TURNOVER, TRUST AND SAFETY IN TEAMS IN HIGH RISK INDUSTRIES

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Abstract

The overall aim of the present study was to contribute to the argument put forward by Burt, Chmiel and Hayes (2009) that trust in the context of employee selection and training can be negative for safety. The present study builds on these authors argument that new employees pose a safety risk and any effort to build trust in the safety behaviours of new team members and/or to reduce perceptions of the safety risk of new employees (e.g. through selection and training) could likely have negative consequences. The research was conducted in eight organisations from the manufacturing, construction, engineering and rail industries which are characterised by high accident rates (Statistics New Zealand, 2008). There were 118 participants which completed an anonymous occupational safety questionnaire. The participants were employees who worked in teams in high risk industries characterised by a history of turnover. The results supported past findings in that trust in selection and training was positively correlated with immediate trust in new team members. There were mixed results regarding the hypothesis that trust in selection and training is negatively correlated with perceived risk from new team members. In particular there was some support for this hypothesis at the highest job risk level. The results supported the hypothesis that there is a positive correlation between the number of selection and training processes used by organisations and immediate trust in new team members. The results also indicated that the previous safety outcomes of new team members acts as a mediator between trust in selection and training, and immediate trust in new team members. Results are discussed in terms of the concerns and implications for organisations aiming to reduce accident rates.

Introduction

Overview

Statistics indicate that employees in particular industries are exposed to an elevated risk of injury. For example, the agriculture, forestry, fishing, manufacturing, construction and mining industries have the highest rates of work related injury-claims in New Zealand (Statistics New Zealand, 2008). Furthermore, in 2008, workers in the manufacturing industry lodged the highest number of claims, with 38,900 work-related claims (17 percent of all claims) and workers in the construction industry lodged the second with 24,900 (11 percent) (Statistics New Zealand, 2008). Additionally, in the 2007/2008 year, there were 53 fatalities in these industries (Statistics New Zealand, 2008). Thus, these industries are classified as high-risk due to the elevated risk of injury that employees are exposed to. The major priority for the health and safety strategy in these industries is accident reduction. For example, the health and safety strategy in the construction industry for 2005-2010 aimed to achieve at least a 10% reduction in workplace injury rates annually and to achieve and maintain zero fatalities annually (New Zealand Construction Industry Council, 2009).

Workplace accidents in high-risk industries can have debilitating effects on the victim, their family and friends, colleagues, company and society in general. Literature recognises two main types of cost due to injury; these include direct costs and indirect costs. All work-related claims cost $470 million in the 2007/08 financial year (Statistics New Zealand, 2008). Examples of indirect costs include lost production because of a decline in productivity and/or increases in absences, compensation, pain, suffering or a reduction in quality of life (Department of Labour, 2009).

While all employees in high-risk industries are exposed to an elevated risk of injury, statistics indicate that new team members are particularly at risk as they are more prone to accidents than employees with seniority (Kincaid, 1996). Researchers have explained this by

suggesting that even though new team members may undergo extensive training they still lack familiarity in terms of their team's safety practises, equipment and procedures which makes them more vulnerable to accident involvement (Goodman & Garber, 1988). This type of familiarisation can only be gained overtime through experience with the team. Statistics which indicate new employees are more likely to have an accident, have led researchers to propose the argument that trusting new employees to act safely can be negative for safety (Burt et al., 2009). Burt et al. (2009) found that organisations build safety specific immediate trust in new team members through selection processes that attempt to predict applicant's safety potential and through training processes that introduce the new employees to the organisations safety policies and procedures. Thus, the argument goes that any effort to build trust in new team members (e.g. through selection and training) could potentially have negative safety outcomes, as new team members are more likely to have an accident (Kincaid, 1996).

This research was conducted across eight high-risk organisations in New Zealand where employees work in teams and where there is some element of team member turnover. In line with Burt et al.'s (2009) study team member's perceptions of the safety risk of new team members and immediate trust in new team members were measured. Furthermore, these perceptions were related to team member's trust in selection and to the safety training provided by their organisation.

The elements of selection and training that differ between organisations were also examined to determine how differences relate to immediate trust in new team members. It was necessary to use several organisations, as variance in the selection and training processes used by organisations was required. The study also explored how the safety behaviour of new team members can affect both team member's trust in selection and training as well as team member's trust in additional team members.

Before discussing the study's specific hypotheses, research that has focused on assessing the relationship between accidents and employee attitudes towards safety, team dynamics and individual characteristics is discussed to highlight the important organisational, team and individual factors that affect safety. A detailed discussion of how employee turnover can affect safety is then provided, followed by an overview of the literature relating to trust and safety.

Employee attitudes towards safety

A number of researchers have investigated the insights that employee attitudes can provide in assessing aspects of safety within an organisation (Brown & Holmes, 1986; Dedobbeleer & Beland, 1991; Hayes, Peranda, Smecko & Trask, 1998; Williamson, Feyer, Cairns & Biancotti, 1997; Zohar, 1980). Safety-attitudes reflect an individual-level construct of beliefs and emotions regarding safety policies, procedures and practises including ones personal commitment to and sense of personal responsibility towards safety (Neal & Griffin, 2004; Rundmo & Hale, 2003). Employee attitudes and perceptions have been found to be predictive of a range of safety outcomes including safe and unsafe behaviours, safety knowledge and self reported injuries (Cooper & Phillips, 2004; Donald & Canter, 1994; Griffin & Neal, 2000; Seo, 2005).

Research on safety 'climate' is the traditional form by which attitudes towards safety have been studied. Cheyne, Oliver, Tomas and Cox (2002) conceptualise organisational safety climate as a "snapshot" of safety attitudes, perceptions and values. Thus, many researchers have incorporated safety attitudes into their definition of safety climate or used them as indicators of safety climate (e.g. Cheyne, Cox, Oliver & Tomas, 1998; Cox & Cox, 1991). Safety climate can be readily assessed with questionnaires, providing the opportunity for organisations to regularly assess the safety status of its operations.

Despite disagreement about the possible concrete dimensions of safety climate, two dimensions have been identified in the literature as having the highest importance in determining the level of safety climate; these are workers perceptions of management attitudes and perceptions regarding the relevance of safety in the workplace (Nickanen, 1994). Management commitment to safety has been described as the most important factor for success in any area of occupational safety (Flin, 2003; Nielsen, Cartensen, & Rasmussen, 2006). As a possible consequence, measurement of safety attitudes has tended to be based around employee's opinions of management's attitude towards safety and how they feel about their own personal safety (Burt, Gladstone & Grieve, 1998).

Team Dynamics

Safety attitudes in relation to co-workers have also received attention in the literature. For example, the considerate and responsible employee scale (referred to as CARE, Burt et al., 1998) was developed to measure employees caring towards co-workers. Members of a team who are high on the CARE scale are more proactive in taking responsibility for each other's safety and are more likely to influence the safety climate of a team (Hayes, 2007). Researchers have also suggested, "Caring is most relevant in a work setting which involves teams where each individual's behaviour can potentially influence the safety of other team members" (Burt, Sepie & McFaden, 2008, p80).

Co-worker commitment to safety is also viewed as a key element in creating a positive safety climate (Dwyer & Raftery, 1991). Co-worker attitudes towards safety help establish a norm in which new members may feel the need to fit in. Tomas, Melia and Oliver (1999) examined the role of co-workers safety responses and found that it was a key indicator in predicting accidents and safe behaviour. Furthermore, an atmosphere of social support in teams has been linked to decreases in accidents (Sherry, 1991).

Individual Characteristics

The theme of investigating how individual differences can predict behaviour has been extended into the area of workplace safety. Thus, some research has identified aspects of personality that relate to safety outcomes (Hansen, 1989; Sutherland & Cooper, 1991). For example, extreme extraversion and neuroticism have been associated with increased numbers of accidents (Hansen, 1989, Shaw & Sichel, 1971). Shaw and Sichel (1971) described the type of people most likely to be involved in accidents using factor analysis of previous research, as those who are self-centred, over confident, aggressive, irresponsible, resentful, intolerant, impulsive, anti-social and antagonistic towards authority. Furthermore, impulsiveness and sensation seeking have been shown to be predictive of accident involvement (e.g. Iversen & Rundmo, 2002). Additionally, broader dimensions of the 'Big Five', especially agreeableness have been shown to have greater predictive validity than either safety attitudes or safety perceptions (Clarke & Robertson, 2005; Clarke, 2006).

Furthermore, Jones and Wuebker (1993) suggested that 'safety locus of control' (SLOC) will influence people's safety perceptions, as this variable reflects the extent to which an individual believes that he or she has control over external events in the safety domain. Thus those who have an internal SLOC are more likely to take the necessary safety precautions to prevent injury as they believe that they have control over their environment; those with an external SLOC, however, will take less adequate precautions as they believe that 'accidents can happen to anyone' (Jones & Wuebker, 1993).

Rather than focusing on employee attitudes towards management, current team members or individual characteristics as past research has done, the present study assesses team member's attitudes towards new team members. In line with Burt et al.'s (2009) study, attitudes towards safety specific trust in new team members and perceived risk from new team members are assessed.

Employee Turnover and Accidents

Turnover in high-risk industries creates several problems for organisations in terms of employee safety and accidents (Kincaid, 1996; Bell & Grushecky, 2006). For example, Bell and Grushecky (2006) found that companies in the logging industry with high turnover have higher accident rates compared to companies with lower turnover. Furthermore, workers on logging skid sites in their early employment and particularly in their first few months have more injuries than do workers with more seniority (Bentley, Parker, Ashby, Moore & Tappin, 2002).

Burt et al. (2009) highlight a lack of theoretical explanation for the relationship between turnover and accidents. They suggest that the theoretical explanation for the relationship between absenteeism and accidents is applicable to the turnover situation. For example, Goodman and Garber (1988) found that absenteeism was linked to increased occurrence of accidents and explained this result in terms of a replacement worker having a lack of familiarity, or "a lack of specific knowledge one may have about the unique aspects of the workplace" (p. 81). This included aspects such as the physical environment, materials, and programs concerning how work should be done (Goodman & Garber, 1988). Furthermore, Bentley, Parker and Ashby (2005) have also argued that changes in team personnel can put safety at risk because the new team member may not be familiar with the team's practices or equipment. Similarly, Kincaid (1996) uses the term 'new worker syndrome' to explain the concept that new employees lack familiarity with their team's safety policies and procedures and therefore are more likely to be injured compared to workers with more seniority.

Statistics which indicate that new workers are more likely to have an accident (e.g., Bentley et al., 2002), have lead to the interpretation that new employees pose a safety-risk (Burt et al., 2009). Burt et al. (2009) conceptualised new team members as a potential source of latent errors. That is new team members may be conceptualised as "uncorrected deviations

from procedures and policies that potentially can contribute to adverse organisational consequences" (Ramanujam & Goodman, 2003 p. 815). Thus while the behaviours of new team members may not directly produce adverse outcomes, they may produce situations that increase the probability of such consequences for themselves or for their co-workers.

Burt et al. (2009) asked team members whether the likelihood of an accident/incident increases when a new employee joins their team and showed that team members have differing perceptions of the perceived risk from a new team member. These authors related this to team members trust in their organisations ability to select and train safe new employees. They showed that team member's perceptions of new employee's safety risk decreases when team members trust that their organization will deal with turnover by selecting a new worker that will work safely. In their study, they found that trust in safety training processes was negatively correlated with perceived risk from a new employee. Additionally, they also found that trust in selection and training was positively correlated with immediate trust in new team members. Immediate trust was defined as '*a new team member can be immediately trusted to comply with safety procedures and policy*'. Thus, Burt et al. (2009) found that organisations build safety specific immediate trust in new team members through selection processes that attempt to predict applicant's safety potential and through training processes that introduce the new employees to the organisations safety policies and procedures.

Burt et al. (2009) also found that how much team members trust these processes to have a positive safety ensuring outcome, also determines how employees respond when a new employee joins the team. These authors showed that team members have safety related reactions towards new recruits, or undertake what Goodman & Garber (1988) referred to as compensatory change. Safety ensuring behaviours include formally attempting to assess the new recruit's attitudes to safety, watching out for their safety, offering them assistance and

information, and being wary of their actions (Burt et al., 2009). Furthermore they found that team members are more likely to engage in compensatory behaviours to assess the safety of new team members when they do not trust their organisations selection and training practises.

Benefits and disadvantages of trust and safety

Research on trust has commonly been related to positive organisational outcomes, like higher organisational performance (Child & Mollering, 2003), increased communication and knowledge exchange (Andrews & Delahaye, 2006), and enhanced mutual learning (Gubbins & MacCurtain, 2008). It has also been found to have a positive impact on safety climate and safety performance (Conchie, Donald & Taylor, 2006; Conchie & Donald, 2006; Conchie & Donald, 2008; Hale, 2000; Reason, 1997). Benefits also include increased communication about safety, shared safety perceptions, positive safety attitudes, reduced incident rates and increased personal responsibility for safety (Reason, 1997; Watson, Scott, Biship & Turnbeugh, 2005; Zacharatos, Barling & Iverson 2005; Hofmann & Stetzer, 1998).

Dirks and Ferrin's (2001) review of the literature points to two distinct means through which trust generates these benefits. The dominant approach emphasizes the direct effects that trust has on important organizational phenomena such as communication, conflict management, negotiation processes, satisfaction and performance (both individual and unit). A second perspective points to the enabling effects of trust, whereby trust enhances the conditions such as positive interpretations of another's behaviour, that are conductive to obtaining organisational outcomes like high performance (McEvily, Perrone & Zaheer, 2003).

While there are clear benefits from trust between team members, researchers have also argued that trust can be negative for safety (McEvily et al., 2003). For example trust can reduce an individual's inclination to monitor and safeguard (McEvily et al., 2003), Furthermore, trust can encourage the judgement of others based on their behaviours to be

suspended (McEvily et al., 2003). Similarly, Conchie and Donald (2008) suggest that trust reduces perceptions of physical risk – by instilling into workers confidence about another's competence. In Conchie and Donald's (2008) study, results indicated that complete trust in another's safety (i.e., ability and honesty with safety) exposed an individual to the risk of an accident or other safety incident. They concluded that a reduction of personal responsibility for safety increases the likelihood that mistakes will go unnoticed and reduces a general alertness to unsafe conditions.

Furthermore, in a study of safety in the UK railway industry, Jeffcott, Pidgeon, Weyman and Walls (2006) reported cases where trust curtailed good safety. They conducted interviews with a sample of over five hundred employees, from four UK train operating companies and found that a shared understanding of the systems rules regarding appropriate behaviour promoted a prescriptive approach to safety that reduced workers flexibility and ability to deal with rare events that were not covered by formal policies. They suggest that on the one hand, amplified prescription gives increased security to staff via a role-based trust mechanism, where peers and management adhere to rules and standards as written. However, extensive prescription also undermines the ability of staff, at all grades, to make decisions based upon their professional judgment under the dynamics of real-time operations.

Burt et al. (2009) argued that trust in the context of employee turnover can be negative for safety. They argued that if team members trust their organisation's selection procedures and/or their safety induction training to have a positive impact, and this trust is misplaced, they might face risks from the behaviour of the new employee, which they are not anticipating. Furthermore trust in training may be misplaced because safety-training programs are rarely elevated for effectiveness (Bell & Grushecky, 2006) and inadequate or inappropriate safety training has been given as a reason for accidents in the forestry industry (Holman, Olszewski & Maier, 1987; MacFarlane, 1979). In addition, trust in training may be

negative for safety because research indicates that no amount of training can provide new team members with familiarity with team practises and a lack of familiarity has been linked with accidents (Goodman & Garber, 1988). Knowledge of team practises and procedures can only be gained through experience with the team.

Burt et al. (2009) furthered this argument by suggesting that in the context of employee turnover, team members should show a degree of caution in working with a new team member, and not trust their organizations ability to ensure the new team member will act safely. They suggested that it is essential that new team members earn trust. In fact, researchers have suggested that "creative mistrust" could be adopted whereby team members are encouraged to be positively wary about safety systems and safety management to enhance safety (Hale, 2000). Distrust has been defined as "confident negative expectations regarding another's conduct" or "a propensity to attribute sinister intentions to, and a desire to buffer oneself from the effects of another's conduct" (Lewicki, McAllister & Bies, 1998, p439). The type of distrust implied in this context takes a more functional behaviour related form and develops from a general realisation that others can make mistakes (Conchie & Donald, 2008). Conchie and Donald (2008) found that a level of distrust is functional for safety in that it encourages open communication and personal responsibility for safety, and reduces accidents and incidents through checking another's behaviour. Furthermore, McEvily et al. (2003) emphasize that in the absence of trust, monitoring and safeguarding are measures used to manage uncertainty by influencing others' behaviours and protecting oneself. This suggests that relying on trust as an organizing principle entails relaxing oversight and granting autonomy to others. Therefore, in the context of new team members, distrust may ensure a healthy scepticism that is necessary for risk assessment.

Aims of the present study

The present study aims to contribute to Burt et al.'s (2009) argument that trust in the context of turnover can be negative for safety. Firstly, perceived risk from new team members and immediate trust in new team members is assessed. This is important because team members should perceive new team members to be a safety risk as statistics indicate they are more likely to have an accident. Additionally team members should not immediately trust new team members to behave safely because new team members need to become familiarised with the safety specifics of the team overtime to reduce their likelihood of accident involvement (Goodman & Garber, 1988).

The present study attempts to replicate findings from Burt et al.'s (2009) previous research. Hypothesis 1 is that *that trust in selection and training will be positively correlated with immediate trust*. Hypothesis 2 is that *trust in selection and training will be negatively correlated with perceived risk from new employees*. The present study also aims to increase understanding of the compensatory behavioural responses that team members may engage in when a new team member joins a team. This is assessed by exploring whether participants tend to engage in behaviours which assess the safety of new team members. This research is conducted in the context of industries where the nature of work is such that employees work in teams where there is an elevated risk of injury (Department of Labour, 2009).

The present study also aims to further Burt et al.'s (2009) argument by investigating how trust in selection and training is built. Hypothesis 3 is *that there will be a positive correlation between the number of selection processes and training processes used by organisations and trust in selection and training, and immediate trust in new team members*. Thus, team members who receive more elements of recruitment and more training should show higher levels of trust in their organisations ability to select and train safe employees as well as higher levels of immediate trust in new team members.

Finally, hypothesis 4 is that *the safety outcomes of new team member's mediates the relationship between trust in selection and training processes, and immediate trust in additional new team members* as shown below in Figure 1. If a new team member acts in a safe manner then this should build trust in the organisation's selection and training processes. Thus, teams that have had several new team members that have all worked safely should have high levels of trust in their organisation's selection and training processes and therefore be more trusting of new team members. Similarly teams that have had several new team members that have engaged in unsafe practices should show less trust in their organisations selection and induction processes and thus be less trusting of additional team members. This hypothesis will be explored by assessing the behaviours that team members have experienced from new team members. In particular the impact of positive new team member behaviours on trust in selection and training as well trust in future joins is assessed.

Figure 1. A depiction of the hypothesis that the previous *safety behaviour of new team members* will mediate the relationship between *trust in selection* and *training,* and *immediate trust* in additional team member
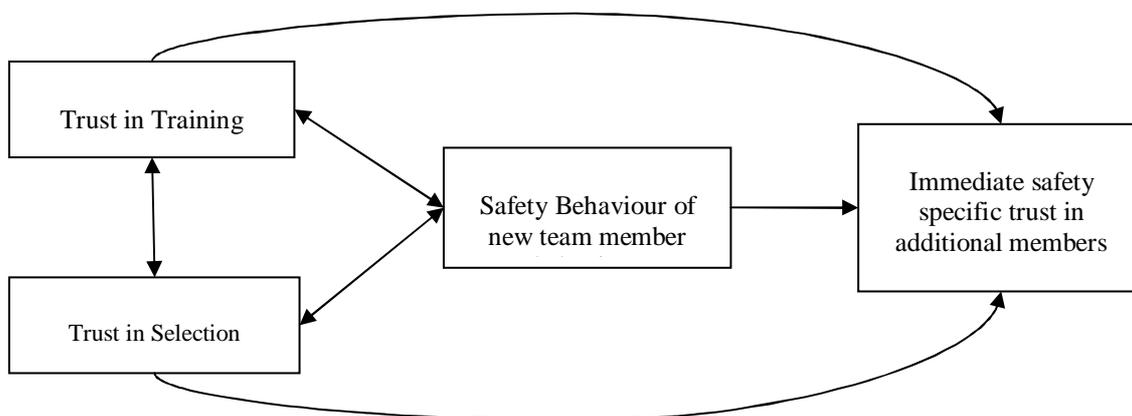
Method

Participants

The 118 participants for this study were team members employed by eight high-risk industries throughout New Zealand. Because variance in the number of selection and training procedures used was required the sample was acquired from eight organisations. The participants came from the manufacturing, construction, mining, engineering and rail industries.

One hundred and twenty five surveys were distributed to five local organisations and 77 were returned giving a response rate of 61%. Three organisations printed off the surveys themselves and distributed them to employees. For these three organisations the number of surveys handed out was unknown, but 41 surveys were returned to the researcher via mail.

Overall, there were 19 females with an average age of 40.8 and a range of 24 to 62 years; and 99 males, with an average age of 41.9 and a range of 20 to 69 years. Table 1 shows the average number of people in the participant's team. It also displays the average number of months participants had worked in their current team, organisation and industry.

Table 1. Descriptive Statistics for *Background Questions*

	N	Minimum	Maximum	Mean	Std. Deviation
Number in current team	118	2	150	10.7	16.1
Team Tenure (Months)	118	1	425	51.1	66.2
Organisation Tenure (Months)	118	1	568	106.4	117.8
Industry Tenure (Months)	118	4	576	166.1	136.0

Materials

An Occupation Safety Questionnaire was constructed in order to obtain data to measure the study hypotheses. The front page of the questionnaire provided participants with information

about the research (See Appendix I). This included the purpose of the research, information about anonymity, confidentiality and informed consent for participation, and instructions on how to complete the questionnaire. It also stated that the University of Canterbury had approved the research.

The questionnaire contained eight sections (See Appendix II). The sections were titled as follows: *General Questions*, *Team Member Interaction*, *Your Team*, *Your Organisation*, *New Team Members in General*, *Employees That Have Joined Your Team*, *Recruitment Processes* and *Induction/Pre Start Training*. The ordering of the sections was counterbalanced to help control for common method variance (Kline, Sulsky & Rever-Moriyama, 2000). A description of each of the measures in each section and their measurement properties follows. Some items in the questionnaire were not used in this study; these items included the *Your Team* section and the last four items in the *New Team Members in General* Section which related to familiarity. These were collected for use in other research.

Demographics and Team Questions

The *General Questions* section contained six questions relating to the demographics of participants and six background questions about their team. The demographic questions related to age, gender, job title, team tenure, organisation tenure and industry tenure. The team background items related to the number of people currently in the team, number of people that had left and joined the team, frequency with which people resign and join the team, and how risky the participant's job is perceived to be.

The 'frequency of which people resign' item and 'frequency with which people join' item were responded to using a four-point scale which was coded as: weekly (4), monthly (3), every few months (2) and not very often at all (1).

The 'how risky is your job' item was measured using a four-point scale, which was coded as: you could be killed doing this job (4), you could have a serious accident doing this job (3),

you could have a minor accident doing this job (2) and there is really very little chance of injury from doing this job (1).

Team Interaction

The *Team Member Interaction* section contained five questions responded to on a 5 point Likert scale (1= strongly disagree to 5 = strongly agree) which assessed job interdependence (Pearce & Gregersen, 1991). Examples of items from this scale are "*I work closely with my team in doing my work*" and "*My team requires me to consult with my team members fairly frequently*". The item ratings were summed and divided by 5 to give the scale score. The Cronbach's alpha coefficient was 0.79.

Trust in Selection

The *Your Organisation* section contained seven questions responded to on a 5 point Likert scale (1 = strongly disagree to 5 = strongly agree). The first four items measured participants trust in the selection processes provided by their organisation as developed by Burt et al. (2009). Examples of items include "*Safety attitudes are considered equally important as job skills when selecting a new member for my team*", and "*The organisation knows all the safety issues to assess in applicants who apply to join my team*". Burt et al. (2009) reported a coefficient alpha of 0.76 for this scale. The items in this scale were summed and divided by four to give the scale score. The Cronbach's alpha coefficient for this study was 0.82.

Trust in Training

The remaining three items of the *Your Organisation* section were also responded to on a 5 point Likert scale (1 = strongly disagree to 5 = strongly agree) and were a measure of participants trust in the safety training provided by their organisation as developed by Burt et al. (2009). Examples of these items include "*The organisation's safety training ensures a new*

team member behaves safely" and "*Management ensure that a new team member fully understands all safety procedures and policy*". Burt et al. (2009) reported a coefficient alpha of 0.72 for this scale. The items in this scale were summed and divided by three to give a scale score. The Cronbach's alpha coefficient for this study was 0.82.

Compensatory Behaviours

The *New Team Members in General* section contained twelve items responded to on a 5 point Likert scale (1 = strongly disagree to 5 = strongly agree). The first six items measured compensatory behaviours, which were behaviours that team members did or did not engage in when a new team member joined their team (Burt et al., 2009). Examples of these items include "*It is important for team safety for me to find out the safety history of a team member*" and "*Immediately determining the safety attitudes of a team member is important for team safety*". These items were obtained from Burt et al.'s (2009) study which reported a coefficient alpha of 0.70 for this scale. The items were summed and divided by six to give a scale score. The Cronbach's Alpha coefficient for this study was 0.66.

Perceived Risk

Item seven of the *New Team Members in General* section measured participants' perceived risk of new team members (*The likelihood of an accident/incident increases when a new employee joins my team*) and was responded to on a 5 point Likert scale (1 = strongly disagree to 5 = strongly agree). This item was obtained from Burt et al.'s (2009) study.

Immediate Trust

Item eight of the *New Team Members in General* section measured immediate trust in new team member's safety compliance (*A new team member can be immediately trusted to comply with safety procedures and policy*) and was responded to on a 5 point Likert scale (1 =

strongly disagree to 5 = strongly agree). This item was obtained from Burt et al.'s (2009) study.

Positive New Team Member Behaviour

The *Employees That Have Joined Your Team* section contained twelve questions responded to on a 5 point Likert scale (1= strongly disagree to 5 = strongly agree). These items were designed to assess the safety behaviours from new employees. To maximise internal consistency the scale was explored using different combinations of items and the Cronbach's alphas were noted. Thus, of the twelve items, item five, six and twelve were deleted to form the *positive new team member behaviour* scale. Examples of items include *"Workers that have joined my team have had a positive attitude towards safety"* and "*Workers that have joined my team have asked a lot of questions about safety"*. The items in this scale were summed and divided by nine to give a scale score. The Cronbach's alpha coefficient for the scale was 0.82.

Added Sum of Recruitment Practises

The thirteen recruitment process questions in the *recruitment process* section were yes/no response items, which assessed the recruitment procedures that participants experienced. These items were constructed based on research indicating the types of practises undertaken during the recruitment and selection of a new employee (Hughes & Fernett, 2007). The items in the recruitment scale were added (yes = 1, no = 0) to form the *added sum of recruitment practises* variable which had a possible range of 0 to 13.

Added Sum of Training Practises

The eighteen safety training questions in the *induction and pre start training* section were yes/no response items, which assessed the training procedures that participants received.

These items were constructed based on research indicating the types of practises undertaken during safety training (Hughes & Fernett, 2007). The items in the training scale were added (yes = 1, no = 0) to form the *added sum of training practises* variable which had a possible range of 0 to 18.

Procedure

Organisations in the manufacturing, construction, rail, engineering and mining industries were identified. Health and safety managers in these industries were phoned and provided with a brief outline of the study. Where possible, a meeting was organised to discuss the research in depth. During the meeting, they were provided with the objectives of the study and the benefits gained from being involved. They were also able to ask any questions they may have had about the research. If a meeting was not possible due to geographic barriers, they were emailed with detailed information about the study and this was followed up with a phone call. Once agreeing to participate, they were given an agreed number of copies of the questionnaire. The number of questionnaires given to each organisation varied depending on the number of employees that meet the criteria (e.g. worked in high risk teams). Managers administered the questionnaires to employees at an appropriate time. Participants were asked to read the instructions on the front of the questionnaire before completing it. The questionnaires were then either returned via post or collected by the researcher.

Results

Data Preparation

Questionnaire data was entered into an SPSS 17.0 database. Reliability analyses were performed on each scale, and as mentioned in the method section Cronbach's alpha coefficients were maximised by removing poor items. Instead of replacing missing data with the variable's mean, the available data was used and the sample size for each analysis is stated below.

Initial Analyses

The first concern was to establish that participants worked in teams which carry out high risk work where there is an element of team interaction, and a history of turnover. Team interaction was assessed using the descriptive statistics shown in Table 2. The high overall mean for team interaction indicates that the participant's jobs required a high degree of interdependence. Additionally, 95% of participants agreed or strongly agreed to the item *"I work closely with my team in doing my work"*.

Table 2. Descriptive Statistics for *Team Interaction*

	Team Interaction				
Organisation	N	Minimum	Maximum	Mean	Standard Deviation
1	7	3.6	5	4.2	0.5
2	7	3.8	4.8	4.3	0.4
3	21	2.8	5	4.3	0.5
4	16	2	5	4.0	0.8
5	22	3.4	5	4.2	0.5
6	8	2.6	5	4.2	0.8
7	19	3.8	5	4.3	0.3
8	18	1.8	4.8	4.1	0.7
Overall	118	1.8	5	4.2	0.6

Next, participant's job risk was examined. The responses from participant's perceptions

of the level of risk in their job are shown in Table 3, with 77.3% of the participants perceiving

that they could be killed or have a serious accident doing their job. Additionally, the mean for

the job risk rating was 3.0 (SD = 0.85) indicating that on average participants thought they

could have a serious accident when doing their job.

Table 3. Participants' perceived *Job Risk Level*

Job Risk Level	Percentage of Participants
You could be killed doing this job	33.9
You could have a serious accident doing this job	43.4
You could have a minor accident doing this job	17.8
There is little chance of injury from doing this job	5.1

Because this study looks at team member's attitudes and perceptions of new team members

as well as selection and training issues, it was also important to assess the frequency with

which team members leave and join the participant's team. As shown in Table 4, a high

percentage of participants indicated that team members do not leave or join their team very

often. However there is still some indication of turnover. The results thus far indicate that

participant's work in teams, completing high risk work, where there is some element of

turnover.

Table 4. Frequency with which team members leave and join participant's teams

Frequency	Team Members Leave (%)	Team Members Join (%)
Not very often at all	85.6	78.8
Every Few Months	11.9	17.8
Monthly	1.7	3.4
Weekly	0.8	0

Because participants were required to give judgements on the positive behaviours of new

team members, the next issue was to establish that participants had worked with a new team

member at some stage. Of the 118 participants, 18 had not had any new team members join

their team and therefore were excluded from the descriptive analysis of the positive behaviour

from new team members scale data. Shown in Table 5, the overall mean for this scale indicates that participants tend to perceive the behaviours of new team members to be more positive than negative. Furthermore, 75% of participants agreed or strongly agreed with the item *"Workers that have joined my team have had a positive attitude towards safety"*. ANOVA was used to test for significant differences between the organisations in terms of positive behaviour from new employees, this resulted in no significant differences between the eight organisations (F(7, 99) = *1.91, n.s)*.

Table 5. Descriptive statistics for the *positive new team member behaviour* scale

Organisation	N	Minimum	Maximum	Mean	Standard Deviation
1	7	2.2	3.6	3.1	0.5
2	5	2.9	3.6	3.3	0.2
3	19	2.2	4.2	3.3	0.5
4	13	1.7	3.8	3.1	0.5
5	16	2.2	3.6	3.2	0.4
6	6	2.3	3.6	2.9	0.5
7	18	2.9	4.3	3.5	0.3
8	16	2.8	3.8	3.3	0.3
Overall	100	1.7	4.3	3.3	0.4

Associated with turnover and new team member entry are the compensatory change behaviours that team members may or may not engage in to assess the safety of new team members. The 118 participants which responded to the compensatory change scale had a mean response of 3.8 (SD = 0.48) with a range of 2.6 to 5. Therefore participants tended to engage in behaviours which assess the safety of new team members or they believe they would engage in safety assuring behaviours if they were to work with a new team member.

The next major concern was to assess participant's perceived risk from new team members and their immediate trust in new team members. This was important because accident rates indicate that team members should perceive new team members to be a safety risk as they are more prone to accidents. Similarly, team members should not immediately trust new team

members to behave safely as new team members are unfamiliar with the team's safety practises and procedures.

Table 6 shows the descriptive statistics for the 118 participants across the eight organisations that indicated their level of perceived risk and immediate trust in new team members. Forty six percent of participants agreed or strongly agreed that the likelihood of an accident/incident increases when a new employee joins their team, and 50% of participants had no opinion, agreed or strongly agreed that a new team member can be *immediately trusted* to comply with safety procedures and policy.

ANOVA was used to test for significant differences between the organisations in terms of immediate trust and perceived risk. There were no significant differences between immediate trust in new team members ($F(7, 117) = .22$, *n.s*) and perceived risk of new team members ($F(7, 117) = .88$, *n.s*) across the eight organisations.

Table 6. Descriptive statistics for *perceived risk* and *immediate trust*

Perceived Risk					
Organisation	N	Minimum	Maximum	Mean	Standard Deviation
1	7	2	4	3.7	0.7
2	7	3	5	3.7	0.7
3	21	2	5	3.3	1
4	16	2	5	3.1	0.9
5	22	2	5	3.5	0.8
6	8	2	5	2.8	1.2
7	19	2	5	3.5	1
8	18	2	5	3.2	0.9
Overall	118	2	5	3.3	0.9
Immediate Trust					
Organisation	N	Minimum	Maximum	Mean	Standard Deviation
1	7	2	4	2.7	0.7
2	7	1	4	2.7	1.2
3	21	1	4	2.7	0.9
4	16	1	5	2.6	1.2
5	22	2	5	2.5	0.9
6	8	2	4	2.7	0.8
7	19	2	5	2.9	0.9
8	18	2	4	2.6	0.7
Overall	118	1	5	2.7	0.9

Before addressing the relationship between perceived risk and immediate trust with trust in selection and training, participant's level of trust in their organisations ability to select and train a new employee was examined. The descriptive statistics for trust in training and trust in selection across the eight organisations are provided in Table 7. The high overall means for trust in selection and trust in training indicate that participants tend to show high levels of trust in their organisations ability to select and train safe employees. The overall mean for trust in training is higher than trust in selection therefore suggesting that participants place more trust in their organisations ability to train a safe employee than to select a safe employee.

Table 7. Descriptive statistics for *trust in training* and *trust in selection* across the eight organisations

	Trust in Training				
Organisation	N	Minimum	Maximum	Mean	Standard Deviation
1	7	3.3	4.3	3.8	0.3
2	7	3.3	4.6	4	0.4
3	21	1.6	5	3.8	0.8
4	16	2	5	4	0.9
5	22	3	5	4	0.6
6	8	1	4	2.9	1.1
7	19	3.6	5	4.2	0.4
8	18	3.6	5	4.4	0.4
Overall	118	1	5	4	0.7
	Trust in selection				
Organisation	N	Minimum	Maximum	Mean	Standard Deviation
1	7	2	4.2	3.5	0.8
2	7	2.2	4	3.2	0.6
3	21	2	5	3.7	0.8
4	16	2	4.5	3.1	0.8
5	22	2.7	5	3.7	0.6
6	8	1.2	4.2	2.9	0.8
7	19	3.2	5	4	0.5
8	18	3.5	5	4.1	0.4
Overall	118	1.25	5	3.6	0.7

ANOVA was used to test for significant differences in trust in selection and trust in training across the eight organisations. There were significant differences between the organisations in both trust in selection ($F(7, 117) = 4.75, p < .01$) and trust in training ($F(7, 117) = 4.32, p < .01$). This suggests that participants in the different organisations showed differing levels of trust in their organisations ability to select and train a safe employee.

In order to explain the ANOVA results correlations were computed between the trust in selection ratings and the trust in training ratings, and the number of training and recruitment practises participants received. There were significant correlations between trust in training and the number of training practises ($r = .40\ p < 0.01$), and between trust in selection and the number of recruitment practises ($r = .42, p < 0.01$). These correlations suggest that the trust ratings in their organisations ability to select and train a safe employee have some validity.

Next, the specific elements of selection and training participants received were examined. Figure 2 below shows the percentage of participants that indicated they had experienced each recruitment and training practise. The first thirteen items are recruitment processes and the next eighteen items are training processes.

To further investigate the recruitment and training practises, descriptive statistics were computed for each organisation. Table 8 shows the mean number of recruitment and training practises participants received. ANOVA found significant differences between the number of recruitment practises undertaken in the organisations ($F (7, 117) = 2.21, p < .05$) and the number of training practises undertaken in the organisations ($F (7, 116) = 3.86, p < .01$).

Figure 2. Percentage of *recruitment* and *training practises* received by participants

Figure 2. Percentage of *recruitment* and *training practises* received by participants
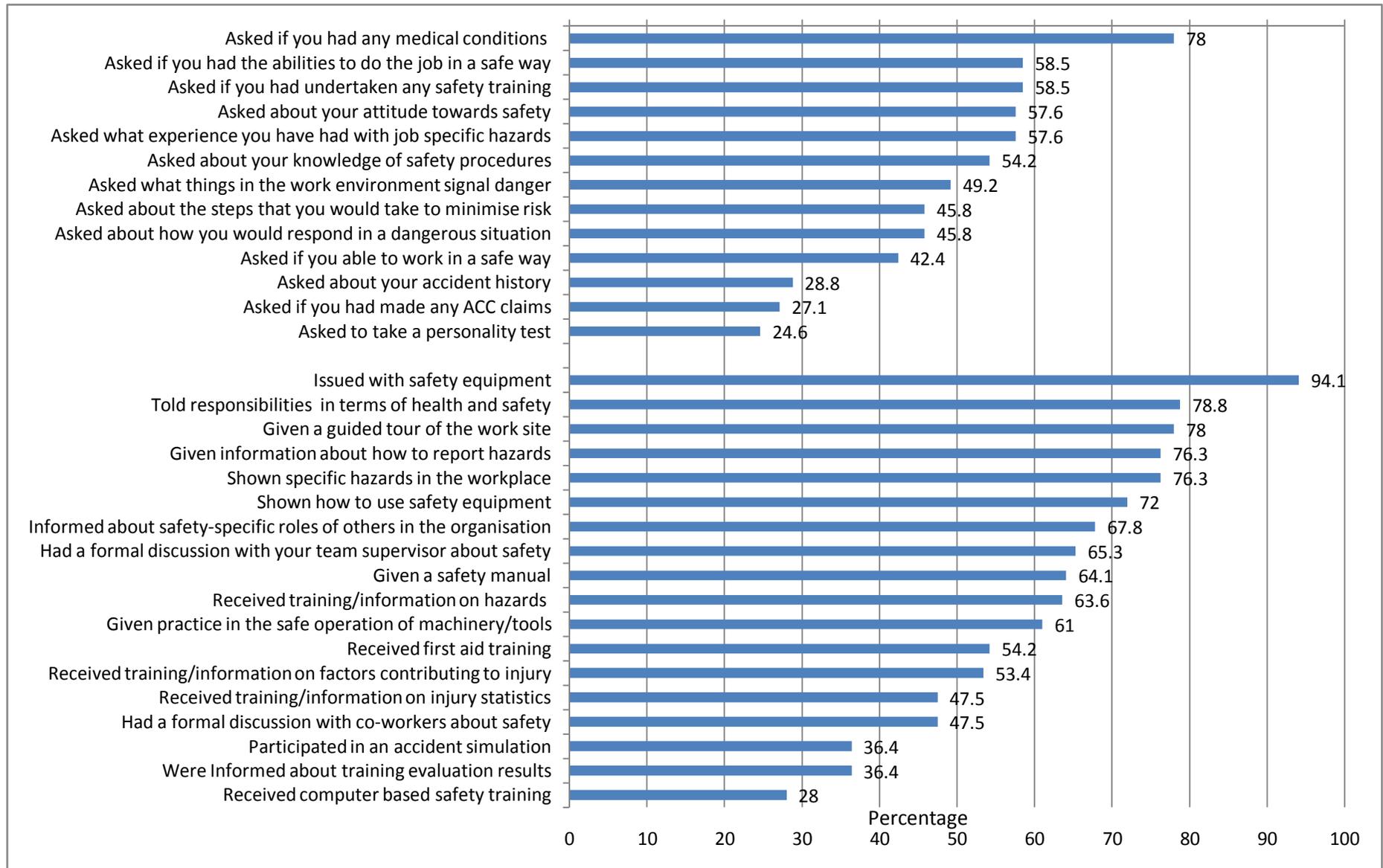
Table 8: Descriptive Statistics for *recruitment practises* and *training practises* undertaken in the eight organisations

Recruitment Practises					
Organisation	N	Minimum	Maximum	Mean	Standard Deviation
1	7	1	12	6.1	5
2	7	1	12	6.2	4.3
3	21	0	13	6.9	4.3
4	16	1	13	5.3	3
5	22	0	13	6.6	3.8
6	8	0	4	1.7	1.5
7	19	0	12	6.2	3.9
8	18	0	13	8	4.2
Overall	118	0	13	6.2	4
Training Practises					
Organisation	N	Minimum	Maximum	Mean	Standard Deviation
1	7	0	11	6	3.9
2	7	2	16	10.1	5
3	20	1	18	13	5.5
4	16	0	18	12	4.6
5	22	0	18	9.5	5.8
6	8	1	9	5.6	3
7	19	1	17	12.6	4.2
8	18	3	18	12.5	4.2
Overall	117	0	18	11	5.2

A correlation matrix was computed to test the strength of the relationship between the added sum of recruitment practises and training practises, and the safety specific immediate trust in new team members. There was a significant positive result between added sum of recruitment practises and immediate trust ($r = 0.31$, $p < .01$), and between the added sum of training practises and immediate trust ($r = 0.39$, $p < 0.01$). Therefore, hypothesis 3 that the number of selection processes and training processes are positively correlated with immediate trust in new team members was supported. There was also a significant positive correlation between the number of selection processes undertaken by organisations and the number of training processes used by organisations ($r = .68$ $p < .01$).

The final issue to investigate before assessing the data in terms of the relationship between perceived risk, immediate trust, trust in training and trust in selection was pre-start training hours and on the job safety training hours. The descriptive statistics for pre start training hours and on the job training hours are shown below in Table 9.

Table 9. Number of hour's participants spent in *pre start training* and *on the job training*

Organisation	N		Minimum	Maximum	Mean	Standard Deviation
1	7	Pre start training	0	1	0.4	0.5
	7	On the job training	0	10	2.5	4.4
2	6	Pre start training	0	16	4.1	5.8
	6	On the job training	0	720	131	288.7
3	19	Pre start training	0	60	7.2	13.9
	18	On the job training	0	600	105	171.8
4	16	Pre start training	0	160	40	51.6
	16	On the job training	0	120	24	36.9
5	19	Pre start training	0	10	2.7	2.9
	17	On the job training	2	200	54	58.7
6	6	Pre start training	0	2	0.5	0.7
	6	On the job training	0	10	2	3.9
7	14	Pre start training	0	40	5.8	10.9
	11	On the job training	2	80	35	27.2
8	13	Pre start training	0.5	40	14	15.1
	11	On job training	4	300	79	93.6
	100	Pre start training	0	160	11	25.7
Overall	92	On the job training	0	720	57	116.3

ANOVA was used to test for significant differences across the organisations in terms of pre start training hours and on the job safety training hours. This resulted in a significant difference in terms of pre-start training hours ($F(7, 99) = 4.73$, $p < .01$), but no significant differences in terms of on the job safety training hours (($F(7, 91) = 1.57$, *n.s*). A correlation between pre start training hours and trust in training was computed. There was no relationship between pre start training hours and trust in training ($r = -.01$, n.s), therefore it is the type of training practises not the length of hours which influences trust in an organisation's ability to train a safe employee.

Replication of correlations from past research

A correlation matrix was computed using the participant's levels of immediate trust and perceived risk from new employees, trust in training and trust in selection, in order to attempt to replicate two findings from Burt et al.'s (2009) paper. Hypothesis 1 was that trust in selection and training will be positively correlated with immediate trust in new employees. Hypothesis 2 was that trust in selection and training will be negatively correlated with perceived risk from new team members.

Table 10 shows that when the eight organisations are assessed together, as predicted by hypothesis 1 there are significant positive relationships between trust in selection and immediate trust, as well as trust in training and immediate trust. However, hypothesis 2 is not supported as there is no significant negative correlation between trust in training and perceived risk from new employees and there is a significant positive correlation between trust in selection and perceived risk from new employees. Thus, when assessing the eight organisations together hypothesis 1 was supported but hypothesis 2 was not supported.

Table 10. Correlation matrix between *trust in training, trust in selection, perceived risk* and *immediate trust*

	Perceived Risk	Immediate Trust
Trust in selection	.18*	.29**
Trust in training	.14	.28**

Note: ** denotes significance at the 0.01 level * denotes significance at the 0.05 level

Next a correlation matrix was computed assessing the organisations individually. The results are shown in Table 11 and differ to these shown in Table 10. For example, organisation 6 supports the two hypotheses: immediate trust is positively correlated with trust in selection and trust in training and perceived risk is negatively correlated with trust in selection and trust in training although these results did not reach significance. Thus when assessing the organisations individually, some support the hypotheses and some do not.

Table 11. Correlation matrix between *trust in training, trust in selection, perceived risk* and *immediate trust* in each organisation

Organisation	N		Perceived Risk	Immediate Trust
1	7	Trust in selection	.50	.56
		Trust in training	.25	.25
2	7	Trust in selection	-.62	.85*
		Trust in training	.41	.25
3	21	Trust in selection	.50*	.07
		Trust in training	.49*	.14
4	16	Trust in selection	.36	.19
		Trust in training	.04	.36
5	22	Trust in selection	.16	.56**
		Trust in training	.43*	.63**
6	8	Trust in selection	-.65	.19
		Trust in training	-.59	.28
7	19	Trust in selection	.10	.47*
		Trust in training	-.29	.49*
8	18	Trust in selection	.09	.31
		Trust in training	.27	.17

Note: ** denotes significance at the 0.01 level * denotes significance at the 0.05 level

A correlation matrix was computed using the added sum of recruitment and training practises and perceived risk and immediate trust. Results are shown below in Table 12 and indicate that using an objective measure of recruitment and selection gives mixed support for hypothesis 1 and 2 which is similar to the results gained when correlating perceived trust, immediate trust and trust in training and selection.

To further explain these findings a correlation matrix was computed after splitting the sample by job risk level. The results for each level of risk are shown below in Table 13. The results at the high risk level support the hypotheses as there are positive relationships between trust in selection and training, and immediate trust, and negative relationships between trust in selection and training, and perceived risk.

Table 12. Correlation matrix between *added sum of recruitment practises and added sum of training practises, perceived risk* and *immediate trust* in each organisation

Organisation	N		Perceived Risk	Immediate Trust
1	7	Added sum of recruitment practises	0.36	0.4
	7	Added sum of training practises	0.67	0.33
2	7	Added sum of recruitment practises	-0.02	0.57
	7	Added sum of training practises	-0.37	.95**
3	21	Added sum of recruitment practises	0.13	0.41
	20	Added sum of training practises	-0.02	.55*
4	16	Added sum of recruitment practises	0.35	0.28
	16	Added sum of training practises	-0.11	0.36
5	22	Added sum of recruitment practises	.53*	.58**
	22	Added sum of training practises	0.4	.55**
6	8	Added sum of recruitment practises	-0.45	-0.05
	8	Added sum of training practises	-0.38	-0.25
7	19	Added sum of recruitment practises	-0.14	0.12
	19	Added sum of training practises	-0.01	0.32
8	18	Added sum of recruitment practises	-0.07	0.29
	18	Added sum of training practises	-0.03	0.13

Note: ** denotes significance at the 0.01 level, * denotes significance at the 0.05 level

Table 13. Correlation matrix between *trust in training, trust in selection, perceived risk* and *immediate trust* at the different job risk levels

You could be killed doing this job	N	Perceived Risk	Immediate Trust
Trust in Selection	38	-.09	.53**
Trust in Training	38	-.07	.34*
You could have a serious accident			
Trust in Selection	51	.21	.26
Trust in Training	51	.12	.37**
You could have a minor accident			
Trust in Selection	21	.51*	-.13
Trust in Training	21	.62**	-.15
Little chance of injury			
Trust in selection	6	.43	.83*
Trust in Training	6	.42	.58

Note: ** denotes significance at the 0.01 level, * denotes significance at the 0.05 level

With the sample split by risk level, a correlation matrix was then computed using the added sum of recruitment and training practises variables and perceived risk and immediate trust to provide an objective measure of selection and training. Results are shown below in

Table 14 and indicate that using an objective measure of recruitment and selection supports hypothesis 1 and shows some support for hypothesis 2 at the highest risk level.

Table 14. Correlation matrix between *added sum of recruitment practises, added sum of training practises, perceived risk* and *immediate trust* at the different job risk levels

| You could be killed doing this job	N	Perceived Risk	Immediate Trust
Added sum of recruitment practises	38	.00	.20
Added sum of training practises	38	-.14	.37*
You could have a serious accident			
Added sum of recruitment practises	51	.09	.36**
Added sum of training practises	51	.03	.43**
You could have a minor accident			
Added sum of recruitment practises	21	.21	.28
Added sum of training practises	21	.26	.21
Little chance of injury			
Added sum of recruitment practises	6	.02**	.67
Added sum of training practises	6	.42	.39

Safety behaviours of new team members as a mediating variable

To explore hypothesis 4 which was whether positive new team member behaviour acts as a mediator between trust in selection and training, and immediate trust, Baron and Kenny's (1986) framework was followed. Baron and Kenny (1986) set four conditions that are required for a variable to be considered a mediator: the predictor (trust in selection/training) must be significantly related to the proposed mediator (positive new team member behaviour); the predictor must be significantly related to the dependent variable (immediate trust); the mediator must be significantly related to dependent variable; and the influence of the predictor must be reduced after controlling for the mediator.

To test Baron and Kenny's (1986) first three conditions for the presence of a mediator, correlations were computed using trust in selection, trust in training, positive new behaviour and immediate trust in team members. Figure 3 shows the correlations and indicates that these conditions were met. There were significant positive correlations between trust in selection and immediate trust. There were significant positive correlations between trust in

training and immediate trust. There were also significant positive relationships between new team member behaviours and immediate trust in additional team new team members. There were also significant positive correlations between trust in training and new team member behaviours and between trust in selection and new team member behaviours. Additionally, there was a significant positive correlation between trust in training and trust in selection.

Figure 3. Correlations between *trust in training, trust in selection, positive new team member behaviour* and *immediate trust* in additional team members
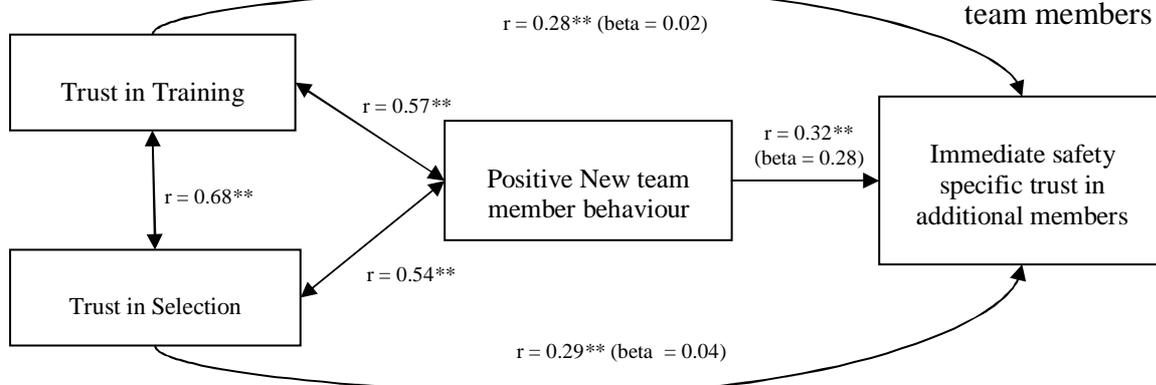
Note: ** denotes significance at the 0.01 level

To test Baron and Kenny's (1986) fourth condition for the presence of a mediator variable (that the predictor variable is reduced when controlling for the mediator variable) a regression analysis was undertaken using trust in training, trust in selection and positive new team member behaviour as independent variables and immediate trust as the dependent variable. The overall model was significant, $F(3, 99) = 3.8$, $p < 0.05$), accounting for 10.8% of the variance in immediate trust. Furthermore, the fourth condition for the presence of a mediator variable was met because the positive new team member variable added significantly to the model (beta = .28, $p < .05$), while trust in selection and trust in training were not significant (beta = .04 *n.s*, beta = .02 *n.s* respectively).

Thus positive new team member behaviour reduced the correlation for trust in selection from $r = .29$ to a beta weight of .04 in the case of immediate trust. Furthermore, positive new

team member behaviour reduced the correlation for trust in training from $r = .28$ to a beta weight of .02 in the case of immediate trust. Therefore, hypothesis 4, that new team member behaviour mediates the relationship between both trust in selection and training, and immediate trust in new team members was supported.

Summary of Major Findings

Immediate trust, perceived risk and trust in selection and training

Half of the participants had no opinion, agreed or strongly agreed to immediately trusting new team members and half of the participants did not perceive new team members to be a safety risk. Participants also showed high levels of trust in their organisations ability to select and train safe employees.

Replication of correlations from past research

The results supported hypothesis 1 as there was a significant positive relationship between trust in selection and training, and immediate trust in new team members. There were mixed results regarding hypothesis 2 that there would be a negative correlation between trust in selection and training and perceived risk from new team members. In particular, the organisations on the whole did not support this hypothesis, however results at the organisational level found some support for it. Additionally, when an objective approach was undertaken using the added sum of selection and training practises some organisations supported the hypotheses and some did not. Moreover when the sample was split by risk level there was support for both hypothesis 1 and 2 at the high risk level although hypothesis 2 did not reach significance.

The relationship between the number of selection and training practises, trust in selection and training, and immediate trust in new team members

The results supported hypothesis 3 as there was a significant positive relationship between the number of selection and training processes used by organisations and trust in training and selection, and immediate trust in new team members. Thus, including more aspects of selection and training builds more trust in an organisations ability to select and train safe employees as well as more immediate trust in the safety behaviours of new team members. Additionally, the results highlight a strong relationship between the number of selection processes organisation's used and the number of training processes undertaken. Thus, organisations that included more practises during selection were also giving more training to new employees.

Safety behaviours of new team members as a mediating variable

The results supported hypothesis 4 that the safety related behaviours of new team members mediates the relationship between trust in selection and training, and immediate trust in additional new team members.

Discussion

The results support Burt et al.'s (2009) argument that trust in selection and training can be negative for safety. Firstly, half of the participants had no opinion, agreed or strongly agreed to immediately trusting new team members which is a concern for organisations. The concern arises from statistics indicating that new team members in high-risk industries are a safety risk as they are more prone to injuries compared to employees with seniority (Bentley et al., 2002). Thus when team members immediately trust new team members to comply with safety procedures they suspend judgement based on actual behaviour and are less likely to safe guard and monitor the new team member's behaviour which can lead to accidents (McEvily et al., 2003).

Results indicated a particularly high level of trust in selection and training across the organisations which effectively place the responsibility for safety with the organisation. Burt et al. (2009) found that those team members who trust these processes are less likely to mitigate their own and their co workers risk by engaging in safety ensuring behaviours when a new team member joins their team. Safety ensuring behaviours include formally attempting to assess the employee's attitudes to safety, watching out for their safety, offering them assistance and information, and being wary of their actions (Burt et al., 2009). In the current study participants showed high levels of trust in their organisations selection and training practises, and therefore would be less likely to engage in safety ensuring behaviours when a new team member joins their team. This is a concern because a lack of safety ensuring behaviours may potentially lead to accidents.

The results support hypothesis 1 that there would be a positive correlation between trust in selection and training and trust in new team members. Thus participants who showed high levels of trust in their organisations ability to select and train safe new

employees were also more willing to immediately trust new team members to behave safely. This is concerning because literature shows that trust in safety training can be misplaced because regardless of the training received, new team members will still lack knowledge of the safety specifics of their team and this lack of familiarity has been linked to accidents (Goodman & Garber, 1988). Therefore immediately trusting a new team member based on trust in selection and training is likely to be negative for safety because new team members need be familiarised with the team practises and this can only be achieve through experience with the team.

Burt et al. (2009) suggests that team members may play a vital role in helping new team members to become accustomed to the teams practises. These authors suggest that new team members could be required to wear a specific colour safety vest during their early employment to help team members recognise that these workers need to be familiarised with the safety specifics of the team environment. Furthermore, they suggest that a system where all new employees wear a specific colour during their initial period of employment could have significant positive safety outcomes. For example, an immediately identifiable new employee warns co-workers to be especially cautious about their safety around them and it identifies employees that need to be familiarised with the safety specifics of the teams work environment (Burt et al, 2009).

Furthermore, Burt and Stevenson (2009) suggest that if a new team member has experience, this may help reduce risk, but experience is not a substitute for familiarity. A new employee entering a work situation may have a safety advantage, but equally their experience may be a disadvantage. Every work situation has unique features, and similarities between current features and previous features will likely ascertain the safety advantage that experience provides.

Due to new team members lack of familiarity with team procedures, researchers have suggested that organisations should instil a level of distrust in new team member's

ability to initially behave safely (Conchie & Donald, 2008). Instilling a level of distrust in new team members has been shown to have positive associations with effective risk regulation (Pidgeon, Weyman & Horlick-Jones, 2003). Thus team members who show a level of distrust towards new team members will be more likely to monitor the risk level that new employees pose.

Approximately only half of the participants agreed or strongly agreed that the likelihood of an accident increases when an employee joins their team. This is concerning because team members should recognise that new team members pose a safety risk as they are more prone to accidents (Bentley et al, 2002). Employees that do not perceive new team members to be a safety risk are less likely to monitor and safe guard the behaviour of new team members which can lead to accidents (McEvily et al., 2003).

Burt and Stevenson (2009) suggest that the result of the potential risk associated with new team members might not always be a higher injury rate in this group. They suggest that the victim may in fact be a long serving team member. Traditional accident statistics tend to focus on the demographics of the victim. They suggest that perhaps the characteristics of all those involved in an accident should be investigated as this might help to develop a better understanding of work place safety.

Hypothesis 2 that there would be a negative correlation between perceived risk and trust in selection and training had mixed results. At the organisational level some supported this hypothesis and some did not. In an attempt to explain this, risk level was isolated and trends from past research appeared at the highest level of risk. These results suggest at the highest level of risk the safety risk from a new team member becomes especially important to team members. Thus participants who had high risk jobs were more willing to place trust in their organisations ability to deal with the safety risk of a new employee. This is most concerning because accidents in high risk work can be

extremely serious, and therefore it is even more crucial for organisations to be aware that perceived risk from a new employee is lowered when employees trust their organisation to select and train a safe new employee.

While much of the focus of this research has been on risks associated with new employees it is important to note that new employees may also confront risks from existing team members. For example Burt et al. (2009), suggest that pre start training is likely to set in place many behavioural expectations for new employees, expectations regarding how members of their new team will behave in certain circumstances. These authors suggest that if these expectations are not correct, and the team has adopted its own way of doing things, this situation may lead to risk for the new employee.

In the current study there were clear trends in terms of the particular aspects of selection and training practises used by the participating organisations. For example, 78% of participants were asked if they had any medical conditions that may require additional preventative measures to ensure their health and safety and more than 94% of participants were issued with safety equipment.

While the current study did not assess which aspects of selection and training are most influential in trust building, the results supported hypothesis 3 that including more aspects of selection and more training processes increases team member's trust in new team members. Thus, those participants that underwent more selection processes and/or received larger amounts of safety training were more trusting of new employees compared to those that received less. Interestingly it was not the number of hours spent in safety training that affected trust building rather the number of different types of training received.

Furthermore, the number of selection processes used by organisations was positively correlated with the number of training processes undertaken by organisations. Thus, those organisations that used thorough selection processes also provided new employees

with extensive safety training. This implies that organisations build more trust in new team members if they provide them with more selection and training practises. As mentioned early, it is likely this trust is misplaced because no amount of training can provide new employees with familiarity with their team's specific practises and procedures (Goodman & Garber, 1988). This type of knowledge can only be learnt through experience with the team over time.

As mentioned earlier, results indicated a particularly high level of trust in selection and training across the organisations and only 34% of participants were informed about safety evaluation results. This is concerning as Bell and Grushecky (2006) found that safety-training programs are rarely elevated for effectiveness and inadequate or inappropriate safety training has been given as a reason for accidents in the forestry industry (Holman et al., 1987; MacFarlane, 1979). This highlights the importance of recording and monitoring safety training effectiveness and letting employees know the accident involvement rates of new team members. Thus, safety training evaluation results could be viewed as a more appropriate measure of how much trust can be placed in new team members (Burt et al., 2009).

Findings support hypothesis 4 that previous safety outcomes of new team members mediates the relationship between trust in selection and training, and immediate trust in new team members. This suggests that when an organisation selects and trains a new team member that acts safely they build team member's trust in the organisations ability to select and train every new employee to act safely. Hence team members may begin 'using rules of thumb' to formulate expectations about the trustworthiness of new team members (e.g., the last new team member acted safely therefore the next new team member will). While these 'rules of thumb' may often be reasonably accurate (Dirks & Ferring, 2001), trust as a heuristic may produce systematic biases that can result in judgements that are substantially flawed and costly (McEvily et al., 2003). For example,

basing judgements of new team member's safety compliance on the actions of previous new team members could potentially have devastating safety effects. This is because no matter how thorough selection procedures are or how much safety training is given to new employees every workplace is a configuration of machines, materials, physical environment, people and programs concerning how work should be done and new team members are not familiar with all these things. Thus, regardless of how much training is given, the specific knowledge new team members have about the unique aspects of the workplace and their team can only be gained through experience with the team (Goodman & Garber, 1988).

It is important to note that every new team member will act differently. Burt et al. (2009) suggest that a new team member may not pose a threat to the team and they may in fact bring positive best practise safety behaviours to the team environment. Thus in this manner, turnover might improve the general safety performance of the team. Still, every new team member is going to be different and while the last new team member may have created a real gain in team safety, the next could be a potential risk. Thus, a new team member that adds to the safety environment because of their positive safety attitude or behaviour, enhances the immediate trust associated with future team members, and in effect reduces team safety.

Limitations

All of the data that was collected during this research was on a self-report basis and therefore potentially subject to common method variance (Kline et al, 2000). To minimise the risk of common method variance the order of the scales was randomised to minimise this potential issue.

Health and Safety is an important issue in high-risk industries. Some participants may have felt obliged to respond in a more desirable manner. Evidence of this may be

seen in participants inflated ratings of items pertaining to trust in management's ability to select and train safe employees.

In some organisations, the completed questionnaires were returned by employees to managers to give back to the researcher and therefore participants may have been less willing to respond honestly. However, the researcher advised managers to ensure anonymity with the questionnaires and several organisations set up a drop box for employees to return completed questionnaires to. Furthermore, all participants were given a confidential envelope to put their completed questionnaire into. Additionally, the researcher included a statement of anonymity of the respondent's data and a statement of the importance of being as honest as possible on the front of the questionnaire.

Some managers that were approached decided not to participate as they perceived the length of the questionnaire to require too much of their employees time. However, the majority of the questionnaire was tick box style so that participants simply had to tick a box rather than write long responses. Several managers also commented that the completion of the questionnaire was above the reading age of some of their employees. However, this did not appear to be too much of a problem because the majority of participants fully completed the questionnaire.

Several participants left the pre start safety training hours item blank and commented that they could not remember how many hours they had spent in pre-start safety training as they had worked for their organisation for a long time. Similarly, several long-standing employees commented that they could not remember the number of hours spent in on the job training since first employed with their organisation.

The current study did not assess the organisations in terms of safety performance. A measure of safety performance may have been important in terms of assessing whether the high levels of trust participants placed in their organisations ability to select and

train a safe new employee could be related to good safety performance of new team members. Thus, while measurement of safety performance is notoriously problematic as measures such as accident rates tend to be reactive and relatively infrequent (Cohen, 2002), a direct measure of new team member accident rates within the organisations could have provided further insight into the relationship between new team member involvement in accidents and trust in selection and training.

Directions for Future Research

The mediation effect is an important area for future research. Longitudinal research may be undertaken to provide insight into how trust levels in selection and training may change based on experience with new employees overtime.

While the current research concluded that including more aspects of selection and training builds more trust in new team members, future research could attempt to further break down which aspects of selection and training are particularly important in the trust building process. This would let organisations know which specific processes build the most trust.

Summary and Conclusions

The focus of this research was on how trust in the context of employee turnover can be negative for safety. The results from this study replicated important findings from previous research which highlight how trust in selection and training can reduce perceived risk from new team members and increase trust in new team members.

In line with past suggestions, where employees work in high risk, team based and interdependent situations, instilling a level of caution about new team members may ensure team members monitor their behaviour more closely which could play an important role in accident reduction. Additionally, team members need to be made

aware that trust in training may be misplaced because no amount of training can make new team members familiar with the safety specifics of their team. This type of knowledge and understanding can only be gained overtime through working with the team.

The current study also added insight to this argument by assessing how organisations build trust. In particular it appears trust is built by having new employees complete a larger number of selection and training practises. Thus organisations need to be aware of the trust building processes associated with hiring and training a new employee and team members need to be aware that while new employees may undergo extensive selection and training practises, they should not be immediately trusted to comply with safety procedures. Organisations could encourage team members to help familiarise new team members with how their team operates. Additionally it is important for organisations to offer training evaluation results to team members as these results are likely to be a more accurate basis for how much trust can be placed in new employees to behave safely.

Finally, this research has also added significant understanding to how team member behaviour may mediate the relationship between trust in training and selection and trust in additional team members. This should be recognised as an important finding as it highlights how previous actions of new team members can potentially lead to misplaced trust in new team members and ultimately reduce team safety.

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Appendix I

Front Page of Occupational Safety Questionnaire

Occupational Safety

Thank you for participating in this research. This survey is about your views on issues related to workplace safety. The purpose of the research is to further our understanding of factors that influence worker safety.

Who will see your answers?

- This survey is entirely **anonymous** and **confidential**. Please **do not** write your name on it. We guarantee that no one outside our research group will have access to your personal views.
- Any reports on the outcomes of this research will not identify the organisations which participated.

How to complete the survey

- Please complete the survey *for your current job*.

- Read each question carefully then answer giving your *first reaction.*

- Please *answer all of the questions*.

- The usefulness of this survey depends upon the frankness and honesty with which you answer the questions.

Please note that the word **team** appears in a number of the questions. Some organizations use the word **crew** to describe employees that work together. In other situations people work together but may not be referred to as either a team or a crew. For the purposes of this survey please assume that team and crew mean the same thing, and that team refers to the people you work with each day.

Informed Consent
By completing this survey you are consenting to the publication of the results on the basis that no individual, teams or organizations are identified.

This survey has been reviewed and approved by the Department of Psychology, University of Canterbury.

Appendix II

Questions in Occupational Safety Questionnaire

General Questions:

1. Age _____

2. You are: Male ☐   Female ☐

3. What is your job title ………………………………………………………

4. How many people work in your team? _____

5. How long have you worked in this team? _____years _____months

6. How long have you worked for this organization? _____ years _____ months

7. How long have you worked in this industry? _____ years _____ months

8. How many people have left your team in the time you have worked in it? _____

9. How many new employees have joined your team since the time you started? __

10. Typically how frequently do people leave (resign) from your team?

    Weekly ☐   Monthly ☐   Every few months ☐   Not very often at all ☐

11. Typically how frequently do new members join your team?

    Weekly ☐   Monthly ☐   Every few months ☐   Not very often at all ☐

12. How risky is your job? Please tick the statement which best describes your job.

    You could be killed doing this job ☐

    You could have a serious accident doing this job ☐

    You could have a minor accident doing this job ☐

    There really is very little chance of injury from doing this job ☐

Your Job: Team Member Interaction

Jobs vary in terms of the amount of interaction that is required with other team members. The following items are about how much job related interaction you have with your team members.

Please indicate how much **you** agree with each of the following statements.

	Strongly disagree	Disagree	Neither agree/ disagree	Agree	Strongly agree
I work closely with my team in doing my work	1	2	3	4	5
I frequently must coordinate my efforts with my team	1	2	3	4	5
My own performance is dependent on receiving accurate information from my team members	1	2	3	4	5
The way I perform my job has a significant impact on my team members	1	2	3	4	5
My work requires me to consult with my team members fairly frequently	1	2	3	4	5

Your Team

Teams vary in terms of how they react to safety issues. The following items are about safety reactions.
Please indicate how much **you** agree with each of the following statements.

	Strongly disagree	Disagree	No opinion	Agree	Strongly agree
Members of my team say a good word whenever they see a job done according to the safety rules	1	2	3	4	5
My team seriously considers any team members' suggestions for improving safety	1	2	3	4	5
Members of my team approach each other during work to discuss safety issues	1	2	3	4	5
Members of my team get annoyed when anyone ignores safety rules, even minor rules	1	2	3	4	5

Your Organisation

These questions are about your organization, and in particular what you think about the processes that occur when a new employee is recruited for your team.

Please indicate how much **you** agree with each of the following statements.

	Strongly Disagree	Disagree	Neither Agree/ Disagree	Agree	Strongly Agree
Safety attitudes are considered equally as important as job skills when selecting a new member for my team	1	2	3	4	5
Safety attitudes are assessed when a new member is selected for my team	1	2	3	4	5
The organisation knows all the safety issues to assess in applicants who apply to join my team	1	2	3	4	5
The organisation recruits new team members who have good safety attitudes	1	2	3	4	5
The organisation's safety training ensures a new team member behaves safely	1	2	3	4	5
Team supervisors provide safety information for a new team member	1	2	3	4	5
Management ensure that a new team member fully understands all safety procedures and policy	1	2	3	4	5

New Team Members in General

These questions are about how you react when a new individual joins your team and your general opinions about new team members.

Please indicate how much **you** agree with each of the following statements.

	Strongly disagree	Disagree	Neither agree/ disagree	Agree	Strongly agree
It is safer to assume initially that a new team member will not follow safety procedures	1	2	3	4	5
It is particularly important to watch out for the safety of a new team member	1	2	3	4	5
Everyone pays more attention to safety when a new member joins the team	1	2	3	4	5
It is important for safety for me to encourage a new team member to ask about safety procedures	1	2	3	4	5
Immediately determining the safety attitudes of a new team member is important for team safety	1	2	3	4	5
It is important for team safety for me to find out the safety history of a new team member	1	2	3	4	5
The likelihood of an accident/incident increases when a new employee joins my team	1	2	3	4	5
A new team member can be immediately trusted to comply with safety procedures and policy	1	2	3	4	5
New team members are familiar with the specific characteristics of the equipment which my team uses	1	2	3	4	5
New team members are familiar with the specific characteristics of the physical environments within which my team normally works	1	2	3	4	5
New team members are familiar with the specific operational procedures which my team uses	1	2	3	4	5
New Team members are familiar with the specific way in which my crew do their job	1	2	3	4	5

Employees That Have Joined Your Team

These questions are about employees that have joined your team since you have been working with it.

If no new employees have joined your team since you started tick this box ☐ and move to the next section.

Please indicate how much **you** agree with each of the following statements.

	Strongly disagree	Disagree	No opinion	Agree	Strongly agree
Workers that have joined my team have had a positive attitude towards safety	1	2	3	4	5
Workers that have joined my team have worked in a safe way	1	2	3	4	5
Workers that have joined my team have been open to talking about safety	1	2	3	4	5
Workers that have joined my team have quickly adopted the team's approach to safety	1	2	3	4	5
Workers that have joined my team have taken unnecessary risks	1	2	3	4	5
Workers that have joined my team have put other team members in danger	1	2	3	4	5
Workers that have joined my team have introduced new ideas which have improved team safety	1	2	3	4	5
Workers that have joined my team have asked a lot of questions about safety	1	2	3	4	5
Workers that have joined my team have worked carefully as they were learning the job	1	2	3	4	5
Workers that have joined my team have been open to constructive criticism about their safety behaviour	1	2	3	4	5
Workers that have joined my team have readily asked for clarification on safety matters	1	2	3	4	5
Workers that have joined my team have questioned why safety procedures are followed	1	2	3	4	5

Recruitment Process Questions

When <u>YOU</u> were recruited for this job did the organization ask about any of the following?

 Please indicate Yes or No for each item.

	Yes	No
You were asked about your attitude towards safety		
You were asked about your accident history		
You were asked if you had the abilities to do the job in a safe way		
You were asked about your knowledge of safety procedures		
You were asked if you had made any ACC claims		
You were asked if you had undertaken any safety training		
You were asked if there was any reason why you might not be able to do the work in a safe way		
You were asked if you had any medical conditions that may require additional preventative measures to ensure your health and safety		
You were asked what experience you have had with job specific hazardous equipment/procedures		
You were asked about the steps that you would take to minimise risk in the work environment		
You were asked what things in the work environment would signal danger		
You were asked about how you had or would respond in a certain dangerous situation		
You were asked to take a personality test		

Induction and Pre-start Training

After YOU were recruited for this job were you given any of the following types of pre-start induction/training? Please only indicate Yes if it occurred **before** you actually began working with the team.
Please indicate Yes or No for each item.

	Yes	No
Given a safety manual		
Had a formal discussion with co-workers about safety		
Had a formal discussion with your team supervisor about safety		
Given practice in the safe operation of machinery/tools		
Given a guided tour of the work site		
Issued with safety equipment		
Shown how to use safety equipment		
Given information about how to report hazards		
Shown specific hazards in the workplace		
Told what your responsibilities were in terms of health and safety		
Informed about safety-specific roles of others in the organisation (e.g. who was on Health and Safety Committee)		
Received training/information on injury statistics		
Received training/information on factors contributing to injury in this job		
Received training/information on hazards and how to manage them		
Received first aid training		
Participated in an accident simulation		
Received computer based safety training		
Were Informed about training evaluation results (how training had improved safety)		

How much time did you spend in <u>pre-start induction training</u>? _____Hours

How much time have you spent on safety training <u>since you started in the job</u>? ___Hours

Thank you very much for completing this survey