaction effect. However, figure 6.9 shows the two-way interaction effect between supervisor support and task constraints (irrespective of influence) upon training self-efficacy. Specifically, figure 6.9 shows that where there was low supervisor support, then an increase in task constraints was associated with a slight reduction in training self-efficacy. However, where supervisor support was high, a increase in task constraints was associated with large reduction in training self-efficacy. The relationships shown in figure 6.9 would support the *iso-strain* hypothesis (3b).

Table 6.29: Regression analysis for three-way interaction (supervisor support, influence and task constraints) on self-efficacy (n=732).

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant) Controls	3.836	0.121		31.635	0.000			
2	Supervisor support (Sup)	0.034	0.028	0.053	1.231	0.219			
	Influence (Inf)	0.057	0.028	0.088	2.040	0.042			
	Task constraints (Tsk)	-0.126	0.025	-0.196	-4.975	0.000			
3	Sup*Tsk	-0.072	0.023	-0.132	-3.086	0.002			
	Sup*Inf	0.023	0.024	0.037	0.937	0.349			
	Inf*Tsk	0.022	0.028	0.034	0.775	0.439			
4	Sup*Inf*Tsk	0.027	0.018	0.064	1.476	0.140			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.160	0.026	0.007	0.637	0.026	1.352	14	717	0.171
2	0.305	0.093	0.072	0.616	0.067	17.711	3	714	0.000
3	0.332	0.110	0.085	0.612	0.017	4.519	3	711	0.004
4	0.336	0.113	0.087	0.611	0.003	2.179	1	710	0.140

Figure 6.9: Interaction effects between supervisor support, influence and task constraints on training self-efficacy.



Hypothesis 5b: High task constraints and low role clarity coupled with low co-worker support will be associated with the low training self-efficacy (*iso-strain* hypothesis)

Hypothesis 6b: There will be evidence of an interaction effect between task constraints and role clarity and co-worker support on training self-efficacy (*buffering* hypothesis)

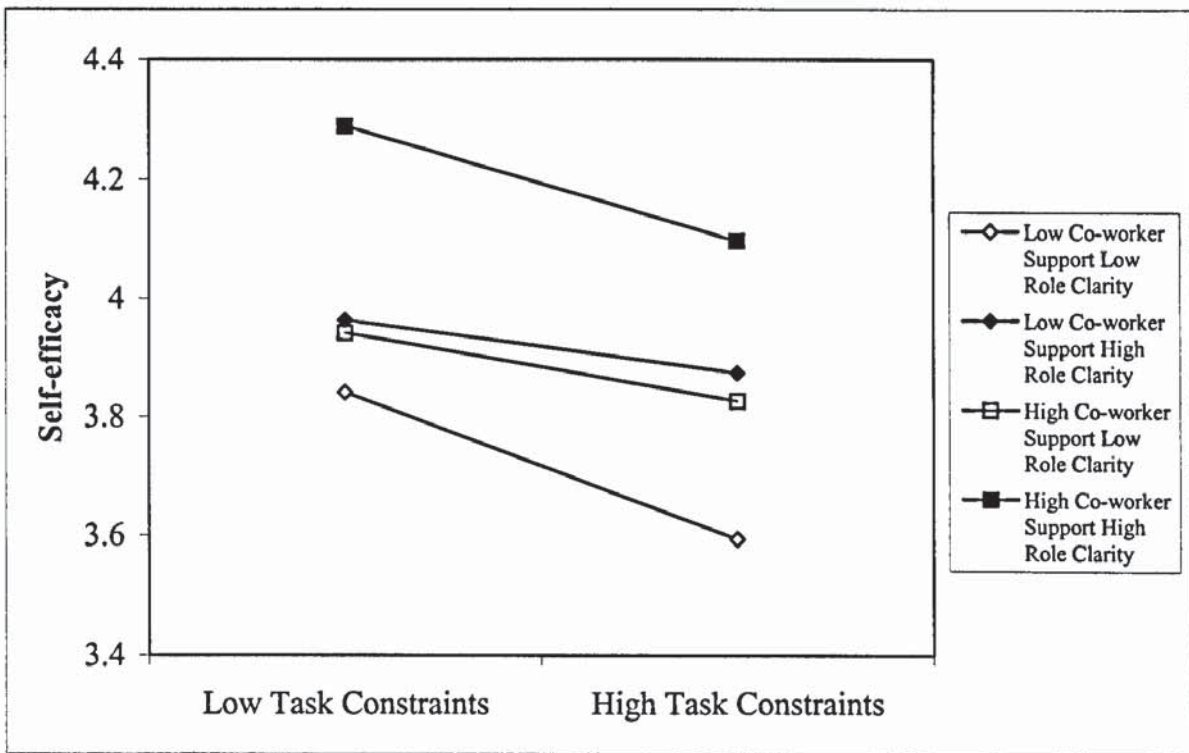
It was hypothesised that co-worker support would moderate the association between role clarity and task constraints on self-efficacy. Table 6.30 shows the three-way interaction effect accounted for 0.4% ($p=0.084$) of the variance in self-efficacy. This would offer some support for three-way interaction effect. This would indicate there was support for the *buffering* hypothesis (6b).

Table 6.30: Regression analysis for three-way interaction (co-worker support, role clarity and task constraints) on self-efficacy ($n=732$).

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant) Controls	3.836	0.121		31.635	0.000			
2	Co-worker Support (Cow)	0.119	0.023	0.186	5.179	0.000			
	Role clarity (Cla)	0.128	0.024	0.200	5.283	0.000			
	Task constraints (Tsk)	-0.088	0.024	-0.137	-3.671	0.000			
3	Cow*Tsk	0.001	0.022	0.001	0.023	0.982			
	Cow*Cla	0.022	0.021	0.040	1.060	0.289			
	Cla*Tsk	-0.001	0.019	-0.001	-0.035	0.972			
4	Cow*Cla*Tsk	-0.029	0.017	-0.068	-1.731	0.084			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.160	0.026	0.007	0.637	0.026	1.352	14	717	0.171
2	0.399	0.159	0.139	0.593	0.134	37.850	3	714	0.000
3	0.401	0.161	0.137	0.594	0.001	0.423	3	711	0.736
4	0.406	0.164	0.140	0.593	0.004	2.998	1	710	0.084

Figure 6.10 shows that training self-efficacy was highest when respondents reported high co-worker support, high role clarity and low task constraints, and lowest when respondents reported low co-worker, low role clarity and high task constraints. Figure 6.10 shows that where there was high co-worker support, then an increase in task constraints was associated with a proportionally larger reduction in training self-efficacy when role clarity was high. However, when co-worker support was low, then an increase in task constraints was associated with a proportionally larger reduction in training self-efficacy when role clarity was low. The relationships shown in figure 6.10 would support the *iso-strain* hypothesis (5b).

Figure 6.10: Interaction effects between co-worker support, role clarity and task constraints on training self-efficacy.



Hypothesis 7b: High task constraints and low influence coupled with low co-worker support will be associated with the low training self-efficacy (*iso-strain* hypothesis)

Hypothesis 8b: There will be evidence of an interaction effect between task constraints and influence and co-worker support on training self-efficacy (*buffering* hypothesis)

It was hypothesised that co-worker support would moderate the association between influence and task constraints on self-efficacy. Table 6.31 shows the three-way interaction effect accounted for 0.3% ($p=0.099$) of the variance in self-efficacy. This would offer some support for three-way interaction effect. This would indicate there was support for the *buffering* hypothesis (8b).

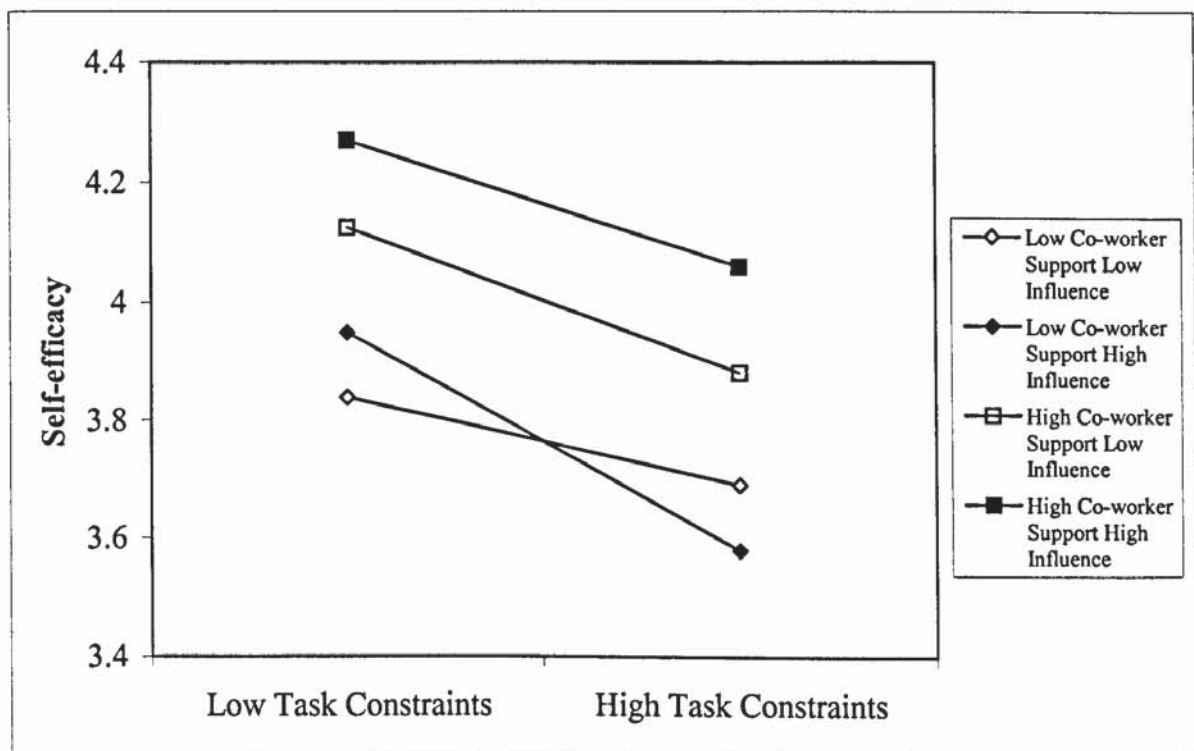
Figure 6.11 shows that training self-efficacy was highest when respondents reported high co-worker support, high influence and low task constraints, and lowest when respondents reported low co-worker, high influence and high task constraints. There was marginal support for a three-way interaction effect. Figure 6.11 shows that where there was high co-worker support, then an increase in task constraints was associated with a reduction in training self-efficacy – the reduction in the slopes was largely unrelated with the level of influence. However, when co-worker support was low, a increase in task constraints was associated with a proportionally larger reduction in training self-efficacy when influence was high. The relationships shown in figure 6.11 would support the *iso-strain* hypothesis (7b).

Table 6.31: Regression analysis for three-way interaction (Co-worker support, role clarity and task constraints) on self-efficacy (n=732).

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant) Controls	3.836	0.121		31.635	0.000
2	Co-worker support (Cow)	0.132	0.024	0.207	5.569	0.000
	Influence (Inf)	0.037	0.025	0.058	1.449	0.148
	Task constraints (Tsk)	-0.119	0.024	-0.187	-5.010	0.000
3	Cow*Tsk	0.002	0.023	0.003	0.071	0.943
	Cow*Inf	0.041	0.024	0.070	1.711	0.087
	Inf*Tsk	-0.016	0.023	-0.026	-0.707	0.480
4	Cow*Inf*Tsk	0.032	0.019	0.067	1.655	0.098

Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.160	0.026	0.007	0.637	0.026	1.352	14	717	0.171
2	0.359	0.129	0.108	0.604	0.103	28.254	3	714	0.000
3	0.367	0.135	0.110	0.603	0.006	1.553	3	711	0.200
4	0.372	0.138	0.113	0.602	0.003	2.739	1	710	0.098

Figure 6.11: Interaction effects between co-worker support, influence and task constraints on training self-efficacy.



6.20.2 Overview: Interaction effects – Training self-efficacy

The analysis reported in this section would offer more support for the *iso-strain* hypothesis where training self-efficacy were generally highest when support was high, control (influence or role clarity) was high, and task constraints were low, and training self-efficacy was lowest when support was low, control was low and task constraints were high. There was less support for the *buffering* hypothesis – the analysis reported in this section would show that there was evidence of significant three-way interaction effects with of the regression equations. However, they were related to co-worker support rather than supervisor support – specifically, these showed that the detrimental effects of increased task constraints was seen where co-worker support was low. But, the type of the relationship was different according to role clarity or influence. That is, the reduction in self-efficacy beliefs when there was low co-worker support, and increased task constraints occurred when there was either low role clarity or high influence. Hence, even though an individual has high influence, if they faced with an unsupportive work group and high work demands, this may lead them to believe that they are not capable of altering their existing behaviours. Alternatively, they may have an inaccurate understanding of role requirements, but feel unable to seek the help for co-workers which results in a lowering of self-efficacy beliefs. There was also evidence of two-way interaction effects where supervisor support moderated the association between task constraints and self-efficacy (regardless of role clarity or influence). That is, an increase in task constraints has minimal effect upon self-efficacy when supervisor support is low, however, then supervisor support is high then increased task constraints impacts greatly on self-efficacy. This two-way interaction effect was not present for co-worker support.

6.21.1 Interaction effects - Training motivation

Hypothesis 1c: High task constraints and low role clarity coupled with low supervisor support will be associated with the low training motivation (*iso-strain* hypothesis)

Hypothesis 2c: There will be evidence of an interaction effect between task constraints and role clarity and supervisor support on training motivation (*buffering* hypothesis)

It was hypothesised that supervisor support would moderate the association between role clarity and task constraints on training motivation. Table 6.32 shows the three-way interaction effect accounted for 0.5% ($p=0.029$) of the variance in training motivation. This would offer support for three-way interaction effect. This would indicate there was support for the *buffering* hypothesis (2c).

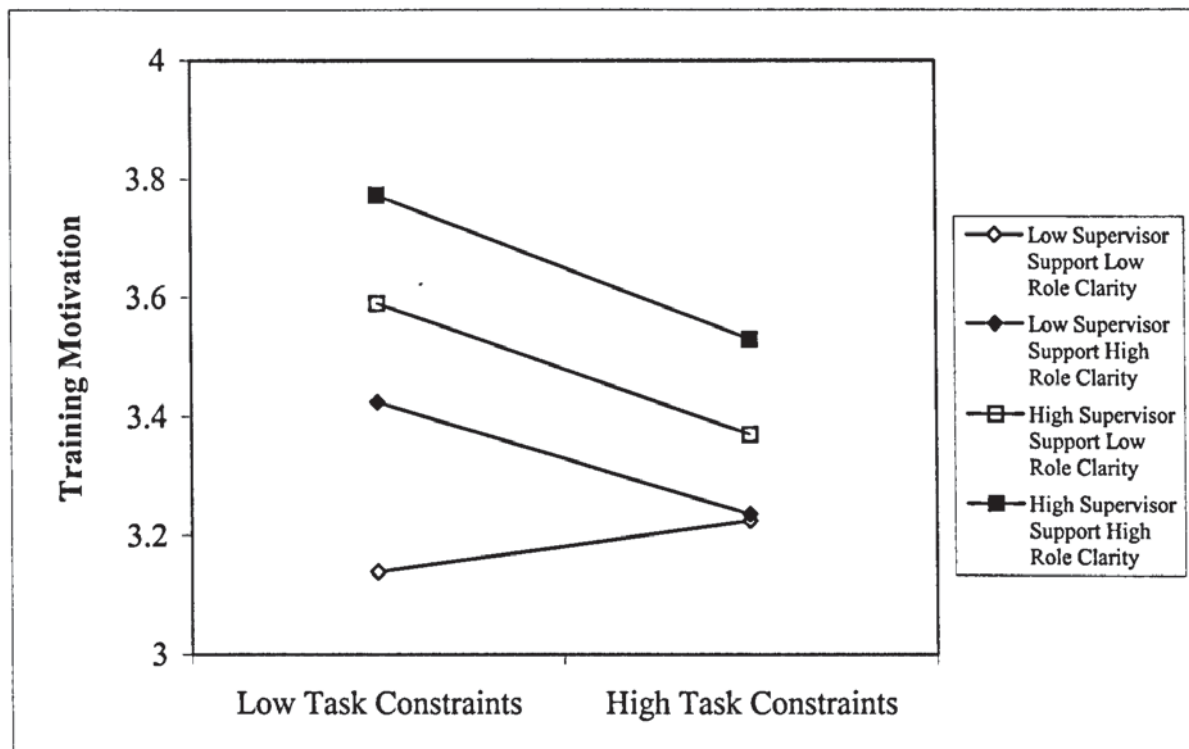
Table 6.32: Regression analysis for three-way interaction (supervisor support, role clarity and task constraints) on training motivation (n=732)

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant) Controls	3.350	0.114		29.324	0.000			
2	Supervisor support (Sup)	0.145	0.023	0.233	6.187	0.000			
	Role clarity (Cla)	0.064	0.023	0.102	2.750	0.006			
	Task constraints (Tsk)	-0.067	0.024	-0.108	-2.835	0.005			
3	Sup*Tsk	-0.038	0.020	-0.072	-1.899	0.058			
	Sup*Cla	0.013	0.021	0.024	0.626	0.531			
	Cla*Tsk	-0.033	0.020	-0.064	-1.707	0.088			
4	Sup*Cla*Tsk	0.031	0.014	0.085	2.192	0.029			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.294	0.086	0.069	0.601	0.086	4.842	14	717	0.000
2	0.447	0.200	0.181	0.563	0.113	33.720	3	714	0.000
3	0.463	0.215	0.192	0.559	0.015	4.460	3	711	0.004
4	0.469	0.220	0.197	0.558	0.005	4.803	1	710	0.029

Figure 6.12 shows that training motivation was highest when respondents reported high supervisor support, role clarity and low task constraints, and lowest when respondents reported low supervisor support, low role clarity and low task constraints. There was evidence of a three-way interaction effect. Figure 6.12 shows that where there was high supervisor support, then an increase in task constraints was associated with a reduction in training motivation – the reduction in the slopes was largely unrelated with the level of role clarity. However, when the respondent reported having a non-supportive supervisor then there was a noticeable *convergence* in the lines as task constraints increase. That is, where there are high task constraints, then role clarity has little impact upon training

motivation. However, training motivation was considerably higher when respondents encounter high role clarity and low task constraints. The relationships shown in figure 6.12 would support the *iso-strain* hypothesis (1c).

Figure 6.12: Interaction effects between supervisor support, role clarity and task constraints on training motivation.



Hypothesis 3c: High task constraints and low influence coupled with low supervisor support will be associated with the low training motivation (*iso-strain* hypothesis)

Hypothesis 4c: There will be evidence of an interaction effect between task constraints and influence and supervisor support on training motivation (*buffering* hypothesis)

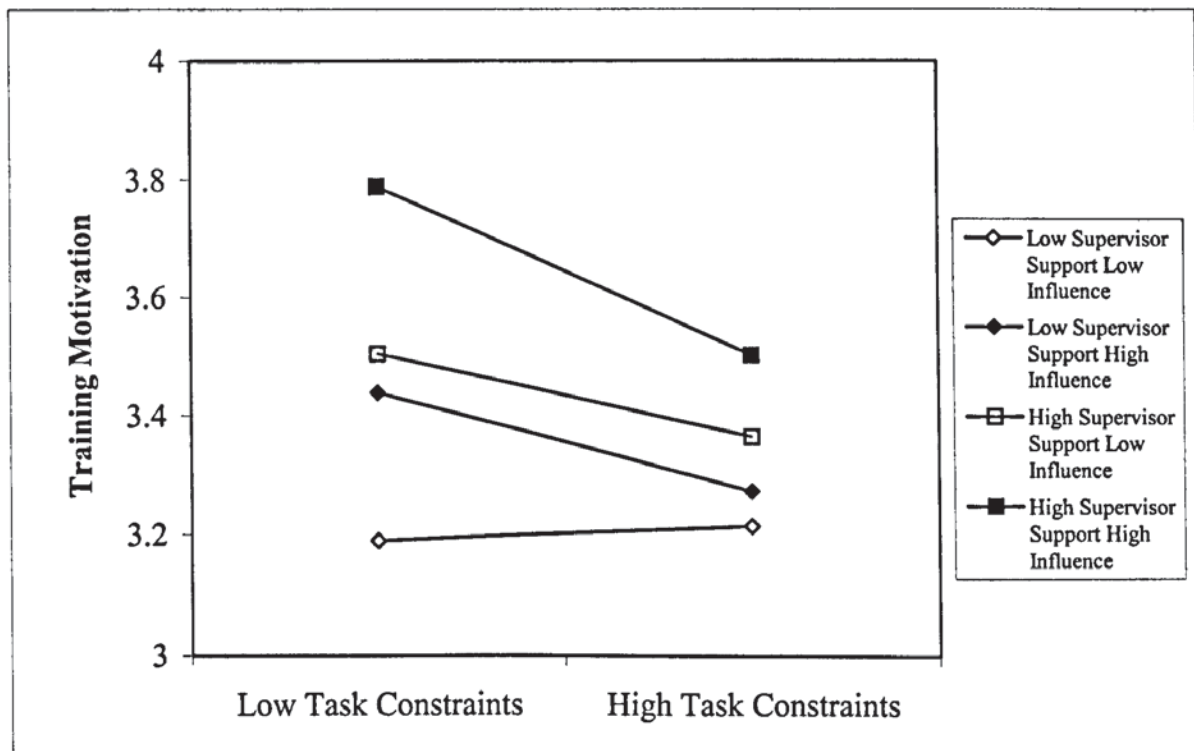
It was hypothesised that supervisor support would moderate the association between influence and task constraints on training motivation. Table 6.33 shows was no evidence of a three-way interaction effect. This would indicate there was no support for the *buffering* hypothesis (4c). Figure 6.13 shows that training motivation was highest when respondents reported high supervisor support, high influence and low task constraints, and lowest when respondents reported low supervisor support, low influence and low task constraints. There was no evidence of a three-way interaction effect. However, figure 6.13 shows the two-way interaction effect between influence and task constraints (irrespective of supervisor support) upon training motivation. Specifically, figure 6.13 shows that where there was low influence, then an increase in task constraints was associated with a slight reduction in training motivation. However, where influence was high, then an increase in task constraints was associated with large reduction in training

motivation. The relationships shown in figure 6.13 would support the *iso-strain* hypothesis (3c).

Table 6.33: Regression analysis for three-way interaction (supervisor support, influence and task constraints) on training motivation (n=732)

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant) Controls	3.350	0.114		29.324	0.000			
2	Supervisor support (Sup)	0.121	0.025	0.195	4.849	0.000			
	Influence (Inf)	0.089	0.025	0.143	3.517	0.000			
	Task constraints (Tsk)	-0.074	0.023	-0.119	-3.220	0.001			
3	Sup*Tsk	-0.036	0.021	-0.068	-1.696	0.090			
	Sup*Inf	0.014	0.022	0.024	0.649	0.517			
	Inf*Tsk	-0.042	0.025	-0.069	-1.647	0.100			
4	Sup*Inf*Tsk	0.005	0.017	0.014	0.331	0.741			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.294	0.086	0.069	0.601	0.086	4.842	14	717	0.000
2	0.453	0.205	0.186	0.561	0.119	35.532	3	714	0.000
3	0.471	0.222	0.200	0.557	0.017	5.143	3	711	0.002
4	0.471	0.222	0.199	0.557	0.000	0.110	1	710	0.741

Figure 6.13: Interaction effects between supervisor support, influence and task constraints on training motivation.



Hypothesis 5c: High task constraints and low role clarity coupled with low co-worker support will be associated with the low training motivation (*iso-strain* hypothesis)

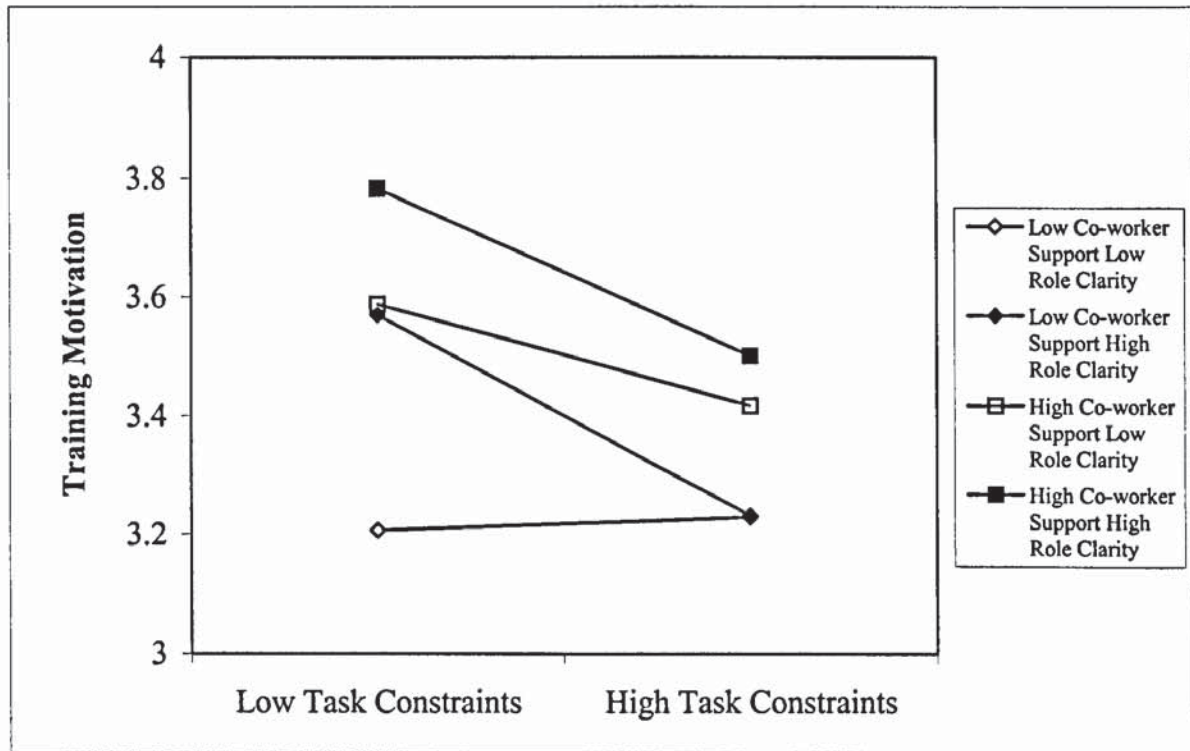
Hypothesis 6c: There will be evidence of an interaction effect between task constraints and role clarity and co-worker support on training motivation (*buffering* hypothesis)

It was hypothesised that co-worker support would moderate the association between role clarity and task constraints on training motivation. Table 6.34 shows the three-way interaction effect accounted for 0.5% ($p=0.029$) of the variance in training motivation. This would offer some support for three-way interaction effect. This would indicate there was support for the *buffering* hypothesis (6c). Figure 14 shows training motivation was highest when respondents reported high co-worker support, high role clarity and low task constraints, and lowest when respondents reported low co-worker support, low role clarity and low task constraints. There was evidence of a three-way interaction effect. Figure 14 shows that where there was high co-worker support, then an increase in task constraints was associated with a reduction in training motivation – the reduction in the slopes was largely unrelated with the level of role clarity. However, when the respondent reported having non-supportive co-worker then there was a noticeable *convergence* in the lines as task constraints increase. That is, where there are high task constraints, role clarity has little impact upon training motivation. However, training motivation was considerably higher when respondents faced high role clarity and low task constraints. The relationships shown in figure 6.14 would support the *iso-strain* hypothesis (5c).

Table 6.34: Regression analysis for three-way interaction (Co-worker support, role clarity and task constraints) on training motivation ($n=732$)

		Unstandardized Coefficients		Standardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.			
1	(Constant) Controls	3.350	0.114		29.324	0.000			
2	Co-worker Support (Cow)	0.126	0.022	0.202	5.742	0.000			
	Role clarity (Cla)	0.070	0.023	0.113	3.033	0.003			
	Task constraints (Tsk)	-0.097	0.023	-0.155	-4.241	0.000			
3	Cow*Tsk	-0.014	0.021	-0.024	-0.636	0.525			
	Cow*Cla	-0.006	0.020	-0.011	-0.308	0.758			
	Cla*Tsk	-0.047	0.018	-0.090	-2.581	0.010			
4	Cow*Cla*Tsk	0.031	0.016	0.075	1.945	0.052			
Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.294	0.086	0.069	0.601	0.086	4.842	14	717	0.000
2	0.441	0.194	0.175	0.565	0.108	31.804	3	714	0.000
3	0.450	0.203	0.180	0.563	0.009	2.601	3	711	0.051
4	0.455	0.207	0.184	0.562	0.004	3.782	1	710	0.052

Figure 6.14: Interaction effects between co-worker support, role clarity and task constraints on training motivation.



Hypothesis 7c: High task constraints and low influence coupled with low co-worker support will be associated with the low training motivation (*iso-strain* hypothesis)

Hypothesis 8c: There will be evidence of an interaction effect between task constraints and influence and co-worker support on training motivation (*buffering* hypothesis)

It was hypothesised that co-worker support would moderate the association between role clarity and task constraints on training motivation. Table 6.35 shows there was no evidence of three-way interaction effect. This would indicate there was no support for the *buffering* hypothesis (8c).

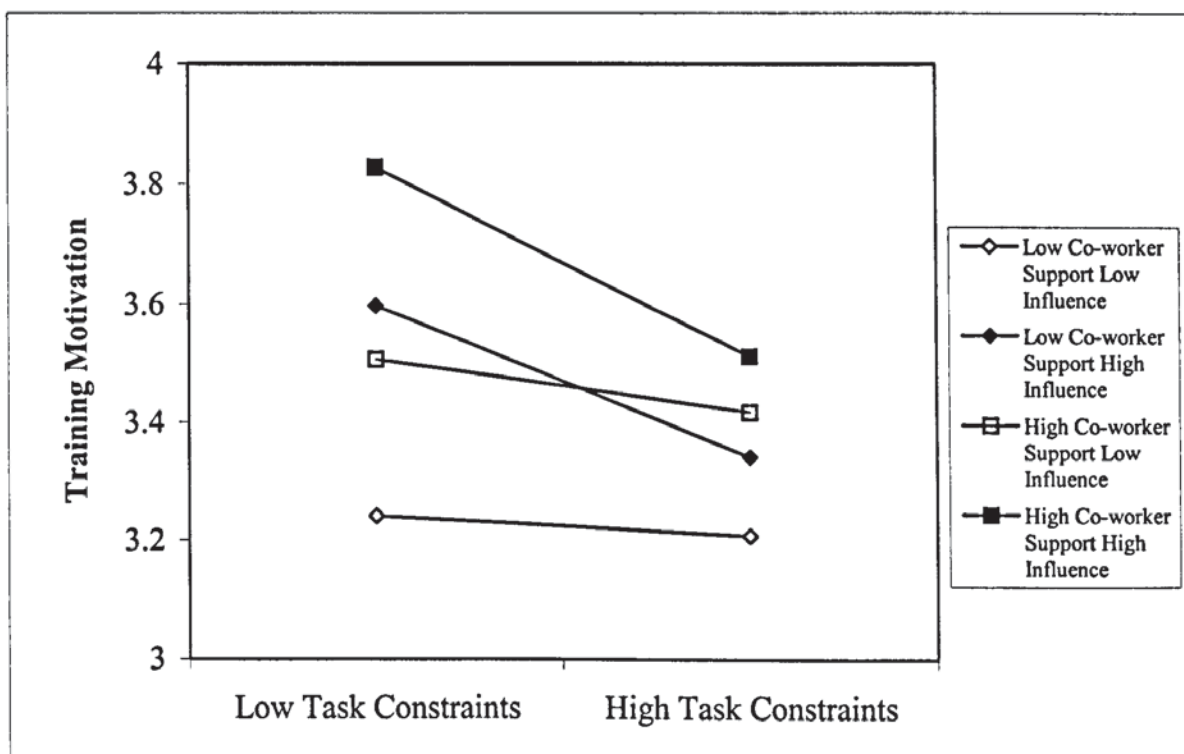
Figure 6.15 shows that training motivation was highest when respondents reported high co-worker support, high influence and low task constraints, and lowest when respondents reported low co-worker support, low influence and low task constraints. There was no evidence of a three-way interaction effect. However, figure 6.15 shows the two-way interaction effect between influence and task constraints (irrespective of co-worker support) upon training motivation. Specifically, figure 6.15 shows that where there was low influence, then an increase in task constraints was associated with a slight reduction in training motivation. However, where influence was high, then an increase in task constraints was associated with large reduction in training motivation. The relationships shown in figure 6.15 would support the *iso-strain* hypothesis (7c).

Table 6.35: Regression analysis for three-way interaction (Co-worker support, influence and task constraints) on training motivation (n=732).

Model		Unstandardized Coefficients		Standardized Coefficients		t	Sig.
		B	Std. Error	Beta			
1	(Constant) Controls	3.350	0.114			29.324	0.000
2	Co-worker support (Cow)	0.113	0.022	0.181		5.126	0.000
	Influence (Inf)	0.111	0.024	0.178		4.684	0.000
	Task constraints (Tsk)	-0.094	0.022	-0.150		-4.231	0.000
3	Cow*Tsk	-0.015	0.021	-0.025		-0.681	0.496
	Cow*Inf	-0.009	0.022	-0.016		-0.410	0.682
	Inf*Tsk	-0.056	0.021	-0.093		-2.637	0.009
4	Cow*Inf*Tsk	0.000	0.018	-0.001		-0.025	0.980

Model summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.294	0.086	0.069	0.601	0.086	4.842	14	717	0.000
2	0.456	0.208	0.189	0.560	0.122	36.557	3	714	0.000
3	0.466	0.217	0.195	0.558	0.009	2.851	3	711	0.037
4	0.466	0.217	0.194	0.559	0.000	0.001	1	710	0.980

Figure 6.15: Interaction effects between co-worker support, role clarity and task constraints on training motivation.



6.21.2 Overview: Interaction effects - Training motivation

The analysis reported in this section would offer more support for the *iso-strain* hypothesis where training motivation was highest when support was high, control (influence or role clarity) was high, and task constraints were low, and training motivation was lowest when support was low, control was low and task constraints were high. There was less support for the *buffering* hypothesis – the analysis reported in this section would show that there was evidence of significant three-way interaction effects with of the regression equations. However, these effects related to when role clarity, rather than influence was used. Specifically, the interaction effects show that effects are most pronounced where either supervisor or co-worker support was low. Specifically, this showed increased task constraints had a detrimental effect upon training motivation was high. This may reflect that individuals knows that they will not receive the support from their supervisor or co-worker, hence they will not receive support to cope with the increase in work demands.

6.22 Discussion: Interaction effects

Karasek (1979) proposed the notion of active and passive jobs, where the negative effects of high job demands may be negated by high control over the task they perform (active jobs). In such situations, it would be expected that job strains would be low. However, where job demands are high but control is low (and hence out of the control of the individual) then job strains would be high. The *active learning hypothesis* (Karasek & Theorell, 1990) would indicate demand-control relationships could impact upon learning outcomes (c.f. Parker & Sprigg, 1999) and motivation (Van Yperen, in press). Variations on this model would also indicate the level of support offered within the workplace may also influence this relationship (see: Visveswegen et al, 1999; Bliese & Castro, 2000).

This section has shown a number of interactions effects between workplace support, role stressors (influence, role clarity and task constraints) and motivational outcomes (job-related benefits, training self-efficacy, and training motivation). This section has shown that motivational outcomes were generally highest where the respondent reported high social support (from supervisor or co-worker), high control (either role clarity or influence), and low task constraints (c.f. Van Yperen, in press). Conversely, motivational outcomes were at the lowest levels where there was low social support, low control and high task constraints. Previous research has largely failed to establish a strong association

between task constraints (such as not have the necessary resources to utilise KSAs) and training outcomes unless they are severe (Facteau et al, 1995; Mathieu et al, 1992; 1993). The interaction effect reported in this section would indicate that task constraints *may* be at the most severe when the respondent does not have influence over decisions, *and/or* does not have a clear understanding of the tasks they are required to complete (low role clarity). The three-way interaction effects would indicate that role clarity and influence (or control) may partially compensate for low supervisor support. The interaction effects would indicate that the potential negative effects not having the resources (mental and physical) to utilise KSAs on respondents self-efficacy beliefs and training motivation can be mitigated when the respondent receives high support from their supervisor and co-workers. This would support the existing body of research which has stressed the importance of supervisor and co-worker support (Huczynski & Lewis, 1980; Brinkerhoff & Montesino, 1995).

6.23 Discussion: Limitations of the study two

The data collected in study two was of a self-report nature collected at one time period. Accordingly, this means that the data was cross-sectional, and it is not possible to draw causal associations between the variables. The relationships presented are one potential explanation of the relationships between the data. However, the model fitted to the data and tested via path analysis was based upon existing theoretical models (i.e. Colquitt et al, 2000). In addition, the use of self-report responses in study two could mean that common method variance (Kahn et al, 1964), bias (Brief et al, 1995), or inflated correlation (Evans, 1885, Salancik & Pfeffer, 1978) may have over stated the strength of the relationships reported in study two. However, this approach to data collection, although flawed, remains a dominant approach within this type of research (Spector, 1994). To minimise the potential negative effects, a number of strategies were taken to minimise potential self-report bias. Firstly, the instructions given to individuals included 'behavioural anchors'. For example, when respondents were asked to rate their performance, they were asked to restrict their responses to a specific time period of 6 months. Secondly, the wording of the questions directed respondents to focus on specific actions or situations. This acknowledges that the work environment may be dynamic, and the activities performed may not totally represent those listed in their job descriptions.

For development activities, respondents were instructed to consider their activities over the past year (c.f. Noe & Wilk, 1993; Maurer & Tarulli, 1994; Birdi et al, 1997). This was made with the assumption that behaviour changes occurring after development activity would have sufficient time to impact upon task compliance, adaptability and proactivity. Respondents were given a list of potential activities they may have participated in (these were based upon Noe et al, 1997; and Birdi et al, 1997). This acted as a 'recall' mechanism to help respondents assess their past activity. In addition, respondents were also asked to consider their responses on this question when they answered other scales (i.e. motivation to transfer). Previous research (Holton, 1996; Maurer & Tarulli, 1994; Noe & Wilk, 1993) has proposed the collection of self-report data is appropriate when views about the prevailing climate are collected. For example, Holton (1996) argue that it is the trainee themselves who is best able to report their experiences. However, researchers (Maurer & Tarulli, 1994; Noe & Wilk, 1993) *do* suggest external sources of data should be collected if possible. Accordingly, it is acknowledged that an improvement on the current study would be to collect information from an external source who is a) aware of the role performed and b) aware of the respondents activities over the time period. This could include asking their immediate supervisor to rate their performance.

Finally, the response rate was comparatively low (ranging from 25% to 40% in the Trusts), and was slightly lower than other studies in the NHS (see Borrill et al, 1996, 1998). The poor response rate may due to the considerable work pressures placed on respondents which prevent them completing the survey. There could be a potential issue to draw from this. It could be that the respondents in the Trusts with a low response rate, are those who are more motivated to respond, and as a consequence provide inflated responses. However, this is unlikely, because the Trusts with the lowest responses rates were also generally those with the lowest mean scores on the variables (see table 7.x).

6.24 Review of chapter

This chapter has attempted to identify the mechanisms by which HRM practices could influence patient mortality as illustrated in study one. The research findings reported in this chapter would illustrate that development that a range of development activities (c.f. Noe et al, 1997) have direct (and mediated) effect upon workplace relating to adaptability to changes, and initiation of changes within the performance of required work activities. The link with study one, was the assumption that there would be an cumulative effect

where individual performance gains would be reflected with enhanced organisational performance (Tharenou, in preparation). The following chapter will now review the main research findings presented in this chapter, and link these with those presented in chapter six and the review of existing literature covered in the first half of this thesis to identify a) areas which represent advancement in theory and b) policy implications of the main research findings presented in this thesis.

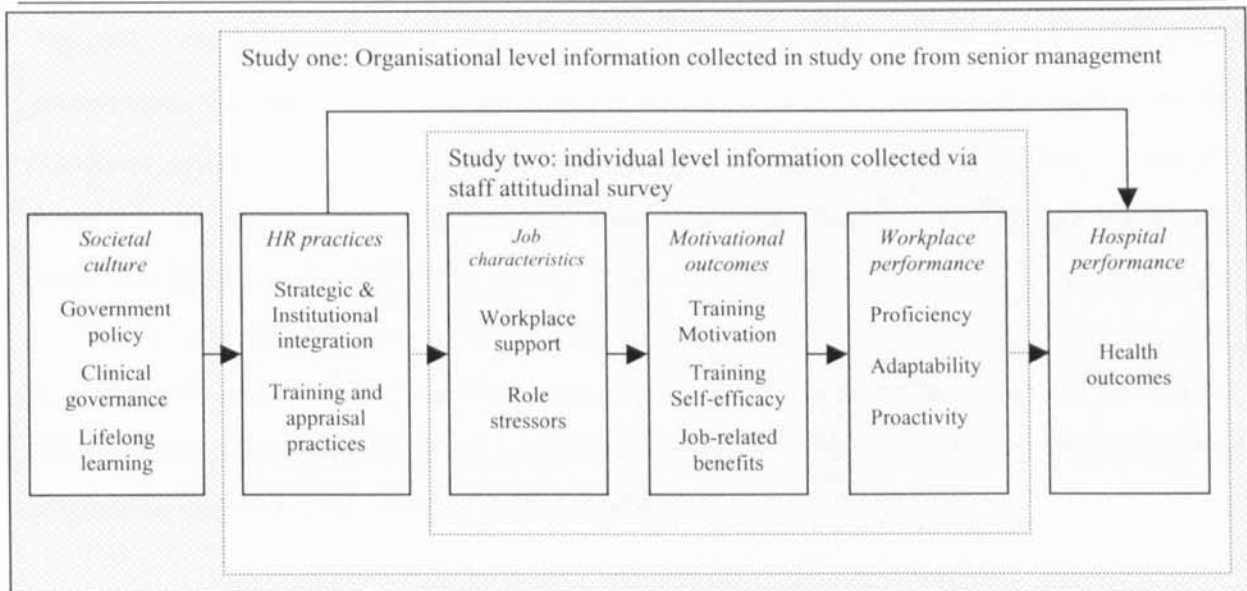
Chapter seven: Conclusions, contribution to knowledge, and direction for future research.

7.1 Overview of chapter

In the following chapter an overview will be provided of the main findings of the two studies reported in this thesis, and this will then proceed to discuss the extent to which the main research questions posed have been answered. This discussion will explore links with existing literature, and the theoretical and practical implications of the research findings reported in the two studies within this thesis. This will cumulate in the development of a theoretical model depicting the main research findings reported in the thesis. This will be followed by a review of the possible limitations with the research reported in this thesis, and discussion of strategies adopted to minimise the potential impact of identified problems. Finally, the chapter will conclude with suggestions for future research arising from the two studies reported in this thesis.

7.2 Summary of research findings

The research reported within this thesis represented two distinct studies (see figure 7.1). Study one reported in this thesis examined the association between HRM practices relating to training and appraisal and health outcomes (measured as patient mortality) within a sample of 61 NHS Trusts. The analysis reported in chapter five would largely support the research questions posed that a) HRM practices relating to training and appraisal, and b) board level representation would be associated with improved health outcomes (i.e. lower patient mortality). Specifically, the analysis reported would indicate that Trusts that have achieved IiP status; have a training strategy and tailored training policies; have integrated training and appraisal practices; and a high coverage of appraisal and PDPs for staff members reported lower patient mortality. Evidence was also presented of an additive effect, where Trusts within a cluster that reported utilisation of more of these practices reported significantly lower patient mortality. Finally, the research findings presented in chapter five established board level representation had a direct association with lower patient mortality, and that board representation may moderate the beneficial effects of HRM practices relating to training and appraisal. The second study reported in this thesis then attempted to explain the reason for the underlying associations between training and appraisal and patient mortality, or *peel back the onion* (Becker et al, 1997) to examine potential antecedents to workplace behaviours collected data from a staff attitudinal survey within five NHS Trusts.

Figure 7.1: The link between study one and study two reported in the thesis

7.3 Study one - links with existing theoretical work

The literature reviewed in chapter two reported a positive association between *progressive* HRM practices and performance outcomes (see: Wood, 1999a). For example, Patterson et al (1997) report that HRM practices designed for the *acquisition and development of employee skills* (selection, induction, training and appraisal) were related with both productivity and profitability. Study one reported in this thesis focused on HRM practices relating to the development of the KSAs of the workforce (i.e. *training and appraisal* practices) because such practices have typically been reported as an integral part of a HRM system across a variety of studies (see chapter two), and are also relevant to current government policy (DoH, 1997; 1998; 2001). The majority of past research has focused on the relationship between HRM practices and performance within manufacturing (Paterson et al, 1997) or large corporate organisations (Becker & Huselid, 1998; Huselid, 1995). Such studies have examined the association between HRM practices and measures of productivity and profitability. This was not possible in a health care context, as the performance of an healthcare organisation is not typically measured in relation to such measures of performance. The principle function of an healthcare organisation is to provide effective and efficient healthcare to the local community (DoH, 1997), which results in an improvement in health outcomes (NHS Executive, 1999). In chapter five of this thesis a number of dimensions on which hospital performance could be measured were considered, and it was identified improvement of health outcomes was considered to be the underlying government objective (DoH, 2000). Therefore, in study one reported in this thesis, hospital performance was measured in relation to health outcomes, measured in relation to patient mortality (Jarman et al, 1999).

7.4 Study one - advancement in theory

Typically, researchers have investigated the impact of HRM practices on a range of performance outcomes. For example, Dyer & Reeves (1995) identify performance can be measured in relation to a variety of outcomes: a) human resource outcomes (*absence, labour turnover*), b) organisational outcomes (*productivity and quality*), c) financial outcomes (*return on assets and profitability*) and d) market outcomes (*stock market price, or growth on returns*). However, performance measurement should be concerned with *what* an organisation does, and *how* this has been accomplished (Ballentine, Brignall & Modell, 1998). Hence, the majority of the outcomes identified by Dyer & Reeves (1995) are not relevant to the performance of an NHS hospital.

One of the few studies to examine performance within an NHS setting was conducted by Guest & Peccei (1992, 1994). They reported representation of the HR/personnel at board level was associated with influence over major organisational decisions, which were related with organisational outcomes. However, Guest & Peccei (1992) report comparatively few significant associations (these were only related with HR outcomes such as absenteeism and labour turnover). Hence, the research findings reported in study one expand the current body of research by virtue of being the first study in the UK to establish a *direct* association between *training* and *appraisal* practices with health outcomes. Specifically, the research reported in chapter five showed that NHS Trusts reported significantly lower patient mortality when:

- a) The Trust had achieved IiP status;
- b) The Trust had a written training strategy document;
- c) The Trust had tailored training policies documents across all occupational groups;
- d) The Trust reported training and appraisal practices were integrated;
- e) The Trust reported a high percentage of employees across occupational group had received an appraisal, and;
- f) The Trust reported a high percentage of employees across occupational group had received an updated personal development plan (PDP).

These are similar to the characteristics of a learning organisation identified in Working Together – Training Together (DoH, 2001). It was hypothesised that there would be an evidence of an *additive* effect (Baird & Meshoulam, 1988; Baron & Kreps, 1999; Barney & Wright, 1998; Becker & Huselid, 1998; Delery, 1998). That is, where Trusts displayed more of the identified characteristics of a *learning* organisation (DoH, 2001), there could

be an *additive* effect where patient mortality was significantly lower than if Trusts had adopted a few number of the identified characteristics of a learning organisation. The findings presented in chapter five would support this hypothesis.

The analysis reported in chapter five would provide evidence that HR practices relating to acquisition of KSAs (i.e. training and appraisal practices) are positively associated with improved health outcomes (c.f. Patterson, et al 1997). This fact that these relationships remained present *after* the effects of prior patient mortality was controlled for would offer some initial evidence of a cause-effect relationship where these practices are associated with improved patient mortality (c.f. Patterson, et al 1997). This represents an advancement in knowledge as the research findings presented in chapter five represents the first study that have established such an association in the NHS hospitals. This represents an advancement on two counts:

- a) The research findings demonstrate that HR practices (relating to training and appraisal) are associated with performance in a different organisational sector than has currently been studies, and
- b) The research findings reported in this thesis represents the first study that has proposed an association between HR practices and health outcomes.

There is currently little research evidence that has established a link between people management and patient mortality, or which could explain the association identified in this thesis. However, one study in the United States reported that *magnet* hospitals – that it these hospitals were able to attract and retain good nurses – reported lower patient mortality. Aiken et al (1994) did not focus on people management practices per se, indeed differentiation between hospitals was based upon the *reputation* gained for being a *magnet* hospital rather than for adopting specific people management practices. The criteria used to identify *magnet* hospitals reflected its ability to attract and retain nursing staff. Specifically, nominated hospitals was considered to be a) a good place for nurses to work; b) there was a low turnover rate for nursing staff, and c) the hospital operated within a competitive market where nursing staff had a number of possible sources of employment. Hence, adopting the logic of Becker et al (1997), it could be that *magnet* hospitals are able to attract and retain good nurses due to the sophisticated of people management practices (i.e. selection, appraisal, & training). And it is because of this ability to attract and retain good nurses who are highly motivated and committed, that patient mortality is subsequently lower.

Study one would reaffirm the importance of the strategic integration of the HR/personnel function. Torrington & Hall (1996) report lack of board membership generally equates to people management issues being neglected, or being considered at a late stage of policy formulation. This would be consistent with Sisson (1995), who argues it is important for the HR/personnel function to have an involvement when policy decisions are initially taken – otherwise, “personnel issues are almost inevitably condemned to second-order status”, and the resulting contribution of people management is then limited to “dealing with the implications of implementing such decisions” (p.97). This relates back to the differentiation made in chapter two between the HR function which is the strategic partner (Storey, 1989), rather than the personnel function which is reactive (Guest, 1987), and merely operational (Gennard & Kelly, 1994). However, board membership does not necessarily guarantee strategic involvement (Torrington & Hall, 1996), as the power and influence may be attributable to a place on the board of directors may be influenced by the working relationship developed with the Chief Executive (Brewster & Bournois, 1991; Purcell, 1995). However, the results from study one would provide evidence that representation on the board of directors for the HR/personnel function has a direct effect upon patient mortality, and moderated the impact of HRM practices relating to training and appraisal. Board level representation may act as person who *champions the cause* (DoH, 2001) and ensure issues that effect the management of the Trust’s human resources are fully considered from the early stages of policy development. This would imply the presence on the board of directors offers greater *authority, status and influence* to the HR/personnel function, which is manifest in the application of HRM practices (c.f. Guest, 1987). This represents an advancement in theory as the research findings presented in chapter six are the first that have established such an association in the NHS hospitals.

7.5 Study one - policy implications

The resource implications for the NHS of these findings reported in study one are considerable. For example, a central part of the NHS Plan (DoH, 2000) is the modernisation of healthcare via people management practices. The analysis reported in this thesis would indicate that Trusts that had achieved IiP status, had a written training strategy, and tailored training policies for different occupational groups, and had high coverage of appraisal and regularly updated PDPs displayed lower patient mortality. Hence, study one would offer evidence-based support for the recent document *Working Together – Training Together* (DoH, 2001) that has stressed the importance of creating a learning environment, where NHS Trusts have:

- A coherent learning strategy. The DoH (2001,p.x) state “it is important that all organisations set out clear plans for the development of lifelong learning, based on a proper assessment of current capacity and capability”. The findings of study one reported in this thesis would indicate that Trusts with a training strategy reported lower patient mortality. A formal training strategy document may provide information explaining *how* training is to be utilised to accomplish Trust objectives, and also provide details of the precise mechanisms used to accomplish such objectives. In addition, the findings of study one reported in this thesis would indicate that trusts with tailored training policies across occupational groups reported significantly lower patient mortality. The analysis indicated tailored training policies across occupational groups was associated with lower patient mortality. This association may be related with the fact that different health care professionals have specific training needs and requirements (see: DoH, 1999, 2000, 2001). Hence, this will impact upon the *type* and *amount* of training provided to different types of employees. Therefore, training provision should be different and specially tailored to their individual requirements.
- A system of appraisal and PDPs for all staff groups, that is reviewed on a regular basis. The findings of study one reported in this thesis would indicate that Trusts with a high percentage of staff members receiving an appraisal and PDPs reported significantly lower patient mortality. These are important mechanisms by which individual performance can be improved, by clarifying work objectives, and providing feedback for performance improvement (Noe et al, 1997), act as a potential means by which performance deficiencies or training needs and opportunities are first identified (*appraisal*), work objectives clarified (*appraisal*), information about training is passed onto employees (*appraisal*) and guidance/structure for how training activities are to be planned in the future (*updated PDPs*). However, it is possible that the effect of these mechanisms are dependent upon the quality of the relationship an employee has with their immediate supervisor – as seen in the second study, a supervisor can create an environment within which training is either facilitated or inhibited (c.f. Colquitt et al, 2001; Noe, 1986; Baldwin & Ford, 1988).
- Achieved IiP status. The findings of study one reported in this thesis would indicate that Trusts which had achieved the IiP standard reported significantly lower patient mortality. This has implication for policy because initiatives such as IiP are central of the modernisation of the NHS (see: *Working Together – Training Together*, DoH,

2001). IiP is a measure of the sophistication of training practices. This is measured against an agreed standard which covers commitment, planning, action and evaluation related training issues (c.f. Goldstein, 1991). The association between IiP status and lower patient mortality would also be consistent with a growing body of literature that has established a strong link between IiP and a outcome measures such as motivation, absenteeism, labour turnover. (Also one of the three main criteria of IiP is associated with the level of support (via planning) this would link with study two which attempts to understand why this association is present.

7.6 Study two - links with existing theoretical work

Having established an association between HR practices and patient mortality, it is important to understand *how* and *why* training contributes to organisational performance (Tannenbaum & Yukl, 1992). Becker et al, (1997) refer to an unexplored *black box* that exists as to *why* HRM practices should influence performance. Research (Becker, et al 1997; Kopelman et al, 1990; Neal et al, 2000; Ostroff & Bowen, 2000; Patterson et al, 1997) would indicate that HRM practices have a direct impact upon *organisational climate, affective states* and *job performance* (Campbell, 1990). For example, research (Baldwin & Ford, 1988; Colquitt et al, 2000; Noe, 1986) would indicate that training outcomes (*learning, post-training behaviour* and *organisational results*)(see: Kirkpatrick, 1976) are contingent upon situational (i.e. organisational climate, social support, role stressors) and individual (i.e. ability, motivation, personality) factors. With the resultant improvements in job performance (when accrued across the workforce) being translated into improved organisational performance (see: Becker et al, 1997; Kozlowski et al, 2001; Tharenou, in press). Hence, study two attempted to explore the association between training and appraisal with workplace behaviours.

7.7 Study two - advancement in theory

Study two has contributed to knowledge/theory in several ways: a) the study was the first study to examine the impact of development activities on post-training outcomes (c.f. Birdi et al, 1997; Noe et al, 1997); b) the focus of the study was not only on upon how development activity could impact performance of in-role or required behaviours, but also the study examined a range of extra-role behaviours could impact upon the performance of the organisation, and c) they study was the first to examine (and establish) that the adverse effects of task constraints on training outcomes may be mitigated under certain conditions (c.f. Fecteau et al, 1995; Mathieu et al, 1992, 1993) (i.e. interaction effects).

7.7.1 Study two - advancement in theory: Development activity

The majority of the existing research has examined the impact of a narrow range of training and development activities, with a focus on formal training interventions or participation in external courses (see: Noe & Wilk, 1993; Maurer et al, 2002; Maurer & Tarulli, 1994; Tharenou, 2001). Noe et al (1997) and Birdi et al (1997) propose that developmental activity should include a wider range of activities, including those of a less formalised nature and mechanisms designed to provide information about current KSAs. However, extensive literature searches revealed there are currently no studies that has examined the *impact* of these wider development activities, and training motivation upon subsequent workplace behaviours (c.f. Birdi et al, 1997; Maurer et al, 2002; Noe et al, 1997; Tharenou, 2001). The research findings show that development activities such as self-directed learning, and coaching on-the-job were related with the ability to cope with (*task adaptability*) or initiate changes to core job tasks (*task proactivity*).

The research would indicate that development activity was most strongly related with perceived supervisor support (c.f. Holton et al, 2000). That is, when respondents reported they had conducted self-directed learning, participated in external courses, received on-the-job coaching, or had had an appraisal or updated PDP, then they were more likely to report they received the support of their supervisor. Holton et al, (2000) argue that a supervisor may act as the *gatekeeper* to development activity (c.f. Birdi et al, 1997; Noe & Wilk, 1993; and Maurer & Tarulli, 1994), and may also facilitate the creation of a more favourable working environment (Huczynski & Lewis, 1980). Accordingly, it is possible that when high supervisor support is reported, respondents work within an environment where support, guidance and encouragement is offered (and perhaps expected) from other work colleagues. This may have a *domino* effect, where the more favourable working conditions enhance motivation to engage in development activity (Noe & Wilk, 1993), and transfer KSA's to the workplace (Ford et al, 1992; Fecteau et al, 1995). This chapter established a strong association between development activities and other intermediate variables to the training transfer process. That is, self-directed learning, participated in external courses, received on-the-job coaching, or had had an appraisal or updated PDP were all related with job-related benefits from utilised KSAs, and training motivation.

7.7.2 Study two - advancement in theory: Social support

Existing training research has illustrated that a supervisor plays an important role in the creation a *climate* that can either facilitate or inhibit the acquisition and transfer of KSAs (Holton et al, 2000; Huczynski & Lewis, 1980; Rouiller & Goldstein, 1993; Tracey et al, 1995, 2001). While other researchers indicate supervisor support may impact upon the potential rewards accrued from such activities (c.f. Birdi et al, 1999; Noe & Wilk, 1993; Clark et al, 1993), motivation (Fecteau et al, 1995; or Tracey et al, 2001), opportunities to use skills (Ford et al, 1992), and the subsequent transfer of KSAs (c.f. Colquitt et al, 2001; Fecteau et al, 1995; Rouiller & Goldstein, 1993; Tracey et al, 1995). The findings reported in study two showed that social support (particularly from a supervisor) plays an important role in the transfer of training. The research reported in study two of this thesis would suggest that supervisor support had a significant impact upon the scope of development activities undertaken, and training outcomes. For example, there was a strong association between supervisor support and job-related benefits (i.e. the belief that valued reward would be obtained for using KSAs). Previous research has proposed supervisor support should be associated with training motivation (c.f. Fecteau et al, 1995). This was supported in study two. However, the effects of supervisor support are partially mediated via job-related benefits. This is consistent with previous research (Birdi et al, 1997; Clark et al, 1993; Maurer & Tarulli, 1994; and Noe & Wilk 1993) that has reported perceived job-related benefits had a positive influence upon training motivation.

7.7.3 Study two - advancement in theory: Role stressors

Theoretical models such as that presented by Noe (1986), Holton (1996) and Mathieu & Martineau (1997) predict that role stressors such as task constraints could influence motivation to learn (and transfer) the content of a training intervention. Existing research (Mathieu et al, 1992; 1993) would suggest task constraints only have a direct impact upon training outcomes when they are perceived to be *severe*. Where they are viewed as *modest*, individuals tend to believe they can overcome these barriers (Fecteau et al, 1995). Research from a non-training context (Bliese & Castro, 2000; Cohen & Bailey, 1997; Karasek 1979; Karasek & Theorell, 1990) indicates the negative effects of work demands on well-being and/or motivation can be reduced when respondents report receiving having a) influence over decisions that effect the job they perform, or b) understanding of task requirements. Typically, existing training effectiveness models have utilised the expectancy theory of motivation (Vroom, 1964; Porter & Lawler, 1968) to explain training behaviour, and have proposed behaviour is influenced by two factors. The

relationship between effort exerted and performance may be influenced by the individual's level of ability (c.f. Campbell et al 1990; Wexley & Latham, 1981) or the extent the individual has clear understanding of the role they perform (Pinder, 1980). For example, effort and ability may be high, but may be directed in the wrong location, hence *high* performance does not occur. However, this association may be dependent upon the level of social support an individual receives (especially from their supervisor). For example, Stajkovic & Luthans (1998) argue social relationships at work may provide an important source feedback, because :

“managers should provide accurate description of the tasks employees are asked to perform. Unless the definitions of the task and task circumstances are provided in a clear and concise manner, employees may not be able to accurately assess the complex task demands, may not fully know what they have to do, and thus will lack accurate information for regulating their effort.” (p.225).

Research (Bliese & Castro, 2000; Van Yperen, in press) has proposed social support can help reduce the negative effects of *work stressors* (i.e. role ambiguity, lack decision authority, and work demands) on well-being. The analysis reported in study two provides evidence of interaction effects upon both job satisfaction and/or motivational outcomes. Study two examined the impact of social support on perceived task constraints (c.f. Ford et al, 1992; and Fecteau et al, 1995). Existing research (Bliese & Castro, 2000; Cohen & Bailey, 1997; Karasek 1979; Karasek & Theorell, 1990) has proposed social support may moderate the relationship between role stress and well-being (organisational commitment, job satisfaction and mental health). Study two builds upon these principles, and illustrates similar interaction effects between training specific supervisor support, role clarity and task constraints. Table 7.1 and 7.2 illustrates that motivation outcomes were highest when an individual received high support from a supervisor or co-workers, has high control and was faced with low work demands (i.e. they worked on a *low strain job*). This findings reported would be concurrent with Van Yperen (in press), who reports that a *low strain job* was associated with high intrinsic motivation. The *active learning* hypothesis (Karasek & Theorell, 1990) proposed *active jobs* (high work demands and high control) should also be associated with high levels of motivation. This was partially support by Van Yperen (in press), who reports that high intrinsic motivation for an *active job* was contingent upon also receiving high social support.

Table 7.1: Mapping the effects of supervisor support, role stressors and motivational outcomes

<i>Low supervisor support</i>		
Task Constraints (resources both mental and physical to utilise knowledge and skills)		
(influence over / understanding of work environment)	Passive job	High strain job
	Low potential work demands that prevent transfer of KSAs, and low influence over or understanding of the work environment	High potential work demands that prevent transfer of KSAs, but low influence over or understanding of the work environment.
	Very low/low training motivation	Low training motivation
	Extremely low job-related benefits	Extremely low job-related benefits
	Moderate/low training self-efficacy	Low training self-efficacy
	Low strain job	Active job
	Low potential work demands that prevent transfer of KSAs, and high influence over or understanding of the work environment	High potential work demands that prevent transfer of KSAs, but high influence over or understanding of the work environment.
	Moderate training motivation	Low training motivation
	Moderate/low job-related benefits	Very low job-related benefits
	Moderate/high training self-efficacy	Moderate/low training self-efficacy
	<i>High supervisor support</i>	
Task Constraints (resources both mental and physical to utilise knowledge and skills)		
(influence over / understanding of work environment)	Passive job	High strain job
	Low potential work demands that prevent transfer of KSAs, and low influence over or understanding of the work environment	High potential work demands that prevent transfer of KSAs, but low influence over or understanding of the work environment.
	Moderate/high training motivation	Moderate training motivation
	Extremely high job-related benefits	Very high/high job-related benefits
	Moderate/high training self-efficacy	Very low training self-efficacy
	Low strain job	Active job
	Low potential work demands that prevent transfer of KSAs, and high influence over or understanding of the work environment	High potential work demands that prevent transfer of KSAs, but high influence over or understanding of the work environment.
	Extremely high training motivation	Moderate/high training motivation
	Extremely high job-related benefits	High job-related benefits
	Very high training self-efficacy	Moderate training self-efficacy

Table 7.2: Mapping the effects of co-worker support, role stressors and motivational outcomes

<i>Low co-worker support</i>			
Task Constraints (resources both mental and physical to utilise knowledge and skills)			
Control (influence over / understanding of work environment)	Passive job		High strain job
	Low potential work demands that prevent transfer of KSAs, and low influence over or understanding of the work environment		High potential work demands that prevent transfer of KSAs, but low influence over or understanding of the work environment.
	Low training motivation		Low training motivation
	Very low job-related benefits		Extremely low job-related benefits
	Moderate/low training self-efficacy		Very low/low training self-efficacy
	Low strain job		Active job
	Low potential work demands that prevent transfer of KSAs, and high influence over or understanding of the work environment		High potential work demands that prevent transfer of KSAs, but high influence over or understanding of the work environment.
	Moderate/high training motivation		Moderate/low training motivation
	Very high job-related benefits		Low job-related benefits
	Moderate training self-efficacy		Low training self-efficacy
<i>High co-worker support</i>			
Task Constraints (resources both mental and physical to utilise knowledge and skills)			
Control (influence over / understanding of work environment)	Passive job		High strain job
	Low potential work demands that prevent transfer of KSAs, and low influence over or understanding of the work environment		High potential work demands that prevent transfer of KSAs, but low influence over or understanding of the work environment.
	Moderate/high training motivation		Moderate training motivation
	Very high job-related benefits		Moderate/low job-related benefits
	Moderate/high training self-efficacy		Moderate/low training self-efficacy
	Low strain job		Active job
	Low potential work demands that prevent transfer of KSAs, and high influence over or understanding of the work environment		High potential work demands that prevent transfer of KSAs, but high influence over or understanding of the work environment.
	Extremely high training motivation		Moderate training motivation
	Very high job-related benefits		Moderate job-related benefits
	Very high training self-efficacy		High training self-efficacy

However, table 7.1 and 7.2 shows that training motivation for a *active job* was at a similar level to that for a *high strain job* (regardless of the level of support received from a supervisor) and less than for *low strain* and *passive jobs* when support from a supervisor was high. This is not consistent with the *active learning* hypothesis proposed by Karasek & Theorell (1990). Table 7.1 and 7.2 illustrates when respondents reported receiving low support from a supervisor or co-workers, *passive jobs* (low work demands / low control) were associated with the *lowest* level of training motivation. However, this relationship was not found when supervisor support was high. This was contrary to what was expected, as training motivation should be lowest for respondents with *high strain jobs* and low supervisor support. This shows that even though an individual believes that they have the capacity to transfer KSAs, they are unmotivated because they will a) not receive the support of a supervisor/co-workers, and b) they lack control over or understanding of their work environment. Hence, potential opportunities for utilising KSAs may not be available (c.f. Ford et al, 1992), therefore, adversely influencing their motivational levels (c.f. Mathieu et al, 1993).

Overall the findings show that job-related benefits, self-efficacy and training motivation was generally higher when respondents reported that they received high levels of support from a supervisor/co-workers. Tables 7.1 and 7.2 show the beneficial effects support from either a supervisor or co-workers can be enhanced when the respondent has control over or understanding of their work environment. This would indicate that the potential negative effects of high work demands can be mitigated when an individual a) receives the support of a supervisor/co-workers, and b) has control over or understanding of the work environment. The interaction effects would illustrate social relationships at work play an important role in clarifying what is expected of a trainee. This represents an advancement in our theoretical understanding as no previous training related research has examined (or established) the interaction effects that emerged from study two.

Can this finding be generalised beyond the healthcare environment? The research findings reported are concurrent with the growing body of research that has examined potential antecedents to training motivation within healthcare (Bartlett, 2002); banking (Noe & Wilk, 1993); manufacturing (Birdi et al, 1997, 1999); local government (Facteau et al, 1995; Tharenou, 2002) and academic (Mathieu et al, 1992, 1993) settings. This study confirmed that work demands have comparatively little *direct* impact upon training motivation (c.f. Facteau et al, 1995; Mathieu et al, 1992, 1993). However, the findings

reported in this thesis expand upon existing training literature by adopting the principles of the *demand-control* model (Karasek & Theorell, 1990). The findings reported in this study two reported in the thesis are concurrent with other studies (see: Van Yperen, in press) that high levels of social support should have a positive impact upon motivation when the individual faces low work demands, and has control over the work environment.

7.7.4 Study two - advancement in theory: Workplace behaviours

Study two reported in this thesis examined possible antecedents of workplace behaviours. Existing training research has examined the transfer of KSAs acquired in training and the impact upon post-training behaviours (i.e. Facticeau et al, 1995; Ford et al, 1992). This has typically focused upon the performance of core task requirements (or *in-role* behaviours) (Campbell et al, 1993). From this it was proposed the provision of training and development opportunities could promoted both *in-role* and *extra-role* or citizenship type workplace behaviours (c.f. Campbell et al, 1993). The model developed for study two proposed that self-efficacy (belief they could overcome potential obstacles) and training motivation (behaviour changes initiated to incorporate KSAs they had acquired and valued) was associated with workplace behaviours such as *task adaptability* (coping with changes to core tasks) and *task proactivity* (initiating changes to core tasks). This was generally supported.

In addition, influence has an effect upon task adaptability and proactivity. This would be consistent with previous research that has shown self-efficacy and motivational states are related with proactive behaviours (Axtell, Holman, Unsworth, Wall, Waterson, & Harrington, 2000; Frese, Teng, & Wijnen, 1999). While, Frese et al (1996) report personal initiative was associated with job autonomy and complexity. Autonomy may be related with feelings of responsibility (Frese et al, 1996), motivation (Zuckerman, Porac, Lathin, Smith, & Deci, 1978) and self-efficacy (Parker, 1998; Speier & Frese, 1997), which in turn may influence proactive behaviours. While, Axtell et al (1997) report a similar finding where influence over decisions (which may act as a proxy for the level of support received) was associated with the utilisation and maintenance of behaviours attributable to training one year after training. The association between influence and work behaviours would be concurrent with London, Larsen & Thisted (1999). They report involvement in decisions was associated with supervisor-rated performance. In addition, London et al (1999,p.x) concluded that:

“higher performing individuals may receive more support from supervisors, which in turn encourages their seeking more feedback. This may create a self-fulfilling cycle of continuous growth and development for motivated and good performers.”

In effect, this is suggesting a continually loop whereby a support workplace environment facilitates development activity (both current and future plans) and changes in workplace behaviour (c.f. Holton, 1996; Mathieu et al, 1996) which can be ultimately beneficial to the organisation.

7.8 Study two - policy implications

The findings reported from study two would provide evidence that the provision of formal training does not guarantee workplace behaviours will be altered. This is important policy implications because £150 million is spent per annum on training within the NHS (DoH, 2001). Existing research has examined the impact of formal training interventions, or in the cases where development activities have been considered this has focused on a narrow definition of development activity. This study uses the principles discussed by Noe et al (1997) and Birdi et al (1997) and applies this to training transfer, rather than explaining future participation rates. The study illustrates different types of development activities impact in different ways – for example, undertaking a formal qualification was the only development activity associated with self-efficacy. The study illustrates that coaching on-the-job plays a significant part in the transfer process, placing further emphasis upon have a supporting environment which promotes transfer. Overall, formal training plays an important part in the overall package of T&D policies, but should not be considered as the only mechanism to enhance learning. For example, support for self-directed learning and coaching on-the-job are potentially important. The analysis shows development activities such as self-directed learning and coaching on-the-job have a major impact, but have largely been ignored in training research. The implication for the NHS is that expenditure on formal training does not guarantee workplace behaviours will be altered.

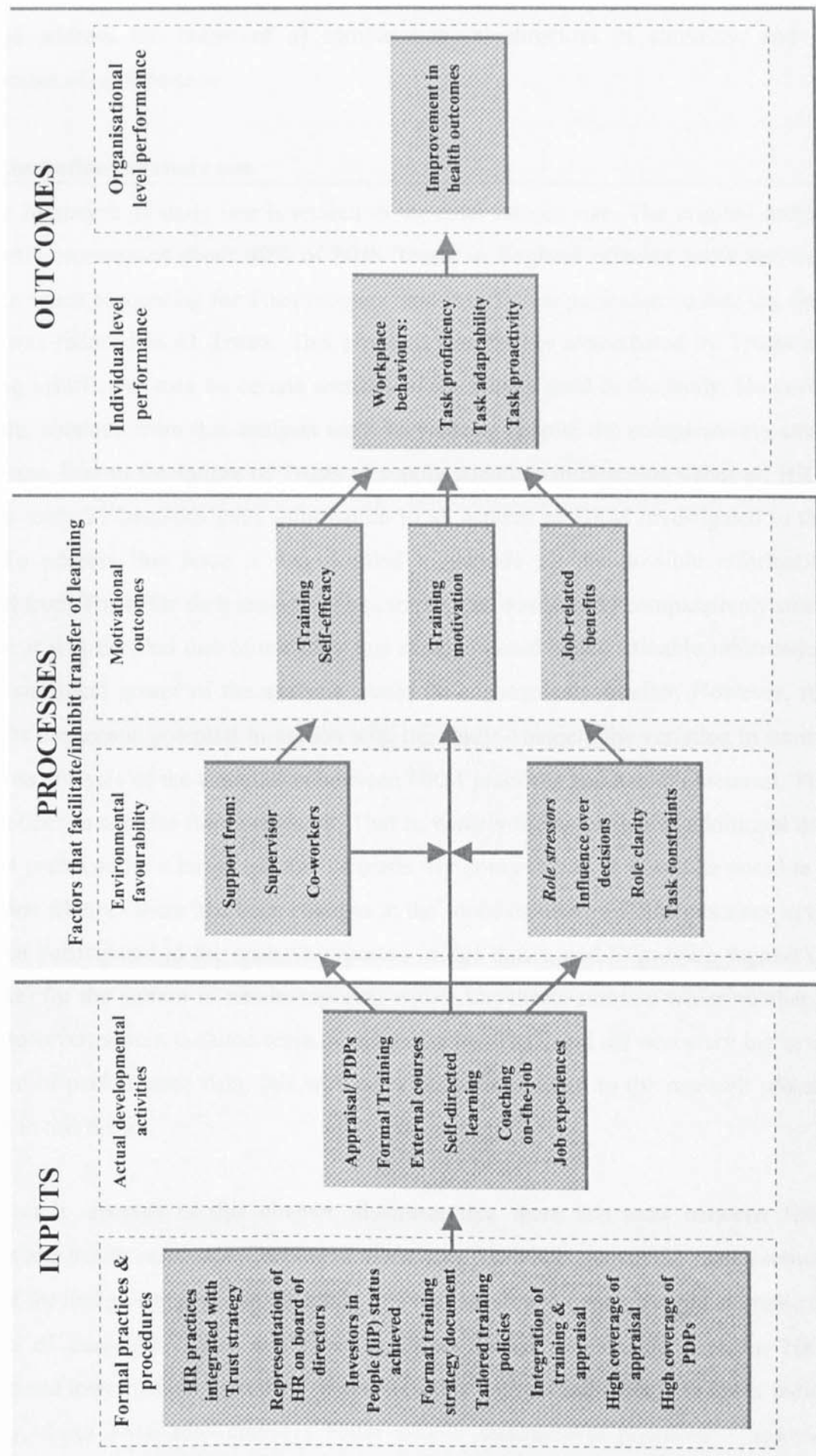
7.9 Building an integrated theory

The findings of study one would indicate that Trusts that had strategy documents relating to training, tailored training policies documents and the coverage of appraisals across occupational groups displayed lower patient mortality. It could be that the organisation plays an important role in establishing a culture that supports training and development. This is reflected in the Trust having achieved IiP status, and having a formalised strategy document covering training and development. It is possible that this commitment to IiP is

reflected in the presence of work environment that *facilitates* (rather than inhibits) the acquisition and transfer of KSAs (Holton et al, 1997, 2000; Rouiller & Goldstein, 1993; Tracey et al, 1995, 2001). However, it is likely that the effectiveness of such policies and practices is largely dependent upon line management implementation of such practices (Torrington & Hall, 1996). These relationships can be seen in figure 7.2 – this shows an input-process-output model, where it is important the have relevant policies and procedures to support training. But equally as important is the role placed by a supervisor and co-workers in creating an environment within which KSAs can be acquired and then used to alter workplace behaviours (c.f. Rouiller & Goldstein, 1993; Tracey et al, 1995, 2001).

The results from study one indicate that coverage of appraisal and PDPs was associated with lower patient mortality. Noe et al (1997) and Birdi et al (1997) proposed that such activities lead to the identification of training needs and therefore stimulate participation in other activities reflect one facet of developmental activity (see chapter two for more details). Researchers (Boswell & Boudreau 2000; Cleveland et al, 1989; Dipboye & de Pontbriand, 1981) have established that satisfaction with the appraisal process is linked with satisfaction with the person (invariably the person's supervisor) who conducted the appraisal review. Morris, Davis, Allen, Avila & Chapman (1991) identify motivational implications of the performance review. The supervisor therefore plays an important role in the identification of training needs, providing access to development activity, *and* encouragement in utilising KSAs acquired from such activity. Hence, when an individual believes that they have the support of a supervisor, and equally importantly the support of their employer (in the form of financial resources etc. to participate in development activities), then they should be satisfied with the role they perform, be motivated to incorporate new KSAs, *and* actually initiate workplace behaviours that are ultimately beneficial to the organisation. Indeed, Siddiqui and Kleiner (1992) argue "investment in existing human capital of a health service organisation through a well-managed training and developmental activity pays long term dividends for a company. Improvements in the skills and abilities of current employees will contribute to sustained levels of performance." Hence, development activity will lead to behaviours reflecting adapting to change (*task adaptability*) or initiating change (*task proactivity*) to their core job. In turn such behaviours could be associated with future performance gains at the organisational level (c.f. Podsakoff et al, 2000).

Figure 7.2: Proposed integrated model of research findings



The following section will discuss the limitations with the two studies. This section will raise and address the issues of a) sample size, b) direction of causality, and c) measurement of performance.

7.10.1 Limitations of study one

The first limitation of study one is related to the final sample size. The original sample size (n=81) represented about 40% of NHS Trusts in England offering acute services. However, when accounting for Trust mergers, and insufficient performance data the final sample was reduced to 61 Trusts. This problem was further exacerbated by Trusts not providing insufficient data on certain sections of the survey used in the study. However, the results obtained from this analysis were very strong despite the comparatively small sample size. Due to the failure of Trusts to supply adequate information about all HRM practices, only 21 hospitals gave information to all aspects of HRM investigated in this study. To address this issue it was decided to include all the possible information collected from Trusts for each analysis. The sample size was already comparatively small, therefore it was decided that to use only this sample would waste valuable information, and the statistical power of the analysis would be consequently smaller. However, this represents the second potential limitation with the study – namely the variation in sample size across analysis of the association between HRM practices and health outcomes. This would reflect an area for future research. That is, namely the collection of additional data on HRM practices for a larger number of trusts. By doing this is, it would be possible to a) examine whether there had been changes in the sophistication of HRM practices in the trusts that participated in the research reported in this thesis, and b) provide support (or otherwise) for the pattern of results reported within this thesis across a wider number of trusts. However, within the time scale available for this PhD, and the necessary lag in the collection of performance data, this was not a possible addition to the research projects reported in this thesis.

The research reported in this chapter illustrates that there are links between HRM practices and health outcomes (i.e. patient mortality). However, due to the cross sectional nature of the design employed in the study it is not possible to conclusively determine the direction of causality. There could be *no* direct causal relationship between HRM practices and lower patient mortality. It could be that within the Trusts with lower patient mortality, these Trust *also* employs better people management practices – however, patient mortality could be influenced by external factors, rather than people management

practices. For example, geographical location (and the health needs of the local community) could influence the demands placed upon the resources of the Trusts. However, there is an increasing body of research that would support the direction of the relationship between HRM practices and subsequent performance (see Wood, 1999a, and chapter one of this thesis). The data relating to health outcomes (i.e. patient mortality rates) relates to the period 1999-2001, while the information relating to HRM practices was collected between 1999-2000. Therefore, using the logic reported by Patterson et al (1997) the effects of HRM practices (at the time the study was completed i.e. 1999-2000) should become within 18 months. The findings reported in this would be concurrent with this study. The analysis reported in this thesis also controlled for the effects of prior mortality. Therefore, the findings reported in study one of this thesis represent strong evidence that HRM practices relating to training and appraisal practices were related with a *reduction* in patient mortality.

Typically previous studies have examined the association between HRM practices on a range of performance outcomes (see: Arthur, 1994; Becker & Huselid, 1998; Delery & Doty, 1997; Guest & Hoque, 1994; Huselid, 1995; Hoque, 1999; MacDuffie, 1995; Patterson et al, 1997; Terpstra & Rozell, 1993; Youndt et al, 1996; Wood, 1999a/b). For example, Dyer & Reeves (1995) identify that across studies, performance has been measured in relation to a variety outcomes including: a) human resource outcomes (i.e. *absence, labour turnover*), b) organisational outcomes (i.e. *productivity and quality*), c) financial outcomes (i.e. *return on assets and profitability*) and d) market outcomes (i.e. *stock market price, or growth on returns*). However, it was argued that it was inappropriate to measure hospital performance in relation to traditional measures of profitability and productivity. Such measures were not relevant in the Health Service environment. The NHS Executive (1999) collect hospital performance data on dimensions relation to *fair access* (waiting times), effective delivery of *appropriate healthcare* (inappropriate use of surgery, discharge rates); *efficiency* (day case rate, finish consultant episodes, length of stay); *patient/carer experiences* (cancelled operations, delayed discharge, outpatient did-not-attend rates), and *health outcomes* (patient mortality). However, the NHS Executive (1999) proposed that the over-arching goal is health improvement (i.e. lower mortality rates). Hence, patient mortality was measured in study one of this thesis using a measure developed by Jarman et al (1999), which represents standardised mortality rates covering (i.e. ratio of *actual* to *expected* deaths multiplied by 100, standardised for age, sex and diagnosis) for each year between 1991-2 until 2000-1

utilising the same statistical procedure. Other potential sources of performance were considered, however, there is lack on continuity in other measures over a prolonged period. If it were possible to obtain raw data collected directly from the Trusts, it *could* be possible to construct an alternative measure of performance. However, access to such data is severely restricted to central government bodies due to the nature of the information.

7.10.1 Limitations of the study two

The data collected in study two was of a self-report nature collected at one time period. Accordingly, this means that the data was cross-sectional, and it is not possible to draw conclusive causal associations between the variables. The relationships presented are one potential explanation of the relationships between the data, however, the hypothesised model used to interpret the data was based upon existing theoretical models (i.e. Colquitt et al, 2000). The use of upon self-report responses in study two could mean that common method variance (Kahn et al, 1964), bias (Brief et al, 1995), or inflated correlation (Evans, 1985, Salancik & Pfeffer, 1978) may have over stated the strength of the relationships reported in study two. However, this approach to data collection, although flawed, remains a dominant approach within this type of research (Spector, 1994). However, a number of strategies were taken to minimise potential self-report bias. Firstly, the instructions given to individuals included 'behavioural anchors'. For example, when respondents were asked to rate their performance, they were asked to restrict their responses to a specific time period of 6 months. Secondly, the wording of the questions directed respondents to focus on specific actions or situations. For development activities, respondents were instructed to consider their activities over the past year (c.f. Noe & Wilk, 1993; Maurer & Tarulli, 1994; Birdi et al, 1997). This was made on the assumption that behavioural changes occurring as a consequence of development activity would have sufficient time to impact upon task compliance, adaptability and proactivity. Respondents were given a list of potential activities they may have participated in (these were based upon Noe et al, 1997; and Birdi et al, 1997). This acted as a 'recall' mechanism to help respondents assess their past activity. In addition, respondents were also asked to consider their responses when they answered other scales (i.e. training motivation).

Previous research (Holton, 1996; Maurer & Tarulli, 1994; Noe & Wilk, 1993) has proposed the collection of self-report data is appropriate when views about the prevailing climate are collected. For example, Holton (1996) argues that the trainee is best able to report their experiences of whether they receive support, whether they have had required

opportunities pre- and post-training etc. However, researchers (Maurer & Tarulli, 1994; Noe & Wilk, 1993) do suggest external sources of data should be collected if possible. Accordingly, it is acknowledged that an improvement on the current study would be to collect information from an additional source. For example, the scales relating to task compliance, adaptability and proactivity could have been provided by an external source who is a) aware of the role they perform and b) aware of the respondents activities over the specified time period.

This could include asking their immediate supervisor to rate their performance. In addition, the same source could also provide ratings of how the individuals workplace behaviour had altered to incorporate newly acquire KSA's (c.f. Fecteau et al, 1995). However, the collection of such information is not without problems. For example, this would require the permission of the respondent, which may influence the data collected. For example, Lefkowitz (2000) report supervisors with a positive regard for subordinates was related with more lenient appraisal ratings, greater halo effects, reduced accuracy in their assessment of the subordinate, and less inclination to provide a poor assessment for the subordinate. It may be that only respondents who have a good working relationship with their supervisor allows the collection of performance data. Accordingly, it could be argued that the supervisor is more likely to provide favourable ratings of performance, which may inflate the relationship between the attitudinal, motivational and behavioural outcomes

However, it was my intention to conduct an additional study in another NHS Trust, where supervisor ratings would be collected. From April 2001 representation was made with two NHS Trust (who had participated in study one) – after a period of negotiation initial agreement was reached with an NHS Trust for a survey to be distributed in October 2001. The NHS is a highly unionised, accordingly before the survey could be distributed staff-side agreement was required. Accordingly, this resulted the delay in the distribution of the survey – this was further complicated as the Trust was completing its own Clinical Governance survey in November 2001. A poor response rate for the survey distributed by the Trust, and concern from the director of Human Resources in the Trust about how the supervisor ratings would be collected resulted in the Trust deciding to withdraw their support for survey in December 2001. This left no time to find an alternative Trust in which to complete this additional study.

The response rate was comparatively low (ranging from 25% to 40% in the Trusts), and was slightly lower than other studies in the NHS (see Borrill et al, 1996, 1998). The surveys were distributed in December and January. Typically, this corresponds with an increase in demand placed upon health care provided. Therefore, the poor response rate may be due to the considerable work pressures placed on respondents which prevent them completing the survey. Alternatively, it could be the respondents in the Trusts with a low response rate, are also more motivated to respond, and as a consequence influence the type of responses provided. This may be the case, because the Trusts with the lowest response rates were also generally those with the lowest mean scores on the variables measured in study two. Therefore, this could imply within these Trusts the generally more disaffected employees are more motivated to respond to the questionnaire. This does not necessarily represent a problem, as it merely would indicate that the prevailing working conditions are poorer within these Trusts. Hence this would support the notion that organisational climate can influence workplace behaviours and subsequent organisational performance (Rouiller & Goldstein, 1993; Tracey et al, 1995).

7.11 Direction for future research

The research reported in this thesis represents an important advance in understanding the potential impact that HRM practices may have within a health care setting. However, the research also raises a number of questions which are still to be answered. Firstly, it would be important to replicate the findings reported within this thesis. Specifically, the thesis focused on HRM practices related to the acquisition and development of employees' KSAs – namely, practices related with training and appraisal. The body of literature reviewed in chapter one of this thesis would indicate that such practices are an integral component of *high performance* (Pfeiffer, 1994), *high commitment* (Walton, 1985) or *high involvement* (Lawler, 1996) practices. However, this research would indicate that other practices relating to recruitment, compensation, job design, employment security and opportunities are also important parts of *progressive* HRM (see: Wood, 1999a). Therefore, a future study could examine the impact of a wider range of HRM practices upon hospital performance. In addition, it is possible HRM practices could influence health outcomes via an intervening variable (Kopelman et al, 1990). Therefore it is acknowledged that more research is needed to carefully examine the underlying mechanisms responsible for these associations to be elucidated (Becker et al, 1997). For example, it could be that the presence of HRM practices may impact upon organisational performance via an employee's knowledge, skills and discretionary effort (Becker et al,

1997; Wright et al, 1999); commitment (Patterson et al, 1997), satisfaction (Benkhoff, 1997; Patterson, et al, 1997; Wagner, 1994), organisational climate (Neal et al, 2000), and citizenship behaviours (Tsui et al, 1997). This would represent an area for future research. Unfortunately, it was not possible to examine such a relationship in study two because of the limitations in the data available (i.e. only five Trusts participated in stage two).

7.12 Final thought

This thesis reported details of two studies conducted within the NHS, where information relating to the sophistication of HRM practices was collected in 61 NHS Trusts offering acute services. The thesis contributes to the existing body of research by illustrates that HRM practices relating to the sophistication of training and appraisal practices were associated with improved health outcomes (i.e. lower patient mortality). This is the first study in the UK to have established such an association. Further is was highlighted that board level representation can moderate the relationship between HRM practices and health outcomes. For example, it was reported that the presence of a strategy document relating to training; and the Trust has gained Investors in People (IiP) status this was associated with lower patient morality, but only when there was board level representation.

The second study reported in thesis also offers advances to the current body of research. Specifically, it shows less formal developmental mechanisms (such as job experiences, coaching from co-workers and self-directed learning activities) are equally as important as the provision of formal training. The second study illustrates that development can impact upon workplace behaviours (c.f. Baldwin & Ford, 1988) related to adapting to changes in core job tasks (*task adaptability*) and initiating changes to core job tasks (*task proactivity*). This is the first study that investigated (and established) such an association. Finally, consistent with other training research, study two has illustrated the importance of the supervisor in the transfer process. Specifically, this could be via access to development activity, and via an impact upon training motivation. In addition, the research presented in study would indicate that supervisor support may moderate the association between role stressors (such as lack of role clarity, lack of influence over work based decisions, and not having the capacity to utilised KSAs in the workplace) and training outcomes such as job satisfaction and training motivation.

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Appendix one: Details of the Investors in People (IiP) standard.

Principles	Indicators	Evidence
Commitment An Investor in People is fully committed to developing its people in order to achieve its aims and objective	1) The organisation is committed to supporting the development of its people 2) People are encouraged to improve their own and other people's performance 3) People believe their contribution to the organisation is recognised 4) The organisation is committed to ensuring equality of opportunity in the development of its people	Top management can describe strategies that they have put in place to support the development of people in order to improve the organisation's performance Managers can describe specific actions that they have taken and are currently taking to support the development of people People can confirm that the specific strategies and actions described by top management and managers take place People believe the organisation is genuinely committed to supporting their development People can give examples of how they have been encouraged to improve their own performance People can give examples of how they have been encouraged to improve other's performance People can describe how their contribution to the organisation is recognised People believe that their contribution to the organisation is recognised People receive appropriate and constructive feedback on a timely and regular basis Top management can describe strategies that they have put into place to ensure equality of opportunity in the development of people Managers can describe specific actions that they have taken and are currently taking to ensure equality of opportunity in the development of people People confirm that the specific strategies and actions described by top management and managers take place and recognise the needs of different groups People believe the organisation is genuinely committed to ensuring equality of opportunity in the development of people
Planning An Investor in People is clear about its aims and objectives and what its people need to do to achieve them	5) The organisation has a plan with clear aims and objectives which are understood by everyone	The organisation has a plan with clear aims and objectives People can consistently explain the aims and objectives of the organisation at a level appropriate to their role Representative groups are consulted about the organisation's aims and objectives

Appendix one: Details of the Investors in People (IiP) standard (continued).

Action	6) The development of people is in line with the organisation's aims and objectives	The organisation has clear priorities which link the development of people to its aims and objectives at organisation, team and individual level
	7) People understand how they contribute to achieving the organisation's aims and objectives	People clearly understand what their development activities should achieve, both for them and the organisation
	8) Managers are effective in supporting	People can explain how they contribute to achieving the organisation's aims and objectives
An Investor in People develops its people effectively in order to improve its performance		The organisation makes sure that managers have the knowledge and skills they need to develop their people
		Managers at all levels understand what they need to do to support the development of people
		People understand what their manager should be doing to support their development
		Managers at all levels can give examples of actions that they have taken and are currently taking to support the development of people
		People can describe how their managers are effective in supporting their development
	9) People learn and develop effectively	People who are new to the organisation, and those new to a job, can confirm that they have received an effective induction
		The organisation can show that people learn and develop effectively
		People understand why they have undertaken development activities and what they are expected to do as a result
		People can give examples of what they have learnt (Knowledge, skills and attitude) from development activities
		Development is linked to relevant external qualifications or standards
Evaluation	10) The development of people improves the performance of the organisation, team and individual	The organisation can show that the development of people has improved the performance of the organisation
	11) People understand the impact of development of people on the organisation, teams and individuals	Top management understands the overall costs and benefits of the development of people and its impact on performance
	12) The organisation gets better at developing its people	People can explain the impact of their development on their performance, and the performance of their team and the organisation as a whole
An Investor in People understands the impact of its investment in people on its performance		People can give examples of relevant and timely improvements that have been made to development activities

Appendix two: Letter(s) sent to senior representative from each NHS to gain initial access for study one.



ABS/CBS/JMEP

Dear Colleague

ORGANISATION, MANAGEMENT AND EFFECTIVENESS IN NHS TRUSTS

This research project has been funded by North London Regional Health Authority to examine the link between Human Resource Management and performance in the NHS, including quality of care and financial effectiveness (see enclosed information sheet).

We are currently inviting 100 Trusts in England to take part in the second stage of our research. This will involve completing a survey about HRM practices, and providing computerised data and performance data.

We would like to invite the Trust to take part, and take advantage of the opportunity to benchmark against other Trusts and to assess the progress being made with developing HRM. We will also provide you with a report on the links between HRM practices, quality of care and effectiveness, and details of which practices affect these outcomes and in what circumstances.

Please find enclosed a copy of the survey we will be asking trusts to complete and some background information. A member of the research team will contact you shortly to discuss the project.

Thank you in advance for your co-operation.

Dr Carol Borrill
Executive Director
Aston Centre for Health Services Organisational Research

Enc

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Re: Staff Involvement and Improved Organisational Performance in the NHS.

I understand from colleagues at Aston Business School, University of Aston, that you have been invited to participate in this important research study examining the relationship between Staff Involvement and Trust Performance. The project is central to the NHS HRM Policy Research and Development Strategy and Investment Programme, and is funded by the NHS Executive.

The aim of the research is to establish which aspects of Staff Involvement are critical to different types of Trust Performance, and to develop an understanding of how the development of staff involvement cultures contribute to improving organisational performance. Organisations that participate in the study will be provided with confidential feedback.

The findings of the research have considerable implications for the NHS. Developing effective staff involvement practices is vital to meeting the needs of health and social care and delivering the National Plan.

Please give this research project your support.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Steve Barnett', followed by a stylized flourish.

Steve Barnett
Deputy Director of HR
NHS Executive

Appendix four: Additional information sheet about the research project sent to Trusts that were invited to participate in study one.

Organisation, Management and effectiveness in NHS Trusts

Information sheet.

The purpose of the project is to examine the link between the management of employees in NHS Trusts and organisational outcomes, including quality of care and financial effectiveness.

There is a growing consensus that organisational human resource policies can provide a direct and economically significant contribution to organisational performance. Research in other countries suggests that the management of people can help create a source of high performance (including health care organisations, the quality of care), especially where it is aligned with the organisation's strategy. However, such analyses have not been conducted in health care settings in the UK. We will use data provided by the Trusts over the previous five years concerning their management of employees and link these to Health Service Indicators, other measures of quality of care produced by Trusts and measures of Trust financial performance over subsequent years. This data is likely to be information you routinely gather for regional and national purposes.

There are six key research objectives:

1. To determine whether there is a link between people management practices and Trust performance, specifically quality of health care and financial performance of Trusts.
2. To determine which aspects of people management best predict quality of health care in Trusts.
3. To determine which aspects of people management best predict financial performance in Trusts.
4. To identify under which conditions these relationships are strongest and weakest.
5. To offer clear prescriptions for Trust managers about people management in their organisations, based on the research findings.
6. To provide evidence of likely impact of such changes upon quality of health care and financial performance in Trusts.

The resource implications for the NHS of this project are considerable. The magnitude of returns for investments in effective human resource management practices is substantial. With the introduction of the Government's new HRM strategy the importance of knowing your workforce and having the right people in the right places is vital if Trusts are to deliver the Government's service objectives for health and social care.

At the initial stages of the research we undertook an extensive consultation process with Chief Executives of Trusts, policy makers and researchers knowledgeable about the performance of Trusts. This enabled us to identify a range of possible measures and identify the most appropriate measures for our research.

The second stage will involve recruiting 100 Acute Trusts in England to take part in the research. Data will be collected on people management practices covering six areas: workforce characteristics; organisation of work; management control; information and knowledge flow; decision making and rewards. This information will be collected using a survey and by accessing organisational records .

The third stage of the research will involve an intensive analysis of 20 acute Trusts. In these Trusts we will gather more detailed data on HRM/people management practices based on interviews with HRM directors and other key informants within the organisations. In these 20 Trusts we also gather intensive data on attitudes of employees to their organisation, and gather data on job satisfaction, mental health (stress) and organisational commitment.

Overall, we believe that this research will make a major contribution to the understanding of factors which influence quality of health care and organisational performance in the NHS generally. We are confident that we shall be able to make important recommendations which, if implemented, will demonstrate much improved outcomes in acute Trusts in England.

Appendix four: Survey instrument for study one.

Section 1 Information about the Trust

1. Type of Trust: Teaching [] DGH [] Other _____

2. Name of Region: _____

3. Is the Trust located in: Urban [] Inner City [] Rural []

4. Has the Trust recently merged? Yes [] No []

If Yes, how long is it since the merger took place? _____ months

Size of Trust before merger: Budget £_____ million

Staff Numbers _____ Whole time equivalents _____

5. What is the Trust's current budget? £_____ million

Current Trust size: Staff Numbers _____ - Whole time equivalents _____

6. What % of staff (actual numbers) work in each of the following groups?

Nurses	[] %	Senior Managers	[] %
Doctors	[] %	Admin & Clerical	[] %
PAMs	[] %	Ancillary	[] %
P & T	[] %		

7. What percentage of staff in the Trust have management responsibilities? (i.e., are responsible for planning and allocating work, carrying out performance reviews)

[] %

8. What percentage of staff in each group is currently on the following contracts:

	Temporary %	Permanent %
Nurses		
Doctors		
PAMs		
P & T		
Senior Managers		
Admin & Clerical		
Ancillary		

9. What percentage of staff currently has the following working hours:

	Full time (37 hours or more)	3/4 time (30 to 36 hours)	Part time (29 hours or less)
Nurses			
Doctors			
PAMs			
P & T			
Senior Managers			
Admin & Clerical			
Ancillary			

10. How would you rate the Trust's current financial position?

Weak	Somewhat weak	Neither strong nor weak	Somewhat strong	Strong
1	2	3	4	5

Section 2 Trust Strategy and HRM

11. Please rank the influence that the following external factors have on Trust strategy:

1 = Most influence 2 = Second most influence
3 = Third most influence 4 = Least influence

a. HA/PCG	[]
b. Community needs	[]
c. Labour market/supply concerns	[]
d. Government requirements/Patient Charter requirements	[]

12. Thinking of the overall strategy of your Trust, please rate each of the following elements in terms of their importance in the Trust's current strategy.

	Of some Importance		Important	Of outstanding Importance	
Clinical governance.	1	2	3	4	5
Quality of service.	1	2	3	4	5
Cost Control/doing the same service more cheaply than others.	1	2	3	4	5
Responsiveness of services to all types of customers.	1	2	3	4	5
Expansion of services/increased activity/expansion.	1	2	3	4	5
Providing distinctive leading edge specialist services.	1	2	3	4	5
Meeting the health needs of the community.	1	2	3	4	5

13. To what extent do you agree or disagree with the following statements:

	Strongly disagree	Some- what disagree	Neither agree or disagree	Some- what agree	Strongly agree
Human resource policies are deliberately integrated with Trust strategy.	1	2	3	4	5
Human resource policies are integrated to be consistent with each other.	1	2	3	4	5
Human resource personnel are a key influence in setting HR strategy.	1	2	3	4	5
Human resource strategy is distinct from the business strategy.	1	2	3	4	5
Human resource strategy will become a more important influence on Trust strategy in the future.	1	2	3	4	5
Human resource strategy has an insufficient input-influence on the Trust's general strategy.	1	2	3	4	5

14. Please indicate the current priority you attach to each of the following elements as part of the overall human resource strategy of your Trust.

	Of some priority		A major priority		A top priority
To reduce risk to patients	1	2	3	4	5
To recruit, develop and retain sufficient staff to enable the Trust to meet its obligations.	1	2	3	4	5
To control or contain labour costs to current levels.	1	2	3	4	5
To significantly reduce labour costs.	1	2	3	4	5
To significantly improve employee efficiency and productivity.	1	2	3	4	5
To significantly improve service quality by investing in human resources.	1	2	3	4	5
To ensure the full utilisation of a high quality staff as a basis for guaranteeing high quality performance of the Trust.	1	2	3	4	5
To improve health outcomes by changing the skill-mix of the workforce.	1	2	3	4	5
To promote the health, well-being and development of staff.	1	2	3	4	5
To ensure the satisfaction and commitment of all staff.	1	2	3	4	5
To develop the skills and knowledge of all staff.	1	2	3	4	5

15. Is the person responsible for HRM/Personnel in the Trust a voting board member?

Yes [] No []

16. How many staff work in the Personnel/HRM Department? []

How many have professional qualifications in Personnel, HRM (e.g. IPD)? []

Section 3 Recruitment and Selection

17. Does the Trust have formal, written procedures for carrying out recruitment and selection?

Yes [] No []

18. Which of these statements best describes your approach to filling vacancies for each occupational group. Please indicate by printing the appropriate number in each box.

1 = Internal applicants only, no external recruitment
 2 = Internal applicants given preference over external
 3 = Internal and external applicants treated equally
 4 = External applicants given preference over internal

Nurses	[]	Senior Managers	[]
Doctors	[]	Admin & Clerical	[]
PAMs	[]	Ancillary	[]
P & T	[]		

19. For which of the following groups were advertised vacancies difficult to fill in the previous 12 months?

Nurses	[]	Senior Managers	[]
Doctors	[]	Admin & Clerical	[]
PAMs	[]	Ancillary	[]
P & T	[]		

20. What percentage of vacancies in each group, the previous year, were filled by:

	External applicants %	Internal applicants %
Nurses		
Doctors		
PAMs		
P & T		
Senior Managers		
Admin & Clerical		
Ancillary		

21. For each occupational group, which selection techniques have been used, and how often? Please indicate by printing the appropriate number in each box.

1 = Rarely
 2 = Sometimes
 3 = Quite frequently
 4 = Very frequently
 5 = Always

	Nurse	Doctor	PAMs	P & T	Senior Manager	A & C	Ancillary
a. Formal interview with at least 2 interviewers.							
b. Person specification and job specification.							
c. Battery of psychometric or skill tests.							

22. What percentage of interviewers receive formal training? [] %

23. Are there mechanisms for monitoring that recruitment and selection are carried out in accordance with Trust procedures?

Yes [] No []

if Yes, briefly describe: _____

Section 4 Training

24. What was the Trust training budget for 1998 -1999? £ _____
25. How much of the Trust training budget for 1998 – 1999 was spent on training over and above the statutory requirements? £ _____
26. How much of the training in 1998 – 1999 was funded from other sources (eg endowment funds)? £ _____

27. Which of the following occupational groups have access to a tailored and formal, written statement about training policy and entitlements? Tick the boxes for those which have such formal statements.

Nurses	[]	Senior Managers	[]
Doctors	[]	Admin & Clerical	[]
PAMs	[]	Ancillary	[]
P & T	[]		

28. What percentages of the following occupational groups have had at least 3 days formal, off the job training in the previous 12 months?

Nurses	[]	%	Senior Managers	[]	%
Doctors	[]	%	Admin & Clerical	[]	%
PAMs	[]	%	Ancillary	[]	%
P & T	[]	%			

29. How often are the training needs of the following occupational groups assessed? Please indicate by writing the appropriate number in each box.

1 = Every 3 months
 2 = Every 6 months
 3 = Annually
 4 = Bi-annually
 5 = Never

Nurses	[]	Senior Managers	[]
Doctors	[]	Admin & Clerical	[]
PAMs	[]	Ancillary	[]
P & T	[]		

30. What percentage of staff are currently working for NVQs? [] %

Section 5 Harmonisation

31. To what extent does the Trust emphasise achieving harmonisation (all staff groups subject to the same conditions of service) as a priority?

Not at all	A little	Neither a lot nor a little	A lot	To a very great extent
1	2	3	4	5

32. To what extent is there harmonisation (all staff groups subject to the same conditions) in the Trust in the following areas?

	Not at all				To a very great extent
a. Maternity and paternity pay	1	2	3	4	5
b. Sick leave	1	2	3	4	5
c. Pay	1	2	3	4	5
d. Pension schemes	1	2	3	4	5
e. Compassionate leave	1	2	3	4	5
f. Flexible working hours	1	2	3	4	5
g. Holiday entitlements	1	2	3	4	5

Section 6 Job Security

33. Does the Trust currently have a policy of guaranteed job security or no compulsory redundancy?

Yes []

No []

34. Has there been any reduction in the size of the workforce in the previous two years?

Yes []

No []

If Yes, what percentage of the reductions were made using the following?

Natural wastage	[] %	Early retirements	[] %
Re-deployment	[] %	Voluntary redundancy	[] %
Transfer to another		Compulsory redundancy	[] %
NHS/non NHS employer	[] %		

Section 7 Reward and Flexibility

35. In each occupational group, which of the following explain why some staff get paid more than others.

	Nurse	Doctor	PAMs	P & T	Senior Manager	A & C	Ancillary
a. Hours worked							
b. Overtime							
c. Shift premiums							
d. Age							
e. Years of service							
f. Skills/core competencies							
g. Formal qualifications							
h. Job grade							
i. Performance related pay							
j. Merit awards							
k. Accelerated increments							
l. One-off reward payments							

36. What percentage of staff are on:

Trust contracts [] % Whitley contracts [] %

37. How are staff rewarded and recognised for making an extra effort?

38. What initiative has the Trust introduced to enable flexible working (e.g. flexible shifts patterns, 9.0 – 5.0 working, term-time only contracts), for each occupational group?

Nurses _____

Doctors _____

PAMs _____

P&T _____

Senior
Managers _____

Admin &
Clerical _____

Ancillary _____

Section 8 Job Design and Team Working

39. Does the Trust have a policy of promoting team working (groups of staff (3-15) working interdependently and relative autonomously to achieve shared work goals)?

Yes [] No []

40. What percentage of staff work in teams within the Trust?

All	100%	[]	Around half	40-59%	[]
Almost all	80-99%	[]	Some	20-39%	[]
Most	60-79%	[]	Just a few	1-19%	[]
			None	0%	[]

41. What percentage of staff have been trained in team working?

All	100%	[]	Around half	40-59%	[]
Almost all	80-99%	[]	Some	20-39%	[]
Most	60-79%	[]	Just a few	1-19%	[]
			None	0%	[]

42. What percentage of teams are rewarded for team rather than individual performance?

[] %

43. What percentage of staff in each occupational group have flexible job descriptions?

Nurses	[] %	Senior Managers	[] %
Doctors	[] %	Admin & Clerical	[] %
PAMs	[] %	Ancillary	[] %
P & T	[] %		

44. What percentage of staff in each occupational group have the opportunity for job rotation?

Nurses	[] %	Senior Managers	[] %
Doctors	[] %	Admin & Clerical	[] %
PAMs	[] %	Ancillary	[] %
P & T	[] %		

Section 9 Involvement and Decision-making

45. To what extent does the Trust see it is a priority to enable and encourage staff to take an active role in decision-making?

Not at all	A little	Neither a lot nor a little	A lot	To a very great extent
1	2	3	4	5

46. To what extent does the Trust see it as a priority to provide mechanisms to enable staff to contribute their views?

Not at all	A little	Neither a lot nor a little	A lot	To a very great extent
1	2	3	4	5

47. What percentages of staff in each occupational group have been involved in the following activities in the last 12 months?

	Nurse	Doctor	PAMs	P & T	Senior Manager	A & C	Ancillary
a. Staff attitude survey							
b. Quality circles							
c. Focus groups							
d. Staff suggestions scheme							

48. What is the Trust's current position with regard to Investors in People (IiP)?

IiP not being considered ☐

Currently preparing for IiP ☐

Already have IiP ☐

49. What other mechanisms are employed within the Trust to encourage staff participation and involvement in decision-making?

50. Within a clinical directorate which is the lowest level at which staff have authority to make decisions (actions can be taken without waiting for confirmation from above).

	Staff Nurse	Ward Manager (sister/charge nurse)	Business Manager	Clinical Director	Executive Director	Chief Executive
1. Spend unbudgeted money on capital expenditure items.						
2. Spend unbudgeted money on current revenue items.						
3. Create a new post.						
4. Decide to fill a vacancy.						
5. Agree overtime should be worked.						
6. Employ bank staff.						
7. Allocate work.						
8. Selection of an applicant for a post.						
9. Decide the staffing levels are unsafe.						
10. Promote a staff member.						
11. Agree training/study leave.						

51. How often does team briefing take place?

Weekly []	Bi-weekly []	Monthly []	Quarterly []	Never []
------------	---------------	-------------	---------------	-----------

52. Which of the following areas of information are included in team briefing to all staff?

	Never	Sometimes	Frequently	Always
a. Financial performance.				
b. Performance on patients charter.				
c. Health & Safety issues.				
d. Pay issues.				
e. Budgets, budget cuts				
f. Changes in policies and procedures.				
g. Training.				
h. Trust strategy.				

53. What percentage of staff are given team briefings?

All	100%	[]	Around half	40-59%	[]
Almost all	80-99%	[]	Some	20-39%	[]
Most	60-79%	[]	Just a few	1-19%	[]
			None	0%	[]

54. How often is there an issue of the Trust newsletter?

Weekly	Bi-weekly	Monthly	Quarterly	Six monthly	Annually	Never
[]	[]	[]	[]	[]	[]	[]

55. What other methods are used to communicate information across the Trust?

56. How many cross functional/cross departmental groups exist which meet for the purpose of joint decision-making and planning? (e.g. Trust board, business managers meetings).

[]

57. How often do they meet? (Please write the name of each meeting in the appropriate space).

	Daily	Weekly	Bi-weekly	Quarterly	Six monthly	Annually
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

58. In the last six months how many temporary cross functional/cross departmental projects have been working on specific projects?

[]

59. How often did/do they meet? (Please write the name of each meeting in the appropriate space.)

	Daily	Weekly	Bi-weekly	Quarterly	Six monthly	Annually
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Section 11 Appraisal

60. To what extent does the Trust see introducing appraisal for ALL staff as a priority?

Not at all	A little	Neither a lot nor a little	A lot	To a very great extent
1	2	3	4	5

61. What percentage of staff in each of the following occupational groups have received an appraisal in the last 12 months, and how often are staff in each group appraised?

1 = Quarterly
2 = Half yearly
3 = Annually
4 = Bi-annually
5 = No fixed pattern

	% receiving appraisal	How often get appraisal
Nurses		
Doctors		
PAMs		
P & T		
Senior Managers		
A & C		
Ancillary		

62. What percentages of staff who carry out appraisals in each of the occupational groups have received training in conducting appraisals?

Nurses	[] %	Senior Managers	[] %
Doctors	[] %	Admin & Clerical	[] %
PAMs	[] %	Ancillary	[] %
P & T	[] %		

63. Is the appraisal system and process evaluated with any of the following?

Appraisers complete an evaluation form. []

Appraisees complete an evaluation form. []

HR department check that appraisals take place. []

64. What percentage of staff in each of the following occupational groups have a Personal Development Plan which has been updated and reviewed in the last 12 months?

Nurses [] % Senior Managers [] %

Doctors [] % Admin & Clerical [] %

PAMs [] % Ancillary [] %

P & T [] %

65. Which innovations in HRM introduced into the Trust in the previous year are you most proud of? (Please give brief details)

66. What are the main barriers to implementing good quality HRM in the Trust? (Please give brief details)

67. Do you have any additional comments which you wish to make about the issues dealt with in this survey?

Thank you for completing the survey

Appendix six: Letter send to potential respondents in study two.



ABS/CBS/JMEP

Dear Colleague

ORGANISATION, MANAGEMENT AND EFFECTIVENESS IN NHS TRUSTS

Please find enclosed a questionnaire relating to the above research project which we are currently conducting at the Acute Hospitals NHS Trust with the approval of the Human Resources department. We are now starting the final stage of the research which is a survey investigating how the Human Resource policies at affect the trust overall. We have randomly selected 500 staff members across a range of directorates to answer questions about their job, views on the trust and their work and well-being. You have been selected and we would appreciate it if you could take the time to complete this survey and return it in the envelope provided. The information given is totally confidential.

Findings will be made available only on request to all those who participate and to senior managers, but in such a way that it is not possible for individuals to be identified. At no time will the Trust have access to any of the questionnaires completed by individuals.

Thank you in advance for your co-operation.

Dr Carol Borrill
Executive Director
Aston Centre for Health Services Organisational Research

Enc

Appendix seven: Survey instrument for study two



A Survey of Working in the NHS.

What is this survey?

This is a survey of your views about your work within the NHS. It concerns your opinions of the job that you do, and the Trust where you work. The questionnaire will take about 15/20 minutes to complete.

Please complete the questionnaire for your current job or the job you do most of the time. We want to know your personal views on the issues raised in the questionnaire. Please read each question carefully, but give your immediate response by ticking the box which best matches your views.

What is covered by this survey?

The questionnaire is divided into four sections.

- Section 1:** The first section asks for background details about you and the work you do. It is particularly important for us to have this information when we analyse the questionnaire so that we can distinguish between different groups, such as doctors, nurses and managers.
- Section 2:** Section 2 is concerned with your views on your job.
- Section 3:** Section 3 asks you about the Trust where you work
- Section 4:** Section 4 includes questions about your feelings towards your job and your well-being more generally.

Who will see my answers?

The information you give is totally confidential. Findings will be made available only on request to all who participate and to senior managers, but in such a way that it is not possible for individuals to be identified. The Trust will at no time have access to any of the questionnaires completed by individuals.

How should I respond?

For the majority of questions you are asked to tick one response which best fits your views. Respond according to your first reaction. Do not spend too long on one question.

For example, If you feel that your chances of being given for authority in your job will improved 'quite a lot' if you use the skills you have learned, then you would respond like this:

To what extent do you believe:	Not at all	Just a little	Moderate amount	Quite a lot	A great deal
You will be given more authority to perform your job, if you use the new skills you have learned	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Please read every question carefully before responding and answer every question.
Thank you.

SECTION 1: Background details

It is important that we know some of your background details. This will enable us to compare the views of different groups of staff.

1. About you

Age : _____ (yrs)	Are you? Male <input type="checkbox"/> Female <input type="checkbox"/>	Are you? Single <input type="checkbox"/> Living with partner/married <input type="checkbox"/> Separated/divorced/widowed <input type="checkbox"/>
Dependants : Do you have any pre school/school aged children? Yes <input type="checkbox"/> No <input type="checkbox"/>		

2. Have you been absent from work because of sickness in the last 6 months? Yes ☐ No ☐

If yes:

- a. How many times were you absent from work due to sickness during the last 6 months? _____ Times
b. In total, how many working days were you absent due to sickness during the last 6 months? _____ Days

3. About your job

(a) Current Job Title : (i.e. nurse, physiotherapist etc.)		(b) Grade/Spine point :	
Number of years as an employee in the NHS _____ years			
Length of time working at the Trust _____ years/months		Length of time in current post _____ years/months	
Type of contract:			
Temporary <input type="checkbox"/>	Permanent <input type="checkbox"/>		
Whitley <input type="checkbox"/>	Trust <input type="checkbox"/>		
(a) In your last full working week, how many hours were you <u>contracted</u> to work (including on call)? _____ hours			
(b) In your last full working week, how many hours did you <u>actually</u> work (including on call)? _____ hours			

SECTION 2: Your Job

The following questions ask you to describe your job. Please answer all the questions, ticking the response which best describes the job you do *most of the time*.

4. To what extent do you agree with the following?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
a. I have clear, planned goals and objectives for my job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. I know that I have divided my time properly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. I know what my responsibilities are.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Explanation is clear of what has to be done.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. I know exactly what is expected of me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. The questions below concern the influence you have over decisions and changes in *your* job.

To what extent:	Not at all	Just a little	Moderate amount	Quite a lot	A great deal
a. Can you influence what goes on in your work area as a whole?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Does your immediate superior ask for your opinion before making decisions affecting your work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Do you have the opportunity to contribute to meetings on new work developments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Are you allowed to participate in decisions?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Do you feel involved in the changes introduced in your work/dept/team?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Do you feel you are consulted before changes are introduced in your group/dept/team?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Do you feel your personal needs are taken into account before changes are introduced?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. The following questions deal with your working relationship with your immediate supervisor, that is, the person who most immediately supervises you and to whom you are responsible for your work.

How much does your supervisor/manager:	Not at all	Just a little	Moderate amount	Quite a lot	A great deal
a. Encourage you to give your best effort?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Set an example by working hard him/herself?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Encourage those who work for him/her to work as a team?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Offer new ideas for solving work-related problems?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. The following questions ask about the extent to which others provide you with help or support.

To what extent:-	Not at all	Just a little	Moderate amount	Quite a lot	A great deal
a. Can you count on your colleagues to listen to you when you need to talk about problems at work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Can you count on your colleagues to back you up at work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Can you count on your colleagues to help you with a difficult task at work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Can you really count on your colleagues to help you in a crisis situation at work, even though they would have to go out of their way to do so?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. How often do you find yourself meeting the following problems in carrying out your job?

	Not at all	Just a little	Moderate amount	Quite a lot	A great deal
a. I do not have enough time to carry out my work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. I cannot meet all the conflicting demands made on my time at work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. I never finish work feeling I have completed everything I should.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. I am asked to do work without adequate resources to complete it.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. I cannot follow best practice in the time available.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. I am required to do basic tasks which prevent me completing more important ones.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. How important is it for you personally to:

	Not at all	Just a little	Moderate amount	Quite a lot	A great deal
a. Carry out the core tasks that are listed in your job description at a high standard?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Work effectively with the other members of your work group?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Comply with all the requirements of your job?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Deal effectively with unpredictable or unexpected events?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Adapt well to changes affecting your core tasks and your work group?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Improve the way in which things are done in your job, or your work group?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Put a lot of effort into your job?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. To what extent do you believe you are able to do the following?

	Not at all	Just a little	Moderate amount	Quite a lot	A great deal
a. Carry out the core tasks that are listed in your job description at a high standard?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Work effectively with the other members of your work group?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Comply with all the requirements of your job?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Deal effectively with unpredictable or unexpected events?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Adapt well to changes affecting your core tasks and your work group?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Improve the way in which things are done in your job, or your work group?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Work hard?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. The following questions ask you to describe the way in which you carry out the core tasks that are listed in your job description.**Over the past 6 months, to what extent have you:**

	Not at all	Just a little	Moderate amount	Quite a lot	A great deal
a. Used correct procedure and complied with rules?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Carried out your tasks to acceptable standards?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Ensured that work standards are maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Dealt effectively with unexpected problems?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Been flexible in the way you worked?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Coped effectively with everyday problems in your core tasks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Adapted well to any major changes in your core job?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Learnt skills or taken on new tasks to cope with changes in your core job?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Coped well with changes to the way you have to do your core job?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Initiated better ways of doing your job?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Developed new and improved work methods?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Taken charge to bring about changes in the way your core tasks are done?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m. Carried out your core tasks with enthusiasm?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n. Worked harder than is necessary to complete your core tasks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o. Persisted with extra effort to complete your core task.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. The following questions ask you to describe the way in which you have worked with other members of your work group.

Over the past 6 months, to what extent have you:

	Not at all	Just a little	Moderate amount	Quite a lot	A great deal
a. Provided an acceptable level of support to your work colleagues?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Met the expectations of your work colleagues?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Done what was required to ensure that your work unit achieved its goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Been open minded when dealing with work colleagues?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Changed your behaviour to meet the needs of other members of your work group?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Considered the opinions of your work colleagues?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Adapted well to changes affecting your work group (e.g. new members)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Learnt new skills or taken on new roles to cope with changes in your work group?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Responded constructively to changes in your work group?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Initiated ways your work group can do things better?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Developed new and improved methods to help your work group perform better?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Taken charge to bring about changes in how your work group operates?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m. Contributed to your work group with enthusiasm?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n. Worked harder than is necessary to ensure that your work group achieves its goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o. Persisted with extra effort in supporting your work colleagues (e.g. by staying late to help)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13. To what extent do you agree with the following statements.

	Strongly disagree	Disagree	Slightly disagree	Neither agree or disagree	Slightly agree	Agree	Strongly agree
a. I usually know whether or not my work is satisfactory on this job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. I often have trouble figuring out whether I'm doing well or poorly on this job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Most people on this job have a pretty good idea of how well they are performing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Most people on this job have trouble figuring out whether they are doing a good or bad job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. Have you had an appraisal or performance review in the last 12 months?Yes ☐No ☐

If no, please move to question 15

If yes, to what extent: -Not
at allTo a limited
amount

Somewhat

To a large
extent

Completely

- | | | | | | |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| a. Did you find the appraisal process useful? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Do <i>you</i> agree with the assessment of your strengths and weaknesses? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Have the outcomes of the appraisal process been linked to financial rewards? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Do you believe you have a shared responsibility to identify your own personal training and developmental needs? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. Have <i>your</i> training and development needs been formally identified in the last year? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| f. Do you usually understand why you have been asked to undertake training and development activities? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| g. Do you have an influence over the training and development activities you undertake? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

15. Do you have a Personal Development Plan (PDP) that has been updated and reviewed in the last 12 months?Yes ☐No ☐

If no, please move to question 16

If yes, to what extent: -Not
at allTo a limited
amount

Somewhat

To a large
extent

Completely

- | | | | | | |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| a. Do you find having a PDP useful? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Have the outcomes of your appraisal been incorporated in a PDP? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Has the PDP influenced the training and development activities you undertake? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

16. Which of the following training and development activities have you participated in during the past year?

Yes No

Yes No

- | | | | | | |
|---|--------------------------|--------------------------|--|--------------------------|--------------------------|
| a. Attended a formal training course offered by the Trust. | <input type="checkbox"/> | <input type="checkbox"/> | b. Conducted self-directed work-related learning. | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Undertaken a formal qualification i.e. to degree or NVQ level. | <input type="checkbox"/> | <input type="checkbox"/> | d. Received coaching 'on-the-job' from work colleagues or your supervisor. | <input type="checkbox"/> | <input type="checkbox"/> |
| e. Regularly perform tasks that are not part of your current job description. | <input type="checkbox"/> | <input type="checkbox"/> | f. Had the opportunity to work in a different part of the Trust. | <input type="checkbox"/> | <input type="checkbox"/> |

Please indicate below if you have participated in any other training and development activities during the past year, which have not been covered above.

17. Please consider all the training and development activities you have participated in during the past year (as identified in question 16).

To what extent <i>do you agree with the following?</i>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
a. I have made a conscious effort to use the knowledge and skills I have learned in my normal work activities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. I have changed my job behaviour in order to be consistent with what I have learned.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. I regularly use the knowledge and skills I have learned in my daily work activities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. I have been able to incorporate the knowledge and skills I have learned back into my actual job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. I have enhanced my existing knowledge and skills as a result of my experiences.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. I <i>will</i> be able to use the knowledge and skills I have acquired back in my normal daily activities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. The time I have spent away from my normal job <i>has</i> been worthwhile.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. My normal job <i>will</i> become easier to complete if I use the new knowledge and skills that I have learned.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. I believe my job performance <i>will</i> improve if I use the knowledge and skills I have acquired.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. The knowledge and skills I have learned <i>will</i> be helpful in solving work-related problems.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

18. Based on past experience, please consider how your training and development experiences of the past year might impact upon the following aspects of your working life.

To what extent <i>do you agree with the following :-</i>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
a. I <i>will</i> receive more freedom to perform the activities that form my job, if I use the skills I have learned.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. I <i>will</i> be given more authority in my job, if I use the new skills I have learned.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. My chances of promotion <i>will</i> be improved, if I use the new skills I have learned.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. My chances of moving up my pay scale <i>will</i> be improved, if I use the new skills I have learned.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. I am more likely to be recognised for my work if I use the new skills I have learned.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. If I use the new skills I have learned, it will help me get a higher performance rating in my appraisal.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

19. To what extent do you agree with the following?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
a. The resources I need to use what I have learned will be available to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. At work, budget limitations will prevent me from using the skills I have learned.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. It will be hard to get the materials and supplies I need to use the knowledge and skills I have learned.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. My workload allows me time to try the new skills I have learned.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Trying to use the new skills I have learned will take too much energy away from other work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. There is too much happening at work right now for me to try to use the new skills I have learned.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. I don't have time to try to use the new skills I have learned.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. I have time in my schedule to change the way I do things to fit my new learning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Someone will have to change my priorities before I will be able to apply my new learning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. I wish I had time to do things the way I know they should be done.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

20. Please consider how much support you receive from your supervisor.

To what extent do you agree with the following?	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
a. My supervisor encourages me to undertake activities that will help enhance my knowledge and skills.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. My supervisor gives me helpful advice about improving my job performance when it is needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. My supervisor meets with me to discuss ways to apply what I have learnt on the job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. My supervisor sets goals for me that encourage me to apply what I have learnt on the job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. My supervisor lets me know how I am doing when I try to use what I have learned on the job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. My supervisor meets with me regularly to work on problems I may be having in trying to use my new skills.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. My supervisor shows interest in what I have learned.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. My supervisor helps me set realistic goals for job performance based on what I have learned.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

21. Please consider how much support you receive from your work colleagues.

To what extent do you agree with the following?	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
a. Work colleagues encourage each other to undertake activities that help enhance their knowledge and skills.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Work colleagues are able to provide reliable information about ways to improve job performance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Work colleagues tell each other about new information that can be used to improve job performance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Work colleagues suggest new approaches of solving work related problems.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Work colleagues encourage each other to use the knowledge and skills they have learned on the job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

22. To what extent do you agree with the following.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
a. I am confident in my ability to use new skills at work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. I never doubt my ability to use newly learned skills on the job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. I am sure I can overcome obstacles on the job that may hinder my use of new knowledge or skills.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. At work, I feel very confident using what I have learned even in the face of difficult or taxing situations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION 3: Your views on the Trust

The following statements are about different features of the Trust where you work. Please tick the box which best matches your views about the organisation *as a whole*.

23. This section concerns the service offered to patients by the Trust.

To what extent do you agree with the following?	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
a. This hospital is always working to achieve the highest standards of patient care.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Patient care is taken seriously here.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. People believe that this hospital's success depends on high quality work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. This hospital does not have much of a reputation for top quality patient care.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. This hospital sets extremely high standard for its staff.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. All staff are expected to provide help and support to their colleagues at this hospital.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. All staff are expected to work extremely hard.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. All staff are expected to be polite and considerate to their colleagues.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. This hospital does not tolerate poor job performance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. This hospital does not tolerate staff who are poor team players.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

24. This section concerns the support offered to staff by the Trust.

To what extent do you agree with the following?	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
a. The Trust has created an environment where people can succeed, whatever their job or status in the organisation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Staff at the Trust have equal opportunities, whatever their job or status in the organisation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. The Trust pays little attention to the interests of its employees.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. The Trust tries to look after its employees.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. The Trust cares about its employees.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. The Trust tries to be fair in its actions towards employees.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Employee welfare is not taken seriously at this Trust.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

25. Does the Trust have mechanism's which promote flexible working (e.g. flexible shift patterns, term-time only contracts etc)?

Yes ☐

No ☐

If no, please move to question 27

If yes, what type of mechanisms does the Trust use?

26. The following questions assess team working.

Do you work as part of a defined work team?

Yes ☐

No ☐

If no, please move to question 28

Does your team have clear team objectives?

Yes ☐

No ☐

Do you frequently work with other team members to achieve these team objectives?

Yes ☐

No ☐

Are there different roles for team members within this team?

Yes ☐

No ☐

Do other people in the Trust recognise your team as a team?

Yes ☐

No ☐

27. To what extent do you agree with the following?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
a. Working in teams is considered very important in the Trust.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. The Trust encourages people to work in teams.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Teamwork exists in name only here.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. People in my work group generally prefer to use existing methods, rather than try new methods they have learned.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Experienced employees in my work group ridicule others when they use new techniques they have learned.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. People in my work group are open to changing the way things are done.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. People in my work group are not willing to put in effort to change the way things are done.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. My work group is reluctant to try new ways of doing things.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. My work group is open to change if it will improve our performance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

28. Do you have a regular team briefing?Yes ☐No ☐

If no, please move to question 30

How often does the team briefing take place?

Weekly

*Fortnightly**Monthly**Quarterly**Never***Which of the following areas of information are included in team briefing?**

Please tick box where appropriate

Financial performance	<input type="checkbox"/>	Budget issues	<input type="checkbox"/>
Performance on Patients Charter	<input type="checkbox"/>	Changes in policies and procedures	<input type="checkbox"/>
Health & Safety issues	<input type="checkbox"/>	Training	<input type="checkbox"/>
Pay issues	<input type="checkbox"/>	Trust Strategy	<input type="checkbox"/>

29. This section examines the Trust's approach towards training and development.**To what extent do you agree with the following?**

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
a. The Trust strongly believes in the importance of training and development.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Staff can only develop their knowledge and skills if they are prepared to do so in their own time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Staff are not given sufficient opportunities to develop their knowledge and skills by the Trust.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Staff are strongly encouraged to develop their knowledge and skills by the Trust.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

30. This section examines how good communication is in the Trust.**To what extent do you agree with the following?**

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
a. Communication in the Trust is very good.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Information is readily passed to all staff by the Trust management.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. There are many opportunities to inform Trust management of staff views.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Communication between management and staff is excellent in the Trust.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Very little information about the Trust management decisions and intentions is made available.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Different sections of the Trust do not keep each other informed about what's going on.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Information about developments in the Trust is readily available to all staff.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION 4: Work and Well-being

The following questions ask you about your general well-being and feelings towards your job. Please answer all questions.

31. Below are some questions, which deal with your health in general over the past month. Please circle the most appropriate answer for each question. Remember to concentrate on present and recent complaints, not those you have had in the distant past.

Have you recently:

a.	Been able to concentrate on whatever you're doing?	<i>better than usual</i>	<i>same as usual</i>	<i>less than usual</i>	<i>much less than usual</i>
b.	Lost much sleep over worry?	<i>Not at all</i>	<i>no more than usual</i>	<i>rather more than usual</i>	<i>much more than usual</i>
c.	Felt that you are playing a useful part of things?	<i>more so than usual</i>	<i>same as usual</i>	<i>less than usual</i>	<i>much less than usual</i>
d.	Felt capable of making decisions about things?	<i>more so than usual</i>	<i>same as usual</i>	<i>less than usual</i>	<i>much less than usual</i>
e.	Felt constantly under strain?	<i>not at all</i>	<i>no more than usual</i>	<i>rather more than usual</i>	<i>much more than usual</i>
f.	Felt that you couldn't overcome your difficulties?	<i>not at all</i>	<i>no more than usual</i>	<i>rather more than usual</i>	<i>much more than usual</i>
g.	Been able to enjoy your normal day-to-day activities?	<i>more so than usual</i>	<i>same as usual</i>	<i>less than usual</i>	<i>much less than usual</i>
h.	Been able to face up to your problems?	<i>more so than usual</i>	<i>same as usual</i>	<i>less than usual</i>	<i>much less than usual</i>
i.	Been feeling unhappy or depressed?	<i>not at all</i>	<i>no more than usual</i>	<i>rather more than usual</i>	<i>much more than usual</i>
j.	Been losing confidence in yourself?	<i>not at all</i>	<i>no more than usual</i>	<i>rather more than usual</i>	<i>much more than usual</i>
k.	Been thinking of yourself as a worthless person?	<i>not at all</i>	<i>no more than usual</i>	<i>rather more than usual</i>	<i>much more than usual</i>
l.	Been feeling reasonably happy, all things considered?	<i>more so than usual</i>	<i>same as usual</i>	<i>less than usual</i>	<i>much less than usual</i>

32. Please circle the response, which most represent your feelings towards the questions asked.

How likely is it that you will actively look for a new job in the next year?

Not at all likely 1	2	Somewhat likely 3	4	Quite likely 5	6	Extremely likely 7
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I often think about quitting.

Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
-------------------	----------	-------------------	----------------------------	----------------	-------	----------------

I will probably look for a new job in the next year.

Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
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As soon as I can find another job, I'll leave the Trust.

Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
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33. The statements below concern how satisfied you feel with different aspects of your job.

How satisfied are you with:	Extremely dissatisfied	Very dissatisfied	Moderately dissatisfied	Not sure	Moderately satisfied	Very satisfied	Extremely satisfied
a. The physical work conditions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. The freedom to choose your own method of working.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Your work colleagues.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. The recognition you get for good work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Your immediate boss.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. The amount of responsibility you are given.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Your rate of pay.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Your opportunity to use your abilities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Relations between management and staff.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Your chances of promotion.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. The way the hospital is managed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. The attention paid to suggestions you make.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m. Your hours of work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n. The amount of variety in your job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o. Your job security.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p. The training you receive.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Thank you for completing this questionnaire. It will be a valuable contribution to our study. Please place the questionnaire in the pre-paid envelope provided, seal it and post back to the researchers in Birmingham within 14 days.

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Appendix eight: Factor analysis for scale items in study two.

	1	2	3	4	5	6	7	8	9	10	11
Supervisor support											
My supervisor meets with me to discuss ways to apply what I have learnt on the job	0.881	0.052	-0.003	-0.025	0.013	-0.010	0.008	-0.028	-0.005	0.011	-0.018
My supervisor lets me know how I am doing when I try to use what I have learnt on the job	0.846	0.022	-0.020	-0.020	-0.019	0.006	0.064	0.005	0.012	0.007	-0.014
My supervisor meets with me regularly to work on problems I may be having in trying to use my new skills	0.843	0.040	0.036	-0.025	-0.045	0.006	0.016	-0.038	-0.058	0.040	-0.009
My supervisor helps me set realistic goals for job performance based on what I have learned	0.836	0.010	0.012	0.025	-0.016	0.016	-0.017	0.003	0.057	-0.002	0.005
My supervisor sets goals for me that encourage me to apply what I have learnt on the job	0.821	0.007	0.034	0.003	-0.010	-0.012	0.039	-0.028	0.032	0.017	-0.033
My supervisor shows interest in what I have learned	0.781	0.007	-0.026	0.061	0.011	0.112	-0.008	0.045	-0.005	0.025	0.029
My supervisor gives me helpful advice about improving my job performance when it is needed	0.759	-0.045	0.000	0.061	0.092	0.032	0.008	0.035	0.023	-0.062	-0.009
My supervisor encourages me to undertake activities that will help enhance my knowledge and skills	0.642	-0.050	0.011	0.089	0.129	0.082	0.017	0.027	0.012	-0.094	-0.076
Training self-efficacy											
At work, I feel very confident using what I have learned even in the face of difficult or taxing situations	0.034	0.858	0.006	-0.004	-0.027	0.038	-0.024	-0.001	0.023	0.033	0.027
I never doubt my ability to use newly learned skills on the job	0.007	0.712	-0.097	-0.049	-0.016	-0.053	-0.002	-0.009	0.044	0.032	-0.063
I am confident in my ability to use new skills at work	0.026	0.626	-0.004	0.099	0.140	0.055	-0.043	0.061	0.025	-0.044	-0.039
I am sure I can overcome obstacles on the job that may hinder my use of new knowledge or skills	-0.012	0.611	0.158	0.055	-0.011	-0.014	0.129	-0.001	-0.027	-0.009	-0.009
Task Constraints											
I don't have time to try to use the new skills I have learned	-0.031	0.013	0.836	-0.024	0.092	0.039	-0.035	-0.015	0.006	-0.021	-0.027
There is too much happening at work right now for me to try to use the new skills I have learned	-0.063	0.048	0.831	0.043	0.037	0.068	-0.041	-0.014	-0.073	-0.082	-0.030
Trying to use the new skills I have learned will take too much energy away from other work	-0.057	0.059	0.649	-0.003	0.048	0.028	0.027	0.014	0.026	-0.075	-0.016
Someone will have to change my priorities before I will be able to apply my new learning	-0.017	-0.043	0.562	0.046	0.025	0.105	0.034	0.015	0.065	-0.047	-0.116
My workload allows me time to try the new skills I have learned	0.192	0.012	0.542	0.039	0.004	-0.104	0.043	-0.037	-0.002	0.138	0.083
I have time in my schedule to change the way I do things to fit my new learning	0.130	-0.013	0.478	-0.051	0.046	-0.086	0.076	0.052	0.117	0.118	0.053
I wish I had time to do things the way I know they should be done	0.115	-0.030	0.457	0.003	-0.193	0.033	0.043	0.143	0.087	0.030	-0.017

	1	2	3	4	5	6	7	8	9	10	11
Co-worker support											
Work colleagues encourage each other to use the knowledge and skills they have learned on the job	-0.016	0.010	0.010	0.880	0.041	0.016	-0.033	-0.003	0.005	-0.012	-0.011
Work colleagues tell each other about new information that can be used to improve job performance	-0.029	-0.001	0.007	0.855	-0.002	-0.023	-0.049	0.042	-0.026	-0.001	-0.021
Work colleagues suggest new approaches of solving work related problems	0.034	-0.021	-0.041	0.831	0.019	0.034	-0.027	0.037	-0.011	-0.017	-0.059
Work colleagues are able to provide reliable information about ways to improve job performance	0.080	0.034	0.002	0.774	-0.016	-0.065	0.038	-0.016	0.017	0.034	0.033
Work colleagues encourage each other to undertake activities that help enhance their knowledge and skills	-0.026	0.021	0.013	0.739	-0.035	0.046	0.096	-0.042	0.050	0.036	0.043
Training motivation											
The knowledge and skills I have learned will be helpful in solving work-related problems	0.010	0.054	-0.035	0.049	0.753	0.065	0.066	0.011	-0.028	-0.012	0.025
I will be able to use the knowledge and skills I have acquired back in my normal daily activities	0.035	0.045	0.056	-0.010	0.731	0.034	-0.038	0.014	0.040	-0.044	-0.047
I believe my job performance will improve if I use the knowledge and skills I have acquired	0.073	-0.018	-0.013	0.004	0.720	-0.009	0.118	0.069	0.027	-0.044	0.071
I have been able to incorporate the knowledge and skills I have learned back into my actual job	0.018	-0.015	0.080	0.025	0.632	-0.010	0.002	0.042	0.063	0.066	-0.012
I have changed my job behaviour in order to be consistent with what I have learned	-0.031	0.001	0.014	-0.008	0.565	-0.040	0.004	-0.050	-0.023	0.103	-0.056
Influence over decisions											
Are you allowed to participate in decisions?	0.056	-0.013	0.066	0.048	-0.050	0.852	0.019	-0.044	0.007	0.049	-0.013
Do you have the opportunity to contribute to meetings on new work developments?	0.047	-0.052	0.013	0.046	0.067	0.770	0.015	0.003	0.019	-0.026	-0.038
Can you influence what goes on in your work area as a whole?	-0.071	0.104	0.050	0.004	-0.001	0.701	0.034	-0.009	0.031	0.192	0.065
Does your immediate superior ask for your opinion before making decisions affecting your work?	0.249	-0.018	-0.011	-0.051	0.008	0.654	0.022	0.076	0.046	0.011	-0.010
Job-related benefits											
My chances of promotion will be improved, if I use the new skills I have learned	-0.031	-0.020	-0.026	0.020	-0.013	0.005	0.878	0.008	-0.003	-0.030	0.003
My chances of moving up my pay scale will be improved, if I use the new skills I have learned	-0.077	0.036	-0.004	-0.005	-0.090	-0.022	0.866	0.006	-0.017	-0.026	-0.062
I am more likely to be recognised for my work if I use the new skills I have learned	0.072	-0.021	0.042	0.044	0.107	0.036	0.681	-0.027	-0.013	-0.001	-0.053
I will be given more authority in my job, if I use the new skills I have learned	0.050	0.033	0.000	0.012	0.102	0.060	0.649	0.014	0.011	0.040	0.047

	1	2	3	4	5	6	7	8	9	10	11
If I use the new skills I have learned, it will help me get a higher performance rating in my appraisal	0.131	0.012	0.013	-0.028	0.098	-0.005	0.613	0.021	0.046	0.041	0.019
Task proficiency											
Over last 6 months, to what extent have you carried out your tasks to acceptable standards?	-0.041	-0.002	0.025	-0.010	0.029	-0.013	-0.008	0.896	0.002	-0.002	0.066
Over last 6 months, to what extent have you ensured that work standards are maintained?	0.048	0.068	-0.018	0.048	-0.014	-0.009	-0.006	0.756	0.002	0.022	-0.018
Over last 6 months, to what extent have you used correct procedure and complied with rules?	-0.031	-0.037	-0.015	-0.008	0.015	0.007	0.027	0.607	-0.018	0.010	-0.078
Role clarity											
I have clear, planned goals and objectives for my job	0.034	-0.021	0.013	-0.018	0.045	0.001	0.045	-0.055	0.738	0.023	0.028
I know what my responsibilities are	-0.083	0.045	-0.051	-0.021	0.043	0.054	-0.031	-0.001	0.737	-0.057	-0.033
Explanation is clear of what has to be done	0.051	-0.028	0.006	0.063	-0.046	0.052	0.031	0.004	0.722	-0.024	-0.002
I know that I have divided my time properly	0.016	0.084	0.098	0.047	-0.026	-0.109	-0.058	0.098	0.444	0.092	-0.032
Task adaptability											
Over last 6 months, to what extent have you developed new and improved work methods?	-0.011	-0.008	-0.020	0.046	0.060	-0.005	0.001	0.017	0.019	0.869	-0.036
Over last 6 months, to what extent have you initiated better ways of doing your job?	0.002	0.043	-0.010	-0.001	0.046	0.036	-0.021	0.024	-0.008	0.724	-0.171
Over last 6 months, to what extent have you taken charge to bring about changes in the way your core tasks are done?	-0.032	0.023	-0.056	0.031	0.009	0.203	0.019	0.037	-0.015	0.712	-0.025
Task proactivity											
Over last 6 months, to what extent have you coped well with changes to the way you have to do your core job?	0.074	0.036	-0.005	0.008	-0.010	-0.036	0.016	0.063	0.035	0.051	-0.796
Over last 6 months, to what extent have you learnt skills or taken on new tasks to cope with changes in your core job?	0.015	-0.037	0.025	0.074	0.034	-0.027	0.069	-0.048	-0.004	0.074	-0.727
Over last 6 months, to what extent have you adapted well to any major changes in your core job?	0.010	0.140	0.041	-0.077	-0.003	0.057	-0.025	0.119	0.019	0.038	-0.555

Appendix nine

A series of chi-square tests performed on the valid sample (n=732) to examine for differences within the sample attributable to a) the Trust where the respondent worked, b) the occupational group of the respondent, and c) the respondents length of time (tenure) within the NHS.

Have you had a performance review or appraisal in the last year? In total 417 respondents (57%) reported they had had an appraisal in the past year. There was evidence that experiences of the appraisal process was influenced by the Trust where the respondent worked (χ^2 , 16.261, df,4, p=.003), length of time spent in the NHS (χ^2 19.696, df,4, p=.001), and occupational group (χ^2 23.951, df,6 p=.001). Respondents from Trust 4 and Trust 5 were more likely to have received an appraisal than Trust 1. Doctors were most likely to have received an appraisal (75%), whereas 68.3% of ancillary workers had not received an appraisal. Surprisingly, new recruits were least likely to not have had an appraisal (40.3%), this compared with 66.5% of respondents who had been in the NHS for over 16 years.

	Trust 1		Trust 2	Trust 3	Trust 4	Trust 5	Total	
Yes	75		67	72	109	94	417	
	46.9%		52.8%	57.1%	59.6%	69.1%	57.0%	
No	85		60	54	74	42	315	
	53.1%		47.2%	42.9%	40.4%	30.9%	43.0%	
	Nurse	Doctor	A&C	Manager	PAMs	Prof & Tech	Ancillary	Total
Yes	203	33	51	30	64	23	13	417
	58.2%	75.0%	47.7%	69.8%	60.4%	54.8%	31.7%	57.0%
No	146	11	56	13	42	19	28	315
	41.8%	25.0%	52.3%	30.2%	39.6%	45.2%	68.3%	43.0%
	Tenure 1		Tenure 2	Tenure 3	Tenure 4	Tenure 5	Total	
Yes	27		67	81	65	177	417	
	40.3%		54.0%	52.6%	53.7%	66.5%	57.0%	
No	40		57	73	56	89	315	
	59.7%		46.0%	47.4%	46.3%	33.5%	43.0%	

Do you have a personal development plan (PDP) that has been updated and reviewed in the last year? In total 272 respondents (37.2%) reported they had an updated and reviewed PDP in the past year. There was evidence that the Trust where the respondent work (χ^2 38.239, df,4 p=.000), occupational group (χ^2 27.159, df,6 p=.000) and NHS tenure (χ^2 16.814, df,4 p=.000) influenced whether respondents received an updated PDP. Respondents from Trust 5 (56.6%) were more likely to have reviewed and

updated PDP than those in Trust 2 (26%) and Trust 3 (27%). Ancillary staff (4.9%) were least likely, and managers most likely (46.5%) to have an reviewed and updated PDP. Perhaps surprisingly, updated PDPs were least likely to be reported by new recruits (23.9%), indeed frequency of PDPs increased proportionally with NHS tenure (45.5% of respondents employed with over 16 years experience reported having an updated PDP).

	Trust 1		Trust 2	Trust 3	Trust 4	Trust 5	Total	
Yes	51		33	34	77	77	272	
	31.9%		26.0%	27.0%	42.1%	56.6%	37.2%	
No	109		94	92	106	59	460	
	68.1%		74.0%	73.0%	57.9%	43.4%	62.8%	
	Nurse	Doctor	A&C	Manager	PAMs	Prof & Tech	Ancillary	Total
Yes	148	16	31	20	40	15	2	272
	42.4%	36.4%	29.0%	46.5%	37.7%	35.7%	4.9%	37.2%
No	201	28	76	23	66	27	39	460
	57.59	63.64	71.03	53.49	62.26	64.29	95.12	62.8%
	Tenure 1		Tenure 2	Tenure 3	Tenure 4	Tenure 5	Total	
Yes	16		38	50	47	121	272	
	23.9%		30.6%	32.5%	38.8%	45.5%	37.2%	
No	51		86	104	74	145	460	
	76.1%		69.4%	67.5%	61.2%	54.5%	62.8%	

In the last year have you attended a formal training session? In total 524 respondents (71.6%) reported they had attended a formal training course in the past year. There was no evidence that participation in formal training was influenced by the Trust where the respondent worked (χ^2 5.303, df,4 p=.258), or NHS tenure (χ^2 1.155, df,4 p=.885). However, occupational grouping had an effect on training participation rates (χ^2 31.023, df,6 p=.000), where nurses (78.8%) were more likely to have participated in formal training than doctors (45.5%).

	Trust 1		Trust 2	Trust 3		Trust 4	Trust 5	Total
Yes	107		86	95		139	97	524
	66.9%		67.7%	75.4%		76.0%	71.3%	71.6%
No	53		41	31		44	39	208
	33.1%		32.3%	24.6%		24.0%	28.7%	28.4%
	Nurse	Doctor	A&C	Manager	PAMs	Prof & Tech	Ancillary	Total
Yes	275	20	69	33	67	29	31	524
	78.8%	45.4%	64.4%	76.7%	63.2%	69.1%	75.6%	71.6%
No	74	24	38	10	39	13	10	208
	21.25	54.6	35.5%	23.3%	36.8%	30.9%	24.4%	28.4%
	Tenure 1		Tenure 2	Tenure 3		Tenure 4	Tenure 5	Total
Yes	50		88	106		86	194	524
	74.6%		71.0%	68.8%		71.1%	72.9%	71.6%
No	17		36	48		35	72	208
	25.4%		29.0%	31.2%		28.9%	27.1%	28.4%

In the last year have you undertaken a formal qualification i.e. degree or NVQ? In total 185 respondents (25.3%) reported they had undertaken a formal qualification in the past year. There was no evidence to suggest participation in formal qualification was influenced by the Trust where the respondent work (χ^2 5.047, df,4 p=.283), or NHS tenure (χ^2 4.075, df,4 p=.393). However, occupational grouping did have an effect upon participation rates on development courses (χ^2 45.620, df 6 p=.000), where nurses (35.8%) were most likely to have undertaken a formal qualification then ancillary staff (4.9%)

	Trust 1	Trust 2	Trust 3	Trust 4	Trust 5	Total
Yes	35 21.9%	35 27.6%	26 20.6%	47 25.7%	42 30.9%	185 25.3%
No	125 78.1%	92 72.4%	100 79.4%	136 74.3%	94 69.15	547 74.7%

	Nurse	Doctor	A&C	Manager	PAMs	Prof & Tech	Ancillary	Total
Yes	125 35.8%	8 18.2%	13 12.1%	11 25.6%	17 16.0%	9 21.4%	2 4.9%	185 25.3%
No	224 64.2%	36 81.8%	94 87.8%	32 74.4%	89 84.0%	33 78.6%	39 95.1%	547 74.7%

	Tenure 1	Tenure 2	Tenure 3	Tenure 4	Tenure 5	Total
Yes	20 29.8%	38 30.7%	39 25.3%	29 24.0%	59 22.2%	185 25.27
No	47 70.2%	86 69.3%	115 74.7%	92 76.0%	207 77.8%	547 74.73

In the last year have you conducted self-directed work-related learning? In total 508 respondents (69.4%) reported they had conducted self-directed learning (such as study level) in the past year. There was no evidence to suggest self-directed learning was influenced by the Trust where the respondent work (χ^2 3.841, df, 4 p=.428), or NHS tenure (χ^2 2.358, df,4 p=.670). However, occupational grouping had an effect (χ^2 83.614, df,6 p=.000), where doctors (88.6%) were more likely to have undertaken self-directed learning than ancillary staff (36.6%) – this may reflect the professional self-regulation of doctors.

	Trust 1	Trust 2	Trust 3	Trust 4	Trust 5	Total
Yes	108 67.5%	82 64.6%	95 75.4%	128 69.9%	95 69.8%	508 69.4%
No	52 32.5%	45 35.4%	31 24.6%	55 30.1%	41 30.2%	224 30.6%

	Nurse	Doctor	A&C	Manager	PAMs	Prof & Tech	Ancillary	Total
Yes	271 77.7%	39 88.6%	44 41.1%	30 69.8%	82 77.4%	27 64.3%	15 36.6%	508 69.4%
No	78 22.3%	5 11.4%	63 58.9%	13 30.2%	24 22.6%	15 35.7%	26 63.4%	224 30.6%

	Tenure 1	Tenure 2	Tenure 3	Tenure 4	Tenure 5	Total
Yes	44 65.7%	90 72.6%	106 68.8%	79 65.3%	189 71.1%	508 69.4%
No	23 34.3%	34 27.4%	48 31.2	42 34.7%	77 28.9%	224 30.6%

In the last year have you received coaching on-the-job from work colleagues or your supervisor? In total 430 respondents (58.7%) reported they had received coaching on-the-job in the past year. There was no evidence that on-the-job coaching was influenced by the Trust where the respondent work (χ^2 4.555, df,4 p=.336). However, occupational grouping (χ^2 13.975, df,6 p=.030) and NHS tenure (χ^2 58.507, df,6 p=.000) had an effect upon reported coaching on-the job. Nurses (63.6%) and PAMs (62.3%) were more likely to have received on-the-job coaching than managers (39.5%). In addition, new recruits with less than one years experience (91%) were most likely to report receiving on-the-job coaching – there then appears to be a gradual reduction in reported coaching the longer the respondent has be within the NHS (i.e. reported levels of coaching progressively decreased until only 45.9% of respondents with over 16 years experience reported receiving coaching from work colleagues).

	Trust 1	Trust 2	Trust 3	Trust 4	Trust 5	Total
Yes	101 63.1%	70 55.1%	66 52.4%	112 61.2%	81 59.6%	430 58.7%
No	59 36.9	57 44.9%	60 47.6%	71 38.8%	55 40.4%	302 41.3%

	Nurse	Doctor	A&C	Manager	PAMs	Prof & Tech	Ancillary	Total
Yes	222 63.6%	24 54.6%	59 55.1%	17 39.5%	66 62.3%	20 47.6%	22 53.7%	430 58.7%
No	127 36.4%	20 45.4%	48 44.9%	26 60.5%	40 37.7%	22 52.4%	19 46.3%	302 41.3%

	Tenure 1	Tenure 2	Tenure 3	Tenure 4	Tenure 5	Total
Yes	61 91.0%	91 73.4%	88 57.1%	68 56.2%	122 45.9%	430 58.7%
No	6 9.00%	33 26.6%	66 42.9%	53 43.8%	144 54.1%	302 41.3%

In the last year have you had the opportunity to work in a different part of the Trust? In total 130 respondents (17.8%) reported they had had the opportunity to work in a different part of the Trust. This was marginally influenced by the Trust where the respondent worked (χ^2 6.647, df,4 p=.156) and NHS tenure (χ^2 8.630, df,4 p=.070). Respondents from Trust 2, and respondents at the beginning of their NHS careers were more likely to have worked in a different part of the Trust. In addition, occupational

grouping had an effect upon job rotation (χ^2 22.474, df,6 p=.001)., where nurses (24.1%) were more likely to have worked in a different part of the Trust than P&T staff (6.6%).

	Trust 1		Trust 2	Trust 3	Trust 4	Trust 5	Total	
Yes	28		31	16	34	21	130	
	17.5%		24.4%	12.7%	18.6%	15.4%	17.8%	
No	132		96	110	149	115	602	
	82.5%		75.6%	87.3%	81.4%	84.5%	82.2%	
	Nurse	Doctor	A&C	Manager	PAMs	Prof & Tech	Ancillary	Total
Yes	84	8	12	6	7	6	7	130
	24.1%	18.2%	11.2%	14.0%	6.6%	14.3%	17.1%	17.9%
No	265	36	95	37	99	36	34	602
	75.9%	81.8%	88.8%	86.0%	93.4%	85.7%	82.9%	82.2%
	Tenure 1		Tenure 2	Tenure 3	Tenure 4	Tenure 5	Total	
Yes	16		30	28	20	36	130	
	23.9%		24.2%	18.2%	16.5%	13.5%	17.8	
No	51		94	126	101	230	602	
	76.1%		75.8%	81.8%	83.5%	86.5%	82.2%	