

# Positive and Negative Affective Outcomes of Occupational Stress

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Occupational stress is a significant problem throughout the industrialised world. The prevalence of occupational stress is increasing and the negative consequences of stress for individual health and wellbeing are increasing. This attention to the negative aspects of stress is, however, one sided. Stress, if negotiated appropriately, can produce positive responses and outcomes (Nelson & Simmons, 2003). The present research returned to the original stress conceptualisation as proposed by Selye (1976) and addressed the positive affective response to the stress process, 'eustress'.

One hundred and forty four employees from three New Zealand organizations completed a survey that assessed cognitive appraisals and coping processes used to deal with a stressful work-related event. Using structural equation modelling, a model was posited that proposed that appraisal and coping processes would be the precursors of work-related distress and eustress. The precursors of eustress were the appraisal of a demand as a challenge and the use of task-focused coping strategies. Distress was related to threat appraisals and emotion-focused coping strategies. Results suggested that the model fit was reasonable and the hypothesised paths were all statistically significant and in the correct direction. The implications for the management of work-related stress are discussed.

Much research over the last decade has emphasised the negative consequences of excessive work-related demands on an individual's physical and psychological health and wellbeing. While there is as yet no single agreed-upon definition of stress, the present research defines it as a "relationship between the person and the environment that is appraised by the person as taxing...and endangering his or her well-being" (Lazarus & Folkman, 1984, p19). Occupational stress arises from demands experienced in the working environment that affect how one functions at work or outside work.

Past research has predominantly focused on the negative aspects of

stress. This is not surprising given the documented impacts of stress on health, wellbeing and work-related performance. However the positive psychology movement proposes that, instead of focusing on human pathology, research attention should also be directed towards positive health, growth and wellbeing (Seligman & Csikszentmihalyi, 2000). It has been argued that stress is a part of life and cannot be avoided, and that stress can result in beneficial outcomes as well as negative ones (Selye, 1973, 1974). If negotiated appropriately, stress can be energizing, stimulating and growth producing for the individual as abilities are extended and new accomplishments

made (Quick, Nelson, & Quick, 1990). There is increasing interest in the potential for positive outcomes from the stress process including stress-related growth and positive personal changes (Folkman & Moskowitz, 2004; Somerfield & McCrae, 2000). If a stressful situation is resolved successfully then positive, rather than negative, emotions may predominate but there is a need for further to identify the stress-related processes associated with positive and negative emotions (Folkman & Moskowitz, 2004). Good health encompasses more than just avoiding disease: it also involves the attainment of positive wellness, "emotional, intellectual, spiritual, occupational, social and physical" (Nelson & Simmons, 2003, p 98). Acknowledging the positive response to the stress process may impact on how stress in the workplace is managed.

## *Distress and Eustress*

The term 'eustress' was coined by Selye to denote the positive aspects of stress in contrast to 'distress' representing the negative aspects (Selye, 1974). Other influential writers have also suggested that stress is not inherently maladaptive (Hart, 2003; Hart & Cotton, 2002; Karasek, 1979; Lazarus, 1999; Lazarus & Folkman, 1984; Tedeschi & Calhoun, 2004). In the context of the workplace, stressful events can lead to perceptions of positive benefit (Campbell-Quick, Cooper, Nelson, Quick, & Gavin, 2003; Nelson & Simmons, 2003). However although many researchers have investigated distress, eustress has

been neglected until recently. Eustress is defined as a positive psychological response to a stressor as indicated by the presence of positive psychological states. Distress (or 'stress' in keeping with common terminology) is a negative psychological response to a stressor, as indicated by the presence of negative psychological states (Simmons & Nelson, 2001).

Simmons and Nelson (2001) found eustress and distress to be distinguishable by affective state. Hope, meaningfulness and positive affect were significant indicators of eustress (Nelson & Simmons, 2003). Meaningfulness is the extent to which work appears to make sense emotionally and to be worth investing effort in. Hope is the belief that one has both the will and the way to succeed. State positive affect reflects a condition of pleasurable engagement, energy and enthusiasm. Eustress was also associated with task engagement or absorption (Campbell-Quick et al., 2003; Rose, 1987). Task engagement denotes being "enthusiastically involved in and pleasurably occupied by the demands of the work at hand" (Nelson & Simmons, 2003, p. 103). This is similar to the concept of flow (Campbell-Quick et al., 2003) in which people are so actively involved in the task that nothing else seems to matter (Csikszentmihalyi, 1990). Distress on the other hand is indicated by negative work attitudes and psychological states such as negative affect, anger, job alienation and frustration (Simmons, Nelson, & Neal, 2001). Eustress is similar to the concept of morale defined as "the energy, enthusiasm, team spirit and pride that employees experience as a result of their work" (Hart & Cotton, 2002, p. 102). Distress and eustress/morale are not mutually exclusive: they can occur simultaneously in response to the same demand and are likely to result from different processes (Hart, 2003; Hart & Cotton, 2002).

### *The stress process*

There is at least some consensus that stress should be seen as a process or interaction between demands and the individual's ability to deal with them (Sulsky & Smith, 2005). One conceptualization of this process is the cognitive-transactional model (Lazarus, 1966). The focus of this model is on

individual and situational factors that interact with the appraisal of demands to produce outcomes (McGowan, 2004; Sulsky & Smith, 2005).

### *Antecedents to Eustress*

The transactional model considers stress to be a process involving appraisals of threat or challenge (primary appraisal), coping (secondary appraisal) and reappraisal.

Primary appraisal involves a decision as to whether a demand (potential stressor) is both relevant and stressful in that it is seen to represent a potential threat to the individual's goals, beliefs or expectations (Lazarus, 1966; Lazarus, 1999). Demands can also be appraised as 'irrelevant' or 'relevant but benign'. A demand appraised as irrelevant or as benign (offering the chance to preserve or enhance wellbeing) does not initiate the stress process as there is no potential threat to overcome (Lazarus, 1999). If a demand is appraised as relevant and stressful then further appraisal takes place. Stressful appraisals include an appraisal of threat or loss, where the individual perceives the demand as exceeding the resources available to cope with it; but also of challenge, when resources are high relative to the demand and there is potential for mastery and personal growth (Lazarus & Folkman, 1984). Threat and challenge appraisals represent distinct constructs and are associated with different patterns of physiological arousal (Quigley, Barrett, & Weinstein, 2002; Tomaka, 1993; Tomaka, Blascovich, Kibler, & Ernst, 1997); subjective experience of strain and affect (Maier, Waldstein, & Synowski, 2003), coping expectancies and performance (Boswell, Olson-Buchanan, & LePine, 2004; Skinner & Brewer, 2002). Threat and challenge appraisals represent distinct constructs and can occur simultaneously (Lazarus & Folkman, 1984).

Whether a challenge or threat was initially appraised, in order to reduce the demand some form of coping action is taken (Lazarus & Folkman, 1984). Coping responses are influenced by initial appraisals. Challenge appraisals have been associated with more use of problem-focused coping (Bjorck & Cohen, 1993; McCrae, 1984) while threat appraisals were linked to more emotion-focused coping (McCrae,

1984). While some coping research has linked emotion focussed coping with an increase in distress, the effectiveness of any particular coping strategy depends on its appropriateness (Folkman & Moskowitz, 2004; Lazarus & Folkman, 1984).

**Hypothesis 1:** Challenge appraisals will be positively associated with task-focused coping.

**Hypothesis 2:** Threat appraisals will be positively associated with emotion-focused coping.

Research has predominantly focussed on negative outcomes and has only recently acknowledged that positive emotion can arise in stressful situations as a result of effective coping. Coping responses such as relaxation, direct action/ task focussed coping and positive reappraisal can lead to the experience of increased positive affect while inappropriate or maladaptive coping responses may lead to negative affective reactions (Folkman & Moskowitz, 2004). Eustress is not simply the result of a positive experience with positive events. It arises from effective negotiation of the stress process rather than a process of passive savouring (Simmons, Nelson, & Quick, 2003).

**Hypothesis 3:** Eustress will be positively associated with task-focused coping.

**Hypothesis 4:** Distress will be positively associated with emotion-focused coping.

### *Outcomes of Eustress*

Eustress has been shown to have a positive impact on subjective as well as objective performance (Skinner & Brewer, 2002; Tomaka, 1993), possibly as a result of the increased motivation provided by task engagement.

**Hypothesis 5:** Eustress will be positively associated with satisfaction with the outcomes of the stress process.

**Hypothesis 6:** Distress will be negatively associated with satisfaction with the outcomes of the stress process.

Over the long term eustress may result in positive changes in wellbeing, growth, flexibility, adaptability and performance (Quick et al., 1990), while distress may give rise to the stress outcomes commonly discussed in everyday language, for example

the negative effects on physical and psychological wellbeing. Simmons and Nelson (2001) found that eustress was related to positive perceptions of health among nurses. Edwards and Cooper (1988), in a review of research on the effects of positive psychological states on health, found that positive psychological states produced an improvement in health both directly through physiological processes and indirectly by facilitating coping with stress (Edwards & Cooper, 1988). Although long-term outcomes are beyond the scope of the present study, an increase in motivation, work performance and positive work-related affective states may also increase long-term job satisfaction.

## Method

Three New Zealand organizations participated in the study. These were a public sector organization where fulltime administrative, clerical and management roles predominated; a retail business with part-time and full-time roles and a University department including fulltime teaching, research and administrative roles. Response rates for the three organizations were 52% (85 responses), 44% (26 responses) and 34% (33 responses) respectively.

Participants were 74 males (51%) and 67 females (47%). Ages ranged from 18 (11%) less than 21 years, 50 (35%) between 21 and 36 years, 54 (38%) between 37 and 55 years, and 21 (25%) above 55 years in age. Three respondents did not indicate age or gender. The mean time respondents had spent within their current organization was six and a half years ( $SD = 7.32$ ). There were significant differences between the three organizations only on tenure ( $F(2,132) = 15.62, p < 0.001$ ); the youngest organization also had the youngest staff. However as demographic differences were not hypothesised to affect appraisal processes data from the three organizations was combined.

## Measures

Before answering the questions on appraisals and coping, participants were asked to identify one specific stressful event they had recently experienced at work and to answer the questions in relation to that event.

Primary appraisals were assessed by the eight-item Cognitive Appraisal Scale (CAS; Skinner & Brewer, 2002). Four questions each related to threat and challenge appraisals. Question two was reworded to relate to a work setting ('grade' changed to 'outcome') and all questions were given in the past tense to indicate an event that had already been encountered. Although the CAS assesses both frequency and intensity for each item, no difference in responses were found between frequency and intensity measures (Skinner & Brewer, 2002) and so were replaced by a six-point scale where 1 = 'strongly disagree' and 6 = 'strongly agree'.

Questionnaire (WCQ) assessed coping strategies used by participants to manage their stressor event (Folkman & Lazarus, 1988). The measure assesses actual coping (as opposed to trait coping) by focussing on how the recently experienced event was negotiated. The 66 items of this scale assess eight forms of coping: planful problem solving, positive reappraisal, seeking social support, confrontive coping, escape-avoidance, distancing, self-controlling and accepting responsibility. Coping data were recoded into task-focused and emotion-focused coping as reported below.

The Job Related Affective Wellbeing Scale (JAWS) was used to assess participants' emotional reactions to their work (van Katwyk, Fox, Spector, & Kelloway, 2000). Participants were asked to rate on a scale of 1 to 5 the degree to which they had experienced 30 different emotions over the past 30 days. As the scale focused on recent emotional experience, it tapped state affect and is a valid representative of *immediate* stress process responses. The emotional responses covered two dimensions: positive/negative affect and arousal. This provided four quadrants: negative affect/low arousal (e.g. "My job made me feel bored"), negative affect/high arousal (e.g. "My job made me feel anxious"), positive affect/low arousal (e.g. "my job made me feel calm"), and positive affect/high arousal (e.g. "my job made me feel enthusiastic"). Skinner and Brewer (2002) found an association between threat appraisal and negative active

affect (e.g. anxiety) but not negative deactivated affect (e.g. boredom) and between challenge appraisals and positive-active affect (e.g. excitement) but not positive deactivated affect (e.g. calm). Emotions should be considered in terms of both valence and level of activation (Skinner & Brewer, 2002). High-activation affective responses are consistent with the meaning of threat and challenge, or the need to act to avoid failure and its negative consequences on one hand or to achieve success and its benefits on the other. For the present research eustress was conceptualised as the 'positive affect/high arousal' quadrant and distress was conceptualised as the 'negative affect/high arousal' quadrant of the JAWS.

The outcome measure for this study was a single item that asked respondents to rate their level of agreement with the statement 'I felt positive about the outcomes of the situation'. Responses were coded so that 1 = 'strongly disagree' and 6 = 'strongly agree'. The limitations of this measure were recognised and addressed as far as possible during the data analysis. Performance and other outcome data were not available for this study. To correct for the unreliability of the single outcome indicator the error term was fixed at a specific value (Bollen, 1989). The fixed value was determined by multiplying the proportion of error variance ( $1 - r^2$ ) of the indicator by the variance of the indicator, where  $r^2 = .80$ .

## Statistical Analyses

A two stage approach was adopted for the data analysis using confirmatory factor analysis (CFA) and structural equation modelling (SEM; see Anderson & Gerbing, 1988; Schumacker & Lomax, 1996). Stage one involved the building of measurement models for each of the measures used in this study. The rationale for building measurement models is that it allows for the best indicators of a construct to be identified and thus provides evidence for validity of the measure. Given the current sample size it was decided that for the final structural model at least four items for each construct would be used. In essence, this not only increased the subject-variable ratio but also served to identify the most unidimensional

set of items to specify a construct. Unidimensionality is an important aspect when exploring structural relationship between various constructs as clear unambiguous measures allow for better predictive validity (Anderson & Gerbing, 1988; Schumacker & Lomax, 1996).

For the CAS a two factor model, challenge and threat, was tested with the final model being specified with the strongest loadings in each subscale. For the JAWS only two factors were tested, high-pleasure high-arousal, and low-pleasure high-arousal, again using the best indicators for these hypothesized constructs.

For the WCQ a second order measurement model was tested with eight factors: planful problem solving (PPS), positive reappraisal (PR), seeking social support (SS) self-controlling (SC), confrontive coping (C), distancing (D), accepting responsibility (AR) and escape avoidance (EA). The four best fitting items were used to specify each factor (Anderson & Gerbing, 1988). For the full structural model two higher-order factors (task-focused and emotion-focused coping) were specified using subscale scores as observed indicators. Task-focused coping strategies were planful problem solving, positive reappraisal, seeking

social support and self-controlling. Emotion-focused coping strategies were confrontive coping, distancing, accepting responsibility and escape avoidance.

Having identified the measurement models for each factor a structural model was specified using the hypotheses stated above (see Figure 1).

**Model Fit**

For all CFA and SEMs both absolute and incremental goodness-of-fit indexes were used. Absolute fit was assessed using the chi-square statistic. Incremental goodness-of-fit measures were the comparative fit index (CFI; Bentler, 1992), Tucker-Lewis index (TLI) and the root mean square error of approximation (RMSEA; Steiger & Lind, 1980). The CFI and TLI indexes have coefficient values ranging from zero to 1.00, with values of .90 and higher being traditionally viewed as representing good fit (Bentler, 1992). Fit values for the RMSEA suggest adequate fit where values fall between .08 and .10 and acceptable fit where RMSEAs are below .08 (Byrne, 2001; MacCallum, Browne, & Sugawara, 1996); Hu and Bentler (1999) suggest that a RMSEA less than or equal to .06 indicates good model fit (Hu & Bentler, 1999).

**Results**

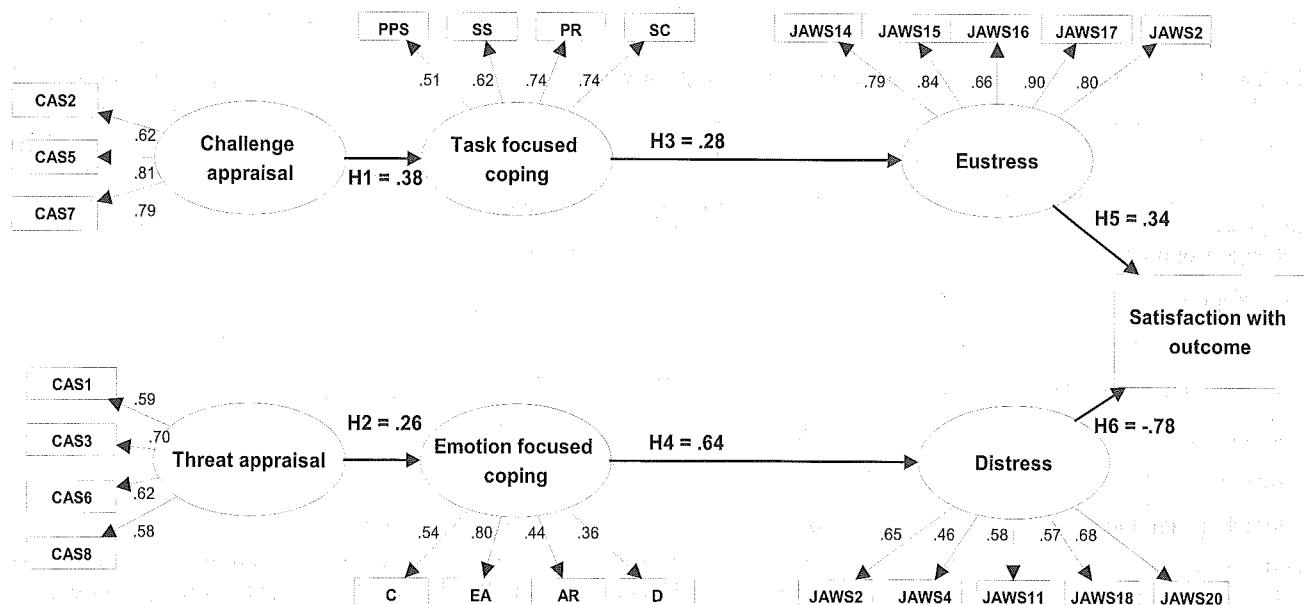
The results for the measurement models are presented in Table 1. For the CAS the model fit was good and suggested a reasonable approximation to the data. The reliabilities were .78 and .72 for the challenge and the threat scales respectively.

For the WCQ model fit was again reasonable. For each of the lower order factors the reliability estimates were: planful problem solving = .66, social support = .66, positive reappraisal = .79 self-controlling = .63, confrontive coping = .69; escape-avoidance = .77, accepting responsibility = .60, and distancing = .56. For the higher order factors, task-focused and emotion-focused coping, the reliability estimates were .74 and .65 respectively.

Results for the JAWS again suggested that the specified two factors were reasonably approximated with reliability estimates of .90 for the positive affect high-arousal (eustress) and .81 for negative affect high-arousal (distress).

Correlations, means and standard deviations are presented in Table 2. As expected, challenge appraisal was associated positively with task-focused coping, with eustress and with subjective performance. Although threat

Figure 1. Full structural model



( $\chi^2 = 734.1$ ;  $DF = 294$ ;  $TLI = .92$ ;  $CFI = .93$ ;  $RMSEA = .10$ )

appraisal was positively associated with emotion-focused coping it was not associated with distress or subjective performance. Task-focused coping was associated with emotion-focused coping, suggesting that respondents who used more task-focused strategies also used more emotion-focused strategies. Emotion-focused coping was positively associated with distress and negatively associated with subjective performance. Eustress and distress were, respectively, positively and negatively associated with subjective performance.

All results for the final structural model were standardized. For the final model the goodness-of-fit was reasonable ( $\chi^2 = 734.1$ ;  $df = 294$ ;  $TLI = .92$ ;  $CFI = .93$ ;  $RMSEA = .10$ ).

All specified paths in the model were statistically significant and in the hypothesized direction (see Figure 1).

Hypotheses 1 and 2, that challenge appraisals would be associated with task-focused coping and threat appraisals would be associated with emotion-focused coping, were supported. Hypotheses 3 and 4 that linked eustress and distress to task and emotion-focused coping respectively were also supported. With regard to subjective perceptions of performance in the stress situation, hypotheses 5 and 6 were supported. Eustress was positively associated and distress was negatively associated with subjective

Table 1. Fit indices for the measurement models

Measure	df	$\chi^2$	p	TLI	CFI	RMSEA
CAS	13	19	>0.11	.99	.99	.06
WCQ	456	761	< .001	.92	.93	.07
JAWS	34	76	< .001	.98	.99	.09

performance. Overall the results support the hypothesised model.

### Discussion

The aim of this study was to investigate the antecedents and outcomes of the stress process and to include positive (eustress) and negative (distress) affective outcomes. The research showed support for the hypothesised structural model. The relationships between primary appraisal and coping support one of the key propositions of the cognitive-appraisal model of stress: the choice of coping strategy is affected by appraisals as to whether a demand represents a threat or a challenge.

Previous research has found threat appraisals to be associated with greater use of emotion-focused coping (Lowe & Bennett, 2003) and this was supported by the present study. Emotion-focused coping was in turn associated with distress and dissatisfaction with outcomes. Challenge appraisals were not related to emotion-focused coping but were related to greater use of task-focused coping strategies. The

implications of these findings for stress management in organisations are considered below.

As predicted, challenge appraisals were associated with eustress and perceptions that the stress processes had been effectively managed. The choice of coping strategies was also an important influence on affective outcomes: task-focused strategies which focused on addressing the demand were associated with eustress while emotion-focused strategies which failed to address the demand were associated with distress. This suggests that, as proposed by Lazarus and Folkman, when people face a demand it is not the demand in itself but the ways in which the demand is managed that impact upon outcomes.

### Implications for research

The outcome measure in this study was limited to self-reported satisfaction with the outcome of the stress process. Further investigation should examine a broader range of outcomes including objective measures of performance and long term variables including physical

Table 2. Means, standard deviations and correlations for study variables

	Challenge Appraisal	Threat Appraisal	Task-focused Coping	Emotion-focused Coping	Eustress	Distress	Satisfaction with outcome
Challenge Appraisal	-						
Threat Appraisal	-.02	-					
Task-focused Coping	.36**	.17	-				
Emotion-focused Coping	.06	.26**	.47**	-			
Eustress	.25**	.08	.37**	-.03	-		
Distress	-.02	.10	.09	.53**	-.13	-	
Satisfaction with outcome	.24**	.09	.32**	-.25**	.25**	-.34**	-
Mean	3.12	3.60	16.60	25.70	33.45	33.37	3.93
(SD)	(1.32)	(1.19)	(6.84)	(12.49)	(7.66)	(11.76)	(1.65)

\*\* Correlation is significant at the 0.01 level.

\* Correlation is significant at the 0.05 level.

and psychological health, both of which have been shown to be affected by work-related stressors. Further research is also needed to address several other issues including the precursors to threat and challenge appraisals and mediators of the stress process.

Arrange of factors may affect primary and secondary appraisal processes. Individual difference variables such as anxiety (Skinner & Brewer, 2002), personality (Penley & Tomaka, 2002) and optimism/pessimism (Rioli & Savicki, 2003) have been linked to differences in appraisals, coping and outcomes. Organisational and situational variables such as managerial style and support, work control, organizational culture and employment stability are also likely to impact upon the stress process. Further research into these factors is important to help build effective strategies for managing workplace demands.

#### Implications for practice

Work-related stress is a major problem with serious implications for health and wellbeing but managing it is far from straightforward. This may account for the documented ineffectiveness of stress management interventions (Beehr & O'Driscoll, 2002; Sulsky & Smith, 2005). In managing the 'stressors' at work, it is important to identify, assess and control stressors, but also to avoid removing the rewarding aspects of the job. Distress is not the inevitable consequence of occupational stressors: when demands are managed appropriately growth and positive change can occur as challenges are faced and overcome. Although distress has become a major concern, it is often not feasible to remove all stressors from work and this may not in fact be desirable. Recognition of the potential for positive outcomes of the stress process raises the possibility of identifying ways to increase the task-focused management of work-related demands to increase enjoyment, satisfaction and performance. The challenge lies with providing the tools required to increase the effective management of workplace demands.

Any suggestion that cognitive-appraisal models of stress imply that stress is an 'individual' problem, best addressed by teaching positive appraisal and coping, is flawed. Primary appraisal includes a subjective assessment of the

balance between demands and resources. Increasing resources or reducing demands is more appropriate and more consistent with legal requirements than attempting to retrain individuals to appraise demands positively, and training in effective coping has been shown to have only limited impact (Folkman & Lazarus, 1988). Coping strategies are rarely used singly, and no one strategy or combination of strategies is always effective. The ability to use a repertoire of coping strategies flexibly is important. One component of stress management could be to encourage the use of task-focused and flexible coping behaviour and to promote learning that can be generalised to new situations, but stress management begins with consideration of organisational issues. Leadership, peer support, organisational culture and policies, work design and reporting arrangements are important as are job analysis, staff selection and training to enhance role clarity and the fit between the person and the work environment. Effective systems for motivation and performance management are essential.

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