Trust and distrust in safety leadership: Mirror reflections?

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ABSTRACT

Although research shows that employees' trust and distrust in management influences their safety behavior, less is known about how these attitudes develop. Based on two-factor models of trust, we hypothesize that distinct trustworthiness qualities precede the development of employees' trust and distrust in their supervisors. Eighty-five UK construction employees responded to a paired comparison test of trustworthiness qualities, which provided 56 and 53 consistent rankings for trust and distrust, respectively. Consistent with our hypotheses, integrity (measured through honesty) was found to be the most important attitude in the development of both trust and distrust, while a reversed ordering of importance emerged for ability (measured through competence) and benevolence (measured through concern) in the development of trust and distrust. In all cases, only a small number of qualities were most important in the development of each attitude. We discuss how safety initiatives that focus on trust might gain by addressing the qualities that we identify.

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1. Introduction

The importance of employees' trust in management for workplace safety has received increasing attention within the literature (Conchie et al., 2006; Conchie and Donald, 2008; Flin and Burns, 2004; Kath et al., 2010; Zacharatos et al., 2005). Studies show that trust in management can increase employees' engagement in safety behaviors (Conchie and Donald, 2009) and reduce rates of accidents (Zacharatos et al., 2005). They also show, conversely, that distrust is negatively related to feelings of personal responsibility for safety (Jeffcott et al., 2006) and is positively related to injury rates (Conchie and Donald, 2006). Such findings suggest that organizations may benefit from developing employees' trust in their management and from reducing employees' feelings of distrust. But what is the most effective way for an organization to achieve this?

Existing research suggests that trust develops from an individual's beliefs about a person's qualities, or more simply, their trustworthiness (e.g., Butler and Cantrell, 1984; Cook and Wall, 1980; Hardin, 2002; Scott, 1980). In a safety context, a number of trustworthiness qualities have been shown to contribute to the development of trust and distrust. For example, Conchie and Donald (2008) have shown that employees' trust in management is related to qualities such as honesty, openness, and concern for others' safety and welfare. However, while such research identifies the types of qualities that are important in the development of trust and distrust, it tells us little about the relative importance of these qualities. Typically, the available research conceptualizes the various antecedent qualities as a single, undifferentiated construct. This makes it impossible to identify the strongest antecedent of trust in management with safety, and impossible to determine whether or not the qualities that are important to the development of trust are also those that are important to the development of distrust.

This study unpacks the question of what qualities promote trust and distrust by identifying the relative importance of different trustworthiness qualities in the development of employees' trust and distrust in their supervisors. We focus on supervisors as the target of 'safety leadership' because this level of leadership has been shown to play a key role in shaping employees' safety behavior (e.g., Conchie and Burns, 2009; Zohar, 2000, 2002). By tackling the question of what promotes trust and distrust, our study also speaks to the question of whether trust and distrust exist as a single construct or as distinct entities (Kramer, 1999). A single construct view sees trust and distrust as existing at opposing ends of a dimension, with the implication that efforts to promote trust will also be effective at reducing distrust. In contrast, the separate construct view sees no direct relationship between trust and distrust, meaning that independent strategies may be needed to target each attitude. In the following sections we outline the role of trust and distrust in workplace safety and proceed to discuss the relative importance of different antecedents in the development of these attitudes. We then test our predictions about antecedents within a survey study of UK construction employees.

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1.1. The impact of trust and distrust on safety

Interpersonal trust, which we define as an individual's willingness to rely on another in a risky situation (Rousseau et al., 1998), has been shown to have a number of positive effects. It promotes employees' safety orientation (Zacharatos et al., 2005), intentions to modify risk-taking behaviors (Conchie and Burns, 2009), engagement in safety citizenship behaviors (Conchie and Donald, 2009), and safety performance rates (Tharaldsen et al., 2010). Part of the success of trust is attributed to the fact that it promotes high quality social exchange relationships where behaviors are based on mutual obligation and reciprocation (Blau, 1964). In these relationships, an employee who trusts their supervisor with safety may experience a sense of obligation to 'repay' their supervisor's positive actions by engaging in discretionary acts that benefit workplace safety (Kath et al., 2010; Zacharatos et al., 2005). Another way that trust may influence employees' safety is by increasing the extent to which they are receptive to a supervisor's influence. For example, Cox et al. (2004) argued that reporting systems require a 'foundation' (or climate) of trust to be effective, which is supported by evidence showing that trust moderates supervisors' impact on employees' behaviors (Conchie and Donald, 2009). Regardless of the mode of influence, these studies suggest that trust positively impacts workplace safety.

In contrast to trust, interpersonal distrust reflects negative expectations about another's conduct (Lewicki et al., 1998). The few studies that have examined distrust in the domain of safety suggest that it plays a largely negative role. For example, in the offshore industry, Fleming and Lardner (2001) implicated a lack of trust in unsuccessful safety initiatives. Similarly, Conchie and Donald (2006) report a positive association between distrust in management and incidents of poor safety. Part of the reason for the negative effects of distrust may relate to its power to promote psychological distress, cognitive strain, and withdrawal from a relationship (Dirks and Ferrin, 2002). Reactions such as these promote employees' hyper-vigilance, reduced concentration on the current task, and increase the risk of accidents. However, although distrust may often have a negative impact on work-based performance, it can play a positive role. For example, the increase in vigilance and wariness created by distrust has been suggested as being essential for a healthy and resilient organization (Barber, 1983; Shapiro, 1987). This positive role is important because it indicates that distrust should not be conceptualized simply as the flip side of trust.

1.2. What determines employee trust and distrust?

There is wide agreement that trust and distrust attitudes develop from beliefs about another person's trustworthiness (Butler, 1991; Butler and Cantrell, 1984; Cook and Wall, 1980), which may be deconstructed into a number of 'forms' of 'qualities' (Butler, 1991). Broadly speaking, these qualities are characterized by three main categories: Ability, which reflects the person's competence to carry out a task; Integrity, which reflects the extent to which the person is honest and open in sharing information; and Benevolence, which reflects the extent to which the person shows concern for another's welfare (Mayer et al., 1995). Interestingly, these same categories capture the trustworthiness antecedents of distrust. For example, studies of betrayal within organizations show that distrust develops when expectations relating to another person's trustworthiness (e.g., their integrity) have been violated (Bies and Tripp, 1996; Robinson, 1996). In line with this, Conchie and Donald (2008) found that safety-specific distrust was linked to acts such as lying and maliciously withholding information, while Burns et al. (2006) used acts indicative of trustworthiness violations as a reliable measure of implicit distrust in their study of safety culture.

Although a number of theoretical frameworks can be used to understand the links between trustworthiness qualities and trust–distrust, one approach that has gained empirical attention is the concept of 'hierarchically restrictive schemas' (Kim et al., 2006). According to Reeder and Brewer (1979), hierarchically restrictive schemas reflect people's assumption that being at the lower end of an attribute continuum will restrict an individual's behavior, while people at the upper extreme of the continuum are not restricted in their behaviors. For example, as Kim et al. (2006) argue, people intuitively believe that those with low competence can only perform at levels commensurate with their low level of competence, while those high in competence are capable of performing at many levels depending on the difficulty of the task and their motivation to perform. Behavior suggesting high competence is thus seen as representative of a person's disposition, while behavior suggesting low competence is not seen as a strong indicator of an actor's disposition (since both those high and low on this attribute can act in this way). Drawing on Kim et al.'s (2006) application of this model to trust violations, this form of inequality or hierarchy among schemas implies three things.

The first thing that hierarchically restrictive schemas imply is that a lack of integrity carries strong diagnostic information about another's trustworthiness. These schemas suggest that a single act of dishonesty is strong evidence that the person lacks integrity, since only people high on this attribute will perform in this way (Kim et al., 2006). However, the reverse may also be true, since being honest about safety may only occur among those high on this attribute. This is particularly true if honest communication receives negative feedback from management (Tucker et al., 2008) or implicates some form of blame or whistle blowing. For these reasons, it is likely that another's level of integrity will be attributed internally to the individual (rather than to some external factor), and consequently it will be important in both trust and distrust development. Colquitt et al.'s (2007) meta-analysis of the trust literature supports this prediction. They found that employees' trust in supervisors was predicted most strongly by employees' beliefs about the supervisor's integrity. In individual populations, this finding has been reported for cadets' trust in their leader (Lapidot et al., 2007), and offshore workers' safety-specific trust in management (Conchie and Donald, 2008). Studies in trust repair have also shown that integrity-based violations result in a greater reduction of trust when compared to ability-based violations (Ferrin et al., 2007; Kim et al., 2006), while Keyton and Smith (2009) found that being closed, inconsistent and disloyal were qualities prominent in the development of distrust.

Hypothesis 1. A leader's level of integrity will rank as most important in the development of both trust and distrust.

A second implication of hierarchically restrictive schemas, which contrasts the previous point on integrity, is that ability plays a major role in trust development but a minor role in distrust development. For example, an act showing a high level of ability would be considered as being a strong indicator of trustworthiness as only people of a certain aptitude can perform at this level (based on the principle that people low on an attribute are restricted in their behaviors). However, a single act of inability is weak evidence that a person is untrustworthy (i.e., incompetent) as both able and less able individuals can make mistakes. Consistent with these arguments, research has shown that ability carries important information for trust development (Madon et al., 1997), presumably because it offers an objective measure of the credentials of the leader and how much they may be relied upon (or trusted at this level). In relation to distrust, however, studies have found that a lack of ability is among the least influential qualities in the development of this attitude (Keyton and Smith, 2009), with some studies finding

no evidence for its importance (Conchie and Donald, 2008). As suggested by Conchie and Donald, a lack of ability might feature little in the development of distrust as these acts may be attributed to external sources, such as being tasked with jobs that the person has not be trained to deal with.

Hypothesis 2. A leader's level of ability will rank among the most important qualities for trust development, and will rank among the least important in the development of distrust.

A third implication of hierarchical restrictive schemas, not discussed by Kim et al. (2006), is that benevolence plays a more important role in the development of distrust than trust. This is owing to the fact that acts indicative of high levels of benevolence may be performed by those both high and low on this attribute (thus weakening its diagnostic value), while acts indicating low benevolence may only be performed by those low on this attribute. For example, Grant and Mayer (2009) showed that helping behaviors in organizations are performed both by those with pro-social motives (concern for others [or benevolent motives]) and those with impression management motives (desire to create a good personal impression [or self-serving motives]). In relation to acts showing low benevolence, studies suggest that these are unlikely among those high on this attribute as their altruistic drive leads them to continue to help others irrespective of cots to themselves (e.g., Barnes et al., 2008).

In line with this third point, Lapidot et al. (2007) suggested that acts of benevolence are less important in trust development as they extend beyond formal role expectations. Fulfilling the role of a leader does not call for the development of a personal attachment with employees, which is something that benevolence (i.e., care and concern) signifies. While acts of benevolence may lead to trust, they are not essential for its development. Support for this proposal comes from a number of theoretical trust models. For example, Lewis and Weigert (1985; see also McAllister, 1995) argue that affect-based trust, as defined by acts of benevolence, stems from a basis of cognition-based trust defined by another's reliability. Lewicki and Bunker (1996) make a similar proposal by suggesting that knowledge-based trust gives rise to identification-based trust in which displays of empathy are central. Moreover, in the few studies on distrust, acts indicative of malevolence feature strongly (Conchie and Donald, 2008).

Hypothesis 3. A leader's level of benevolence will rank among the most important qualities in the development of distrust, and will rank among the least important qualities in the development of trust.

1.3. Current study

The current study was conducted in the construction industry. Latest official statistics show that this sector ranks among the most dangerous in terms of accidents and injuries, both in Europe and Internationally (European Agency for Safety and Health at Work, 2010; US Department of Labor BLS, 2009). In 2009/2010, the UK construction industry had the highest rate of fatal injuries ($N = 42$), followed by agriculture ($N = 38$) and manufacturing ($N = 25$). Construction also had the highest rate of reportable non-fatal injuries at 1300 per 100,000, which is statistically higher than the average across all industries (UK HSE, 2010). Studies suggest that one way to improve safety within this sector, as in others, is through supervisor commitment to safety (e.g., Choudhry and Fang, 2008; Melia et al., 2008). Supervisors have regular contact with employees and in doing so have a direct impact on their

safety behaviors. For this reason, we focus on supervisors as our target of 'safety leadership.'

2. Methods

2.1. Participants

Participants were 85 front-line employees recruited from a single building site in the UK. All employees on site during the time of data collection were asked to participate. To encourage participation, employees were assured that their responses were being recorded anonymously and that they would only be viewed by the research team (i.e., not viewed by the organization or its management). All employees that were approached agreed to participate in the study and completed the task on site and during working hours. The sample comprised males with an average age of 33 years (SD = 10.8; Range 18–66 years). The average working tenure of the sample within the construction industry was 13 years (SD = 11.5; Range 3 months–42 years).

2.2. Materials and procedure

To identify the relative importance of different trustworthiness qualities in trust–distrust development, we used Thurstone's paired comparison method. This method involves comparing a range of items (e.g., trustworthiness qualities) against each other in order to reveal a relative ranking of importance. Specifically, the procedure involves presenting participants with a series of item pairs, from which they then select the item that is 'more' or 'higher' on some judgment criterion (e.g., promoting a higher level of trust). Comparing each quality with all others in this way reveals their relative ordering, and is argued to represent participants' internal representation of some construct. In this case, the relative ordering reflects the importance of different trustworthiness qualities to employees' trust or distrust in safety leadership.

This approach has been used successfully in research on public trust (Weyman et al., 2006) and has the advantage of being simple to administer. Compared to ordinal ranking, paired comparisons do not require participants to simultaneously compare a large number of items, and so avoids problems associated with cognitive overload. Moreover, because paired comparisons force participants to express a preference between the various qualities, the technique avoids problems associated with indistinguishable results (i.e., results that fail to show one quality as being more important than another).

Construction workers were presented with random parings of eight trustworthiness qualities that were framed positively in judgments of trust (e.g., 'Supervisor A is honest about safety') and negatively in judgments of distrust (e.g., 'Supervisor A lies about safety'). These eight trustworthiness qualities were taken from an initial list of 15 qualities drawn from the trust literature (e.g., Clark and Payne, 1997; Mayer et al., 1995). The original 15 qualities were reduced to eight following Weyman et al. (2006) recommendation that a maximum of nine entities (e.g., qualities) can be used in a full design of paired comparisons, due to the fact that additional items increase the number of required comparisons exponentially to beyond what can reasonably be presented to participants. The initial list of 15 qualities was reduced to eight qualities by using a pre-screening. Consistent with Burns et al. (2006), we asked a convenience sample of undergraduate students[1] ($N = 20$) to assign

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[1] Note that the use of students rather than employees does not reduce the validity of the analysis since the exercise is aimed at categorization of trust qualities, not their relationship to employee safety behavior. Considerable research shows that trust is general and does not vary across subpopulations (Dirks and Ferrin, 2002; Hardin, 2002; Mayer et al., 1995).

each quality to the category of 'Ability', 'Integrity', 'Benevolence' or 'Miscellaneous'. We then asked them to state how representative (1: least representative to 10: most representative) they believed the quality was of that category (e.g., "How much do you believe this quality [e.g., competence] indicates this category [e.g., ability]"). To check that participants were completing the task as required, we included twelve core qualities (i.e., care, competent, concern, consistency, experienced, expertise, honest, kind, knowledgeable, moral values, open, and thoughtful) that feature frequently in trustworthiness studies, and three non-core qualities (i.e., ambitious, elaborate and persuasive) that feature in studies of trust more generally. We expected and found that non-core qualities would be assigned to the category of Miscellaneous.

The qualities that were both correctly allocated to their category, and assigned the highest representativeness score, were retained in the main study. The final qualities that were regarded as most representative of Ability were 'Expertise' and 'Competence'; of Integrity were 'Openness', 'Honesty', 'Consistency', and 'Moral values'; and of Benevolence were 'Care' and 'Concern'. In the case of the Integrity qualities, participants regarded the four qualities as equally representative of this category. For this reason we included all four qualities in the main study as it was not possible to differentiate between them at this stage.

Paired comparisons of each trustworthiness quality with all other qualities resulted in a total of 56-paired comparisons for use in the main study with construction workers (28 for trust and 28 for distrust; see Table 1). For each comparison, participants in the main study were asked to circle which supervisor (described as showing one of the eight qualities) they would trust (or distrust) the most with safety. An example of a paired comparison is, 'Supervisor X is *open* about safety' vs. 'Supervisor Y is an *expert* in safety policy and procedures'. The order in which the participants were presented with trust and distrust pairings was counterbalanced across the group. Half of the participants were randomly assigned to the condition in which they received the 28 trust pairings followed by the 28 distrust pairings; the other half were randomly assigned to the condition in which they received the 28 distrust pairings followed by the 28 trust pairings. The order of condition did not influence the results.

3. Results

Prior to the main analysis, data were screened for completeness and Judge Circular Triads (JCT). JCTs are a measure of inconsistent responding that manifest as a circular triad (i.e., A is favored over B, B favored over C, but C favored over A) within the data. Assuming an approximate χ^2 distribution, JCTs indicate the number of inconsistent relationships within the data, and the degree of random

responding. When the number of JCTs exceeds the maximum acceptable for the data, the case is removed.

An inspection of the data identified four cases that were incomplete. These were removed from further analysis. The remaining cases were then screened for JCTs using Kendall's (1955) method.[2] This analysis identified a significant number of JCTs (more than eight JCT in the current data) in 25 participants' trust data, and 28 participants' distrust data. A comparison of the results with these cases removed and these cases included showed no differences in the order given to distrust qualities. However, the order given to the trust qualities differed in the form of reversed positioning for Competence and Care. For this reason, the shortened data set that had the inconsistent triadic relationships omitted was used in the main analyses. This left a final sample of 56 participants in the trust data and 53 participants in the distrust data.

3.1. Hypothesis testing

To identify the relative ordering of qualities in the development of trust and distrust in supervisors, Thurston's Case V approach was used. The Case V approach compares psychological stimuli, such as trust qualities, along a common scale by recognizing that, because responses are normally distributed, the average response is a good representation of where the stimuli falls on the scale relative to other stimuli. To derive the Case V scales, we constructed two frequency matrices (one for trust and one for distrust) that captured how often the participants ranked each of the eight qualities above one another. These frequency matrices were transformed into proportional matrices and then used to derive normal deviates for each quality's ranking. The mean score of the normal deviates were summed to give an overall score, and this was converted into a z-score; the descending order of which denoted the relative order of each quality in the development of trust and distrust in safety leaders (see Dunn-Rankin et al., 2004).

Fig. 1 shows the standardized normal deviate for each trustworthiness quality as a function of trust and distrust. On this Figure, a quality associated with a standardized normal deviate greater than 0.0 was ranked by participants as more important than average in the development of the relevant attitude. In contrast, a quality associated with a standardized normal deviate less than 0.0 was ranked by participants as less important than average to the development of the attitude. The further away a quality is from the midpoint on the scale (i.e., 0.0), the greater the deviation from average. The horizontal lines that connect the qualities give an indication of how similar the rank of qualities are for the development of trust and distrust. If the trustworthiness qualities played equivalent roles in the development of trust and distrust, then Fig. 1 would contain horizontal lines that did not cross one another. When a quality positions differently in the development of trust and distrust, this leads to a diagonal line that may cross other lines (i.e., inversions in the ranking). The number of lines that a diagonal line crosses provides an indication of how far apart the quality is ranked in the development of trust and distrust.

As can be seen from Fig. 1, the ranking of the qualities in relation to the development of trust shows some similarities and differences compared to the rankings for distrust. In the case of both trust and distrust, Honesty (or dishonesty) ranks as most important in attitude development. This supports our prediction that integrity is the most important quality in the development of trust and distrust (Hypothesis 1). However, this support is only partial, since the integrity indicators of Moral value and Openness rank among those that are least important to the development of each attitude. This is particularly true in relation to the develop-

Table 1
Paired trustworthiness comparisons.

Expert-Honest	Honest-Care	Consistent-Competent	Moral-Concern
Competent-Moral	Open-Expert	Concern-Consistent	Open-Consistent
Consistent-Care	Care-Concern	Expert-Care	Competent-Concern
Open-Concern	Honest-Consistent	Honest-Moral	Expert-Consistent
Moral-Expert	Moral-Open	Exert-Competent	Care-Moral
Honest-Competent	Concern-Honest	Open-Honest	Open-Competent
Expert-Concern	Open-Care	Competent-Care	Consistent-Moral

Note: The eight trustworthiness qualities were taken from an initial list of 15 qualities that reflected ambitious, care, competent, concern, consistency, elaborate, experienced, expertise, honest, kind, knowledgeable, moral values, open, persuasive, and thoughtful.

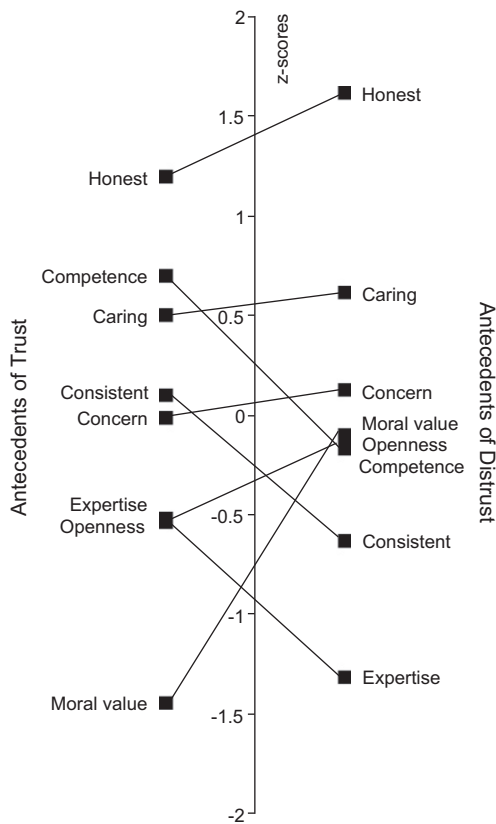[2] $JCT = K(K - 1)/2(K - 1)/12 - \sum a_{ij}^2/2$.

Fig. 1. Relative scale distance (z-scores) between trustworthiness qualities in trust and distrust development.

ment of trust, where participants ranked Openness and Moral value as the least significant qualities.

The results also show some support for our prediction that a leader's ability is important to the development of trust but less important to the development of distrust (Hypothesis 2). Specifically, the qualities of Competence and Expertise rank higher in responses relating to the development of trust (mean $z = .09$) than they do in responses relating to the development of distrust (mean $z = -.74$). Moreover, Competence in particular comes second only to Honesty in the development of trust, but it is below qualities relating to benevolence (i.e., Caring and Concern) in the development of distrust.

Our third prediction was that a leader's level of benevolence will rank among the most important qualities in the development of distrust, but will rank among the least important qualities in the development of trust (Hypothesis 3). This prediction is supported by the higher rank of the qualities Caring and Concern in relation to the development of distrust (mean $z = .37$) compared to the development of trust (mean $z = .25$). However, as can be seen on Fig. 1, although the rankings are in the predicted direction, and the benevolence qualities are separated by Consistent (an integrity quality) in the trust rankings but not in the distrust rankings, the relative importance of these qualities to the development of trust and distrust is reasonably stable across the two attitude types.

4. Discussion

This study set out to identify the relative importance of different trustworthiness qualities in the development of trust and distrust in safety leadership. Drawing on existing literature, we predicted that the development of these attitudes would not mirror one another. The results of a paired comparison task with con-

struction employees offered some support to our predictions. The results showed that employees' trust in safety leadership was most influenced by indicators of the leader's integrity and ability. However, their distrust in safety leadership was influenced most strongly by indicators of the leader's lack of integrity and benevolence. These results contribute to the debate concerning whether or not trust and distrust are distinct constructs or part of the same continuum. The growing consensus appears to support the former perspective (e.g., Burns et al., 2006; Keyton and Smith, 2009; Lapidot et al., 2007; Lewicki et al., 1998), and the inconsistent positioning of qualities other than honesty in relation to trust and distrust development adds to this support.

In line with our predictions, we found that honesty ranks as most important in the development of employees' trust and distrust in safety leadership. This is consistent with recent meta-analysis results emphasizing the importance of integrity in the development of trust in supervisors (Colquitt et al., 2007). It also supports the use of integrity as a way to define trust and predict work-related outcomes (Albrecht, 2002; Dineen et al., 2006; Ferrin et al., 2006). However, and importantly, this support is limited to the quality of Honesty. Our results suggest that in a safety context, qualities such as Openness and Moral value rank relatively low in the qualities that determine the development of trust. That this is true for Openness is particularly surprising given its frequent coupling with honesty as a quality that leads to trust (e.g., Conchie and Donald, 2008). One possible explanation is that attributions about another's disposition are moderated, to some extent, by context (Reeder and Brewer, 1979). For example, a supervisor may wish to be open with employees, but employees may be aware that this is prohibited at times by law (as in the case of investigations) or company policy. It is more difficult, however, to attribute instances of honesty to external situations to explain why a leader may wish to be honest with employees, but is prevented from being so by external factors.

In relation to a leader's ability and benevolence, the results showed some evidence of reversed importance in the development of trust and distrust. Consistent with hierarchically restrictive schemas, and Kim et al.'s (2004) arguments around trust repair, our results implicate ability as being more important than benevolence in the development of trust, and benevolence as being more important than ability in the development of distrust. This was most apparent in the development of distrust, where the qualities Care and Concern produced higher average levels of distrust when they were regarded as being unmet. Although Expertise ranked low in the development of distrust, thus supporting our argument, its low rank in the trust rating raises questions over its importance in this context. The results suggest that Expertise, and to some extent Moral values and Openness, carry little diagnostic weight when employees decide whether to trust or distrust safety leadership. At a practical level, our results suggest that initiatives directed at trust will not ensure immunity against distrust. For example, developing competent leaders will be effective for developing employees' trust in this target, but it will not protect against the development of distrust. In contrast, ensuring that leaders do not violate employees' beliefs concerning their benevolence will protect against distrust, but will not be the most effective way to develop employees' trust.

Although the paired comparison approach has proven a useful and alternative way to examine the drivers of employees' attitudes, it is not without its limitations. One limitation relates to the fact that paired comparisons force participants to make a decision even in situations where they may be ambivalent. We reduced the impact of this limitation by omitting cases with incomplete data, and with inconsistent triads. When genuine ambiguity exists, we might expect to find random responding and consequently inconsistent triads within the data. In cases where inconsistent

responding posed reliability threats, these cases were omitted from the main analysis. The trade-off for addressing the potential ambivalent responses in this way is, of course, a reduction in our initial sample size and consequent questions that may arise over the generalisability of our results.

Another limitation relates to the unequal number of qualities that we used to measure Ability, Integrity and Benevolence. We had four qualities measuring integrity, compared to two qualities for ability and benevolence. Consequently, it may be argued that integrity was of greater salience to participants and as such, was signaled as being most important.[3] Two reasons lead us to believe that this possibility posed minimal problems for the current study results. First, if the number of qualities for integrity biased participants responding to these qualities, then we might expect these qualities to occupy the top four ranks and produce above average levels of trust and distrust. However, we did not find this pattern. Instead, we found that only Honesty was ranked as most important in the development of trust and distrust, with qualities such as Moral value and Openness among the least important. Second, and somewhat related, while integrity was represented by more qualities overall, each individual quality was presented with the same frequency as every other quality. For this reason, we cannot assert that Honesty ranked first due to a more frequent presentation to participants. Thus, while it is possible that the number of stimuli influenced results, these effects are likely minimal. Theoretical explanations regarding the ways in which people make attributions about another's disposition using contextual information (see earlier) are better able to account for these results than a methodological artifact argument.

In conclusion, this study emphasizes the importance of Honesty from safety leaders in the development of trust and distrust. This quality, more than others, is important for promoting trust and avoiding problems of distrust. Qualities that appear to be less important in the development of these attitudes are Expertise, Openness and Moral value. These qualities produce lower than average levels of trust and distrust when they are respectively displayed or violated. On a more macro level, and in line with Burns et al. (2006), the results suggest that trust and distrust should be considered as distinct constructs and approached as such. Initiatives that focus on developing trust, for example, should pay more attention to perceptions of a leader's competence, while those focused on reducing distrust may be better focused on reducing employees' perceptions that a leader lacks care or concern for others' safety and welfare. What both sets of findings agree on, however, is the importance of honesty. Its presence serves to increase trust while its violation serves to increase distrust.

References

Albrecht, S.L., 2002. Perceptions of integrity, ability and trust in senior management as determinants of cynicism toward change. Public Administration and Management: An Interactive Journal 7, 320–343.

Barber, B., 1983. The Logic and Limits of Trust. Rutgers University Press, New Brunswick, NH.

Barnes, C.M., Hellenbeck, J.R., Wagner, D.T., DeRue, D.S., Nahrgang, J.D., Schwind, K.M., 2008. Harmful help: the costs of backing-up behavior in teams. Journal of Applied Psychology 93, 529–539.

Bies, R.J., Tripp, T.M., 1996. Beyond distrust. "Getting even" and the need for revenge. In: Kramer, R.M., Tyler, T.R. (Eds.), Trust in Organizations: Frontiers of Theory and Research. Sage Publication, Thousand Oaks, CA, pp. 246–260.

Blau, P.M., 1964. Exchange and Power in Social Life. Wiley, New York.

Burns, C., Mearns, K., McGeorge, P., 2006. Explicit and implicit trust within safety culture. Risk Analysis 26, 1139–1150.

Butler, J.K., 1991. Toward understanding and measuring conditions of trust: evolution of a conditions of trust inventory. Journal of Management 17, 643–663.

Butler, J.K., Cantrell, R.S., 1984. A behavioural decision theory approach to modelling dyadic trust in superiors and subordinates. Psychological Reports 55, 19–28.

Choudhry, R.M., Fang, D., 2008. Why operatives engage in unsafe work behavior: investigating factors on construction sites. Safety Science 46, 566–584.

Clark, M.C., Payne, R., 1997. The nature and structure of workers' trust in management. Journal of Organizational Behavior 18, 205–224.

Colquitt, A., Scott, B.A., LePine, J.A., 2007. Trust, trustworthiness, and trust propensity: a meta-analytic test of their unique relationships with risk taking and job performance. Journal of Applied Psychology 92, 909–927.

Conchie, S.M., Burns, C., 2009. Improving occupational safety. Using a trusted information source to communicate about risk. Journal of Risk Research 12, 13–25.

Conchie, S.M., Donald, I.J., 2006. The role of distrust in offshore safety performance. Risk Analysis 26, 1151–1159.

Conchie, S.M., Donald, I.J., 2008. The functions and development of safety-specific trust and distrust. Safety Science 46, 92–103.

Conchie, S.M., Donald, I.J., 2009. The moderating role of safety-specific trust in the relation between safety-specific leadership and safety citizenship behaviors. Journal of Occupational Health Psychology 14, 137–147.

Conchie, S.M., Donald, I.J., Taylor, P.J., 2006. Trust: missing piece(s) in the safety puzzle. Risk Analysis 26, 1097–1104.

Cook, J., Wall, T., 1980. New work attitude measures of trust, organizational commitment and personal need non-fulfilment. Journal of Occupational Psychology 53, 39–52.

Cox, S.J., Jones, B., Rycraft, H., 2004. Behavioral approaches to safety management with nuclear reaction plants. Safety Science 42, 825–839.

Dineen, B.R., Lewicki, R.J., Tomlinson, E.C., 2006. Supervisory guidance and behavioural integrity: relationships with employee citizenship and deviant behavior. Journal of Applied Psychology 91, 622–635.

Dirks, K.T., Ferrin, D.L., 2002. Trust in leadership: meta-analytic findings and implications for research and practice. Journal of Applied Psychology 87, 611–628.

Dunn-Rankin, P., Knezek, G.A., Wallace, S., Zhang, S., 2004. Scaling Methods, second ed. Lawrence Erlbaum Associates, Mahwah, NJ.

European Agency for Safety and Health at Work, 2010. Construction. <http://osha.europa.eu/en/sector/construction> (accessed 01.03.10).

Ferrin, D.L., Dirks, K.T., Shah, P.P., 2006. Direct and indirect effects of third-party relationships on interpersonal trust. Journal of Applied Psychology 91, 870–883.

Ferrin, D.L., Kim, P.H., Cooper, C.D., Dirks, K.T., 2007. Silence speaks volumes: the effectiveness of reticence in comparison to apology and denial for responding to integrity- and ability-based trust violations. Journal of Applied Psychology 92, 893–908.

Fleming, M., Lardner, R., 2001. Behaviour Modification to Improve Safety: A Review of the Literature. HSE Books, Suffolk.

Flin, R., Burns, C., 2004. The role of trust in safety management. Human Factors and Aerospace Safety 4, 277–287.

Grant, A.M., Mayer, D.M., 2009. Good soldiers and good actors: prosocial and impression management motives as interactive predictors of affiliative citizenship behaviors. Journal of Applied Psychology 94, 900–912.

Hardin, R., 2002. Trust and Trustworthiness. Russell Sage Foundation, New York.

Jeffcott, S., Pidgeon, N., Weyman, A., Walls, J., 2006. Risk, trust and safety culture in the U.K. train operating companies. Risk Analysis 26, 1105–1121.

Kath, L.M., Magley, V.J., Marmet, M., 2010. The role of organizational trust in safety climate's influence on organizational outcomes. Accident Analysis and Prevention. doi:10.1016.

Kendall, B.G., 1955. Further contributions to the theory of paired comparisons. Biometrics 11, 43–62.

Keyton, J., Smith, F.L., 2009. Distrust in leaders: dimensions, patterns, and emotional intensity. Journal of Leadership & Organizational Studies 16, 6–18.

Kim, P.H., Dirks, K.T., Cooper, C., Ferrin, D.L., 2006. When more blame is better than less: the implications of internal versus external attributions for the repair of trust after a ability-based and integrity-based trust violation. Organizational Behavior and Human Decision Processes 99, 49–65.

Kim, P.H., Ferrin, D.L., Cooper, C.D., Dirks, K.T., 2004. Removing the shadow of suspicion: The effects of apology versus denial for repairing competence- versus integrity- based trust violations. Journal of Applied Psychology 89, 104–118.

Kramer, R.M., 1999. Trust and distrust in organizations: Emerging perspectives, enduring questions. Annual Review of Psychology 50, 569–598.

Lapidot, Y., Kark, R., Shamir, B., 2007. The impact of situational vulnerability on the development and erosion of followers' trust in their leader. The Leadership Quarterly 18, 16–34.

Lewicki, R.J., Bunker, B.B., 1996. Developing and maintaining trust in work relationships. In: Kramer, R.M., Tyler, T.R. (Eds.), Trust in Organizations: Frontiers of Theory and Research. SAGE Publications, Thousand Oaks, CA, pp. 114–139.

Lewicki, R.J., McAllister, D.J., Bies, R.J., 1998. Trust and distrust: new relationships and realities. Academy of Management Review 23, 438–458.

Lewis, J.D., Weigert, A., 1985. Trust as a social reality. Social Forces 63, 967–985.

Madon, S., Jussim, L., Eccles, J., 1997. In search of the self-fulfilling prophecy. Journal of Personality and Social Psychology 72, 791–809.

Mayer, R.C., Davis, J.H., Schoorman, F.D., 1995. An integrative model of organizational trust. Academy of Management Review 20, 709–734.

McAllister, D.J., 1995. Affect and cognition-based trust as foundations for interpersonal cooperation in organizations. Academy of Management Journal 38, 24–59.

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[3] We thank one reviewer for highlighting this possibility.

Melia, J.L., Mearns, K., Silva, S.A., Lima, L., 2008. Safety climate responses and the perceived risk of accidents in the construction industry. Safety Science 46, 949–958.

Reeder, G.D., Brewer, M.B., 1979. A schematic model of dispositional attribution in interpersonal perception. Psychological Review 86, 61–79.

Robinson, S.L., 1996. Trust and the breach of the psychological contract. Administrative Science Quarterly 41, 574–599.

Rousseau, D.M., Sitkin, S.B., Burt, R.S., Camerer, C., 1998. Not so different after all: a cross-discipline view of trust. Academy of Management Review 23, 393–404.

Scott, C.L., 1980. Interpersonal trust: A comparison of attitudinal and situational factors. Human and Organization Studies 8, 319–336.

Shapiro, S., 1987. Policing trust. In: Shearing, C.D., Stenning, P.C. (Eds.), Private Policing. Sage, Thousand Oaks, CA.

Tharaldsen, J.E., Mearns, K.J., Knudsen, K., 2010. Perspectives on safety: the impact of group membership, work factors and trust on safety performance in UK and Norwegian drilling company employees. Safety Science 48, 1062–1072.

Tucker, S., Chmiel, N., Turner, N., Hershcovis, M.S., Stride, C.B., 2008. Perceived organizational support for safety and employee safety voice. The mediating role of coworker support for safety. Journal of Occupational Health Psychology 13, 319–330.

UK HSE, 2010. The Health and Safety Executive. National statistics 2009/2010. <http://www.hse.gov.uk/statistics/overall/hssh0910.pdf>.

US Department of Labor, Bureau of Labor Statistics, 2009. Census of Fatal Occupational Injuries Summary, 2008. <http://www.bls.gov/news.release/cfoi.nr0.htm> (accessed 05.09.09).

Weyman, A.K., Pidgeon, N.F., Wall, J., Horlick-Jones, T., 2006. Exploring comparative ratings and constituent facets of public trust in risk regulatory bodies and related stakeholder groups. Journal of Risk Research 9, 605–622.

Zacharatos, A., Barling, J., Iverson, R.D., 2005. High performance work systems and occupational safety. Journal of Applied Psychology 90, 77–93.

Zohar, D., 2000. A group level model of safety climate: testing the effects of group climate on micro-accidents in manufacturing jobs. Journal of Applied Psychology 85, 587–596.

Zohar, D., 2002. Modifying supervisory practices to improve sub-unit safety: a leadership-based intervention model. Journal of Applied Psychology 87, 156–163.