Understanding accountability as a feature of organisational culture that links to individual health and safety in the Australian mining industry.

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Abstract

This paper explores accountability as an important feature of organisational culture in a health and safety context. A framework for understanding accountability was developed from existing research. Results are reported from an application of this framework in three survey based studies of Australian mining employees. The results indicated that accountability was associated with positive psychological wellbeing, personal agency, safety empowerment, adopting preventative strategies to cope with fatigue, and positive perceptions of safety culture. The key drivers of accountability were absolute clarity of expectations and provision of feedback that guides employees to meet those expectations. The results are discussed in terms of the implications for health and safety in the mining industry.

Introduction

The previous decade has seen a stronger interest in the human factors that influence safety performance in the mining industry. Research has identified a range of human factors from aspects of both individual functioning (Hansen, 1989; Reason, 1990; Sutherland & Copper, 1991) and group functioning (Clarke, 2006; Hofmann & Stetzner, 1996) linked to outcomes representative of safety performance. The present study continues the exploration of group influences on individual behavior with a specific focus on the extent to which accountability as a feature of organisational culture is linked to individual health and safety outcomes in the mining industry.

Numerous studies have shown broad links between aspects of organisational culture and outcomes (Shein, 2004; Taras, Kirkman & Steel, 2010). For example, the safety culture of an organisation has been linked to a range of safety outcome variables, including accidents and injuries (Christian et al., 2009; Clarke, 2006; Smith, Garrett, & Calvert, 1996). A fundamental feature of organisational culture and functioning is accountability. This is because any social system demands some level of agreement about expectations and rules that guide behavior (Frink & Klimoski, 2004).

Surprisingly only a handful of studies have measured accountability as a feature of organisational culture and examined its links to outcomes (Hall, et al., 2003; Riketta, & Landerer, 2002; Thoms, Dose & Scott, 2002). No studies have focused specifically on

accountability and safety outcomes. This is despite incident reports that frequently cite failure to follow instructions as a behavioral contribution to accidents and injuries (Laurence, 2005).

The present paper reports on a project that developed an understanding of accountability as an aspect of organisational culture from existing research. Secondly, the paper presents some of the results of an application of this understanding to the important links with employee health and safety in the Australian mining industry.

A Framework for Understanding Accountability
An examination of the existing research and literature identified four key conditions that were consistently argued to affect employee perceptions of accountability. These related to expectations, feedback, integrity and the perceived importance, or salience, of the work. The four dimensional model of accountability is shown below in Figure 1.

Expectations. The core of accountability involves an evaluation of whether expectations are met (Frink, 2004; Hall et al., 2003; Lerner & Tetock, 1999; Tetlock, 1992). There is a strong argument that the clarity of expectations is one of the most critical aspects of accountability (Tetlcok, 1992; Schlenker et al., 1994; Hall et al., 2003; Thoms et al., 2002). The logic behind the argument is that employees cannot be held accountable for expectations they are unaware of or don't understand. Also, employees cannot argue ignorance if expectations are made absolutely clear to them.

Another important consideration relates to how appropriate expectations are to the role of the employee. If expectations are inappropriate employees may not possess the resources to achieve them and they are less likely to be met. In addition, expectations must be achievable. If expectations are perceived as unachievable employees are unlikely to invest the effort required to meet them.

Implied in this understanding of expectations is that unclear, inappropriate or unachievable expectations can lead to negative perceptions of accountability. For example, research has shown that stress results when expectations are vague or manipulated by others for self-gain (Cropanzano & Li, 2006; Jackson & Sheuler, 1985; cited in Breaux, 2009).

Feedback. Frink (2004) argues that in order for accountability to influence individual behavior, there must be feedback system (see also Hall et al., 2006). According to these researchers feedback serves two primary functions. Appropriately used, feedback (a) provides positive and negative reinforcement to shape behavior in the desired direction, and (b) it encourages learning and understanding. The complexity of expectations in dynamic modern organizations gives added significance to the role of feedback in deepening and bringing clarity to understanding of the match between expectations and individual performance.

Research has shown that performance based feedback and rewards enhance individual performance and motivation and align employee behavior with organisational goals

(Locke & Latham, 1990; Podsakoff et al., 2006). It seems that it is critical that feedback is both consistent and fair (Podsakoff et al., 2006; Sparr & Sonnetag, 2008). Because feedback is usually delivered by leaders it is also important to note that the effectiveness of feedback is often mediated by the quality of the employee/leader relationship (Anseel, 2007).

Integrity. At an individual level, integrity might mean that an individual does what he or she says they will do. At an organisational level, integrity refers to the extent to which real consequence follow failure to meet expectations. This aspect of accountability extends beyond punishment, negative feedback or formal disciplinary procedures and speaks to a sense of consistency, fairness and ultimately the integrity of leadership.

Integrity requires fairness and consistency between words and actions (Palanski & Yammarino, 2009). The importance of perceptions of organisational fairness and consistency to individual attitudes and behaviors is well known (Colquitt et al., 2001) and research has consistently shown that leadership integrity is critical to effective leadership (see Palanski & Yammarino, 2009). Put simply, if employees perceive a failure of leaders to follow through with consequences they are less likely to ensure their own behavior is consistent with organisational expectations (Dineen, Lewicki, & Tomlinson, 2006; Simons, 2002).

Salience. Traditional job design literature describes salience as the degree to which employees feel that their work contributes to the organisation in important ways or impacts others (Hackman & Oldham, 1976). It presents salience as a key motivator of performance. More recently the importance of salience in determining priorities has been highlighted (Hall et al., 2007). In the context of accountability, salience refers to the organisational reality that expectations exist on a continuum of importance, with the most important expectations more likely to be met.

Figure 1. Four dimensional model of accountability.

Method

The model of accountability presented above was used to develop an empirical measure of employee accountability that was included in three surveys of Australian coal mining employees. Study 1 gathered data from 2,594 employees across all levels of a single organisation with multiple operations. Study 2 involved gathering data from a Queensland open-cut operation (N = 152) and Study 3 data was collected from a NSW underground mine (N = 166).

Analysis of the survey data allowed the examination of accountability in relation to several important health and safety measures. These measures included:
- Safety culture (31 items) e.g. "I would recommend my workplace as a safe place to work" (see Smith, Garret & Calvert, 2006)
- Work stress (4 items) e.g. "You find your job stressful"
- Personal sense of agency for safety (3 items) e.g. "If I'm safe at work it's because I make sure of it" (see Strahan, 2003)
- Safety empowerment (3 items) e.g. "I can't do anything to change procedures at my place of work" (see Strahan, 2003)
- Preventative coping with fatigue (single paragraph statement) "I make sure I get enough sleep. I limit alcohol and socialising on work-days, and make sure I take time to relax properly on days off. Basically, I plan and organise my time carefully so I don't get too tired when I'm at work" (see Strahan, 2003)
- Psychological well-being (20 items; Centre for Epidemiological Studies - Depression Scale) e.g. "I felt that I was just as good as other people" (see Radloff, 1977).

Measures were scored on 5–point likert scales ranging from "disagree" to "agree", except for the preventative coping statement which was scored on a 7-point scale ranging from "not at all like me" to "exactly like me" and the wellbeing scale which was scored on a 4-point scale ranging from "rarely/none of the time" to "most or all of the time". Safety culture was measured as a total score and also broken down into five-components; safety leadership, safety communication, safety change-readiness, safety management, and safety performance (see Smith et al., 2006). For all measures higher scores represented higher levels of that variable, for example higher stress scores represented higher levels of stress, while higher safety leadership scores represented more positive perceptions of safety leadership.

Results

The first study focused on accountability in the context of organisational safety culture and work stress. The results are presented in Table 1 below. Accountability correlated with overall ratings of safety culture at r = .59, suggesting that employees who perceived strong accountability in the organisation also felt that the safety culture of the organisation was positive. In terms of the components of culture, there was little variability, with correlations ranging from r = .48 to .54. Accountability also correlated negatively with reports of work stress at r = -.36, suggesting higher levels of accountability is associated with lower work-related stress.

Table 1.
Correlations between accountability and health and safety variables.

Health/Safety Variable	Accountability		
	Study 1	Study 2	Study 3
Safety Culture	.59**		
- Safety Leadership	.53**		
- Safety Communication	.54**		
- Safety Change Readiness	.48**		
- Safety Management	.51**		
- Safety Performance	.52**		
Work Stress	-.36**		
Personal Agency		.27**	.07
Safety Empowerment		.38**	.45**
Preventative Coping with Fatigue		.14	.22**
Psychological Well-being		-.35**	-.26**

Note. * p < .05, ** p < .01.

Studies 2 and 3 explored the relationships between perceptions of organisational accountability and employee reports of their sense of personal agency relating to safety, their sense of empowerment at work, the extent to which they used preventative strategies for coping with fatigue at work, and their reports of depressive symptoms. Higher levels of accountability were associated with a stronger sense of personal agency in relation to personal safety outcomes(r = .27) in Study 2, but not Study 3. Accountability was also associated with lower levels of depressive symptoms (r = -.35 and r = -.26) and higher levels of empowerment or influence over safety (r = .38 and r = .45), in both studies. In Study 2 accountability was also associated with reports of using preventative strategies for coping with fatigue e.g. planning sleep (r = .22).

Together the results suggest that accountability as an aspect of organisational culture is associated with employee psychological wellbeing both at work and more generally, an increased sense of personal empowerment and control over safety, and also with more proactive strategies in relation to coping with the demands of shift work.

Components of accountability.
The results above established links between accountability and several health and safety variables, but because accountability is a multi-dimensional construct it was thought useful to conduct a more detailed examination of the links between the components of accountability and health and safety. The individual components of accountability were examined in terms of their relationships with the health and safety variables (Table 2).

The results identified expectations that are clear, appropriate to the role and achievable, and performance feedback as the components of accountability most strongly linked to the health and safety variables included in this research. It is worth noting that there was some variation in the relationships between variables in the Study 2 and Study 3 data. For example, accountability salience was significantly related to personal agency in Study 2 (r = .19, p < .05) but not Study 3 (r = .03).

Table 2.
Correlations between the four components of accountability and health and safety measures.

Accountability Components	Safety Culture	Work Stress	Personal Agency	Safety Empowerment	Preventative Coping	Psychological Well-being
Expectations	.53**	-.43**	.21**/ .16*	.28**/ .34**	.16 / .17*	-.35** / -.23**
Feedback	.52**	-.26**	.19* / .02	.26**/ .33**	.14 / .18*	-.24** / -.15
Integrity	.23**	-.11**	.05 / .04	.24**/ .19*	.04 / .03	-.06 / -.13
Salience	.24**	-.14**	.19* / .03	.10 / .29**	-.02 / .09	-.12 / -.13

Note. * p < .05, ** p < .01. Safety culture and work stress correlations are from Study 1. Remaining results are from Study 2/Study3.

A closer look at accountability.
The total scale measure of accountability provided an overall indication of employee perceptions of accountability and its links with employee health and safety, while the four components offered insight into how specific aspects of accountability related to health and safety measures. Examination of individual items offered even more detailed insight into perceptions of accountability among Australian mining employees. For example, in all three studies approximately one third to one half of employees agreed or slightly agreed with the items "Officially there are consequences for poor performance, but in reality not much happens" and "Discipline is talked about but rarely acted on" (see Figure 2 below).
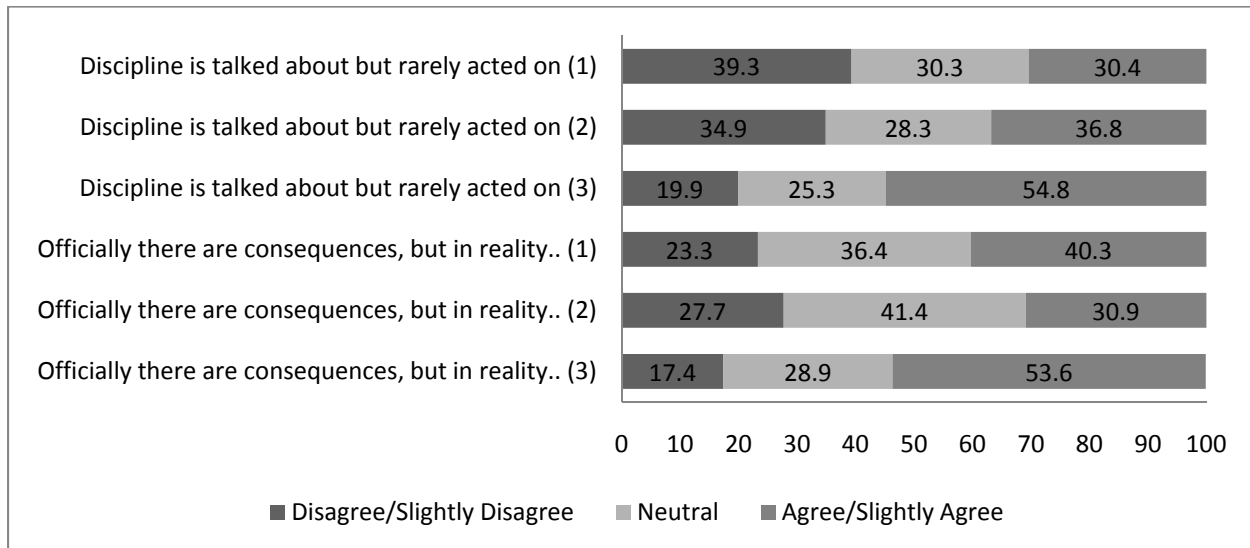

Figure 2. Responses to selected accountability items from the three studies (values represent percentage of each sample).

Discussion

Previous research has not directly examined organisational accountability in a health and safety context. The studies presented in this paper set out to broaden our understanding of accountability using a framework developed from existing research. Taken together the results suggest that accountability, as a feature of organisational culture, shares important links with individual health and safety in the mining industry.

The results demonstrated clear links between accountability and psychological wellbeing. Studies have shown that confusion and ambiguity around role expectations in the work environment is detrimental to the psychological wellbeing of employees (Revicki et al., 1993; Rizzo, House & Lirtzman, 1970). In this context it is not surprising that a culture of accountability that fosters clarity of expectations within a disciplined work environment is associated with less work stress and reports of depressive symptoms.

The links between accountability and safety were particularly meaningful to our understanding of accountability. Perceptions of accountability were closely tied to

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beliefs about the safety culture of the organisation. Part of the reason for this close relationship might be that both accountability and safety culture are aspects of the broader organisational culture and indicate perceptions of overall organisational effectiveness.

Most importantly, accountability was linked to personal agency and empowerment as well as taking preventative measures to cope with fatigue. This suggests that when employees know and understand what is expected of them, and are supported by consistent and fair feedback, they also feel they have greater personal control and influence over their safety. These results begin to shape our understanding of accountability as more than just a broad indicator of organisational culture or a function of compliance, but one that links to individuals sharing in the ownership of safety.

When accountability was considered in terms of its four components the results highlighted the particular importance of clear expectations and regular feedback to individual health and safety. Expectations fundamentally provide direction to employees, while feedback helps to shape and maintain that direction while also enhancing understanding. It is important to recognize that expectations and feedback are not solely driven by formal job descriptions, performance appraisals and SOPs, but involve leaders engaging employees in an ongoing conversation focused on individual progress towards expectations and effective performance.

The importance of leaders to developing a culture of accountability is further highlighted by the responses from 30-50% of the mining employees surveyed that "officially there are consequences for poor performance, but in reality not much happens" and that "discipline is talked about but rarely acted on". It is important to think through what these results might mean for individual behavior and organisational safety performance.

This paper continues in the tradition of the exploration and measurement of factors that impact employee health and safety. The results draw attention to the role of accountability in organisations and how it relates to individual psychological health and perceptions of and ownership over safety, and to the role of leaders in developing a culture of accountability. The next step is the application of this research to the improvement of individual health and safety in the mining industry.

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