

Insight into Termination Process in New Zealand: Productivity and Accuracy under the Threat of Job Loss.

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By Nikita Seremetovs

Research Supervisors:

Dr. Katharina Näswall

Dr. Deak Helton

University of Canterbury

Christchurch, New Zealand

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1. Abstract

Due to current pressure of more dynamic and competitive nature of the surrounding environment increasing number of New Zealand employers engage in the termination process against their employees. Although, termination is a common performance management strategy, it has some adverse effects on employees and organisations and can result in unwanted lay-offs. To investigate the effects of the termination process on individuals' performance, 41 female and 39 male university students performed the UAV visual search task for three 10-minute work sessions in either the productivity/accuracy prioritisation condition, or in the accuracy/productivity condition. Half the participants received fictional appraisal reports during work session breaks followed by dismissal warnings. As hypothesised, participants exposed to threat of job loss experienced more stress than subjects did not face lay-offs. Unexpectedly, this research showed no significant effects of greater stress on productivity and accuracy. An empirical support showed significant effect of prioritisation of these performance factors on individuals' response behaviours. Finally, there were no gender differences in stress or performance. These findings suggest the New Zealand termination process is likely to increase employees' stress, which could lead to a number of negative consequences. Practical and theoretical implications as well as potential limitations and considerations for further research are discussed as part of this research.

2. Insight into Termination Process in New Zealand: Productivity and Accuracy under the Threat of Job Loss.

Under current pressures of changing global economies, increased technological advances, as well as a dynamic and highly innovative nature of the surrounding competition, the majority of modern companies have engaged in organisational restructuring in the form of corporate downsizing, mergers, acquisitions, plant closings, and workforce reorganizations (Cascio, 1993; Kets de Vries & Balazs, 1997; Palmer, Kabanoff, & Dunford, 1997; Clarke, 1999). Organisations engage in such major corporate interventions in effort to improve their effectiveness by simplifying bureaucracy, speeding decision making, facilitating communication, enhancing entrepreneurship, lowering production costs, and increasing productivity (Vickers, 2006; Sverke & Hellgren, 2001). These changes affect millions of workers in various countries around the World including New Zealand, in which employment has fallen dramatically over the past few years. Between December 2008 and September 2009, there were 80,500 jobs lost due to recessionary climate, and between December 2009 and September 2010, net losses were totalling 21,500 (Statistics New Zealand, 2012). The majority of those jobs were full-time employment positions. Although, some of those job losses are a consequence of plant closings or organisational downsizings, when positions get closed and workers are made redundant, a large number of New Zealand employees lose their jobs, when their employer engages in termination the process against them. Therefore, termination and redundancy can now be considered to be a normal part of organisational life (Vickers, 2002; Orlando, 1999) and one of the inevitable outcomes of living in a global world economy (Kets de Vries & Balazs, 1997). More importantly, terminations and redundancies are likely to affect both workers who are going through these processes as well as those who remain in the organisation (Hartley, Jacobson, Klandermans, & Van Vuuren, 1991; Hirsh, 2011).

These two processes might be similar in the sense that they both entail uncertainty for the individuals involved in them, but unlike planned or forced redundancies, the termination process is targeted towards improvement and management of employees' performance and/or behaviours without intention of actual layoffs (Department of Labour, 2012). It is likely that the employees' inability to cope with fear of job loss and associated uncertainty, would lead to their inability to improve performance and/or change their behaviours, which would result in unwanted dismissal. Lack of knowledge of termination process and its effects on employees' behaviours and attitudes towards important organisational outcomes such as performance, is likely to lead to undesirable turnover, which could be very costly to organisations (Rose, Miller, & Stecher, 1994). Therefore, it is critically important to study New Zealand termination process and its effects on employees in order to reduce potentially undesirable outcomes.

2.1 Job insecurity

Workers who remain working in organisations during major corporate changes involving layoffs, are most likely to develop a fear of job loss, which can be considered one of the most dramatic work experiences (Sverke & Hellgren, 2001). Similarly, if an employer would engage in the termination process against employees, their fear of job loss is expected to rise even higher. Taking up to a third of our everyday lives, work has become an important factor satisfying our economic and social wants, and needs. It provides us with a source of income, facilitates social contacts, and aids personal development. Perceived threat of upcoming job loss, such as one that would develop during termination, can result in frustration of these needs as well as loss of essential financial and social resources (De Witte, 1999). Greenhalgh and Rosenbatt (1984) referred to such threats as perceived job insecurity.

One of the main aspects of job insecurity is related to its subjectivity. Each individual develops an experienced anticipation of imminent job loss as a fundamental and involuntary event based on interpretations of their work environment (Hartley et al., 1991; Sverke, Hellgren, & Näswall, 2002). Therefore, job insecurity can be described as a discrepancy between employee's preferred and experienced level of job security. Based on that assumption the same employment situation can evoke dissimilar experiences in different individuals, and be an important factor in employment situations that from the first sight appear to be unthreatened (Rosenblatt & Ruvio, 1996). In addition, job insecurity is associated with the experience of uncertainty about the continuation of employment (De Witte, 1999). As a result, perceived job insecurity can be considered a classic mental stressor causing strain that is developed due to uncontrollability and unpredictability of job employment (De Witte, 1999; van Vuuren & Klandermans, 1990).

Uncontrollability implies a sense of helplessness against the stressor (Dekker & Schaufeli, 1995; Greenhalgh & Rosenblatt, 1984). Employees may experience uncontrollability associated with job insecurity when perceiving threats against their job and having a small number of options to influence the situation. In addition, strain is likely to arise due to unpredictability of the situation associated with employee's inability to predict what will happen in the future when threatened with job loss. It is important to mention that a job insecurity situation is different from a situation when an employee is certain of one's job loss in which the future is clear, and the individual can start preparing for the forthcoming job loss (Dekker & Schaufeli, 1995; Mantler, Matejicek, Matheson, & Anisman, 2005). According to Lazarus and Folkman (1984) the anticipation of stressful events may result in equal if not greater level of anxiety than the actual event. Supporting research has shown that increase in job insecurity is positively related to an increase in stress. In addition, distress was

higher for people who were experiencing job insecurity during their employment, than those who were already unemployed (Roskies & Louis-Guerin, 1990).

2.2 Job Insecurity as a Stressor

Cohen, Kamarck and Mermelstein (1983) defined stress as psychological and physiological response to stimuli that is perceived as harmful, threatening, or challenging to an individual's ability to adapt or cope. According to the transactional model of stress developed by Lazarus and Folkman (1984) if demands that are imposed on individuals by the internal and/or external environment exceed their ability to cope, they are perceived as stressful stimuli, or stressors. Hence, the occurrence of psychological stress depends upon the individual's appraisal of the stressor and available resources to deal with that stressor (Lazarus, 1993).

For each situation individuals engage in two levels of appraisal of the environmental demands and available resources. During primary appraisal an individual makes a subjective judgement regarding an event. Based on that judgement an individual decides whether an event is harmful, a threat, or a challenge (Lazarus & Folkman, 1984). An individual appraises a situation as harmful, if damage or loss has already occurred. If an individual believes the event could produce harm or loss in the future, a situation is perceived as a threat. Finally, an individual will appraise situation as a challenge, if he or she believes that there is a possibility of some kind of change or growth.

During secondary appraisal individuals assess their coping resources and available options to address stressful situations they are in (Lazarus & Folkman, 1984). Normally there are numerous physical, psychological, social, economic, and organisational resources available to an individual to use in order to adapt to, or cope with stressful situations. Stress is likely to occur when the stressor exceeds the resources available to an individual (Selye, 1976). Therefore, stress is only likely to

arise when employees perceive an adverse imbalance between their work demands and resources available for them to use to cope with those demands. To prevent or reduce such distress, individuals would have to engage in some form of coping to restore balance between demands and their abilities (Lazarus, 1993).

Past research into task-induced stress revealed that individuals actively regulate their ability to meet their task demands in stressful environments using different coping strategies (Lazarus & Folkman, 1984; Matthews & Campbell, 1998; Stanton & Young, 2000). In the context of the transactional model, coping denotes to cognitive and behavioural efforts to reduce or tolerate the internal and/or external demands created by stressful situations (Lazarus & Folkman, 1984). Matthews and Campbell (1998) classified three styles of coping that are directed towards various factors of the stressful environment. During task or problem-focused coping, individual behaviours are directed towards constructive action to alter the stressful situation, such as replenishing resources. Emotion-focused coping is used to regulate the emotional consequences of a stressful situation. Finally, individuals, who have experienced damage or loss, would use avoidance coping strategies in the effort to come to terms with the stress. Coping strategies engage available resources to reduce demands or increase resources, in the effort to reach equilibrium, and as a result to reduce stress (Mak & Mueller, 2000). In a threatening or challenging situation, where the equilibrium is not reached due to lack of adequate coping resources, an individual will experience additional stress to what has already been incurred after the initial appraisal of demands.

According to the more recent conservation of resources (COR) theory, introduced by Hobfoll (1998), the combined effect of an individual's subjective perceptions of an event as demanding or as exceeding available resources, and the effect of objective or actual environmental circumstances that threaten or lead to reduction of resources, will result in additional distress. Personal resources, such

as self-efficacy, perceived control, and perceptions of improvement, as well as social resources including emotional support, friends and family assistance, can act as a buffer against stress, moderating the harmful effects of stressful life events (Folkman & Moskowitz, 2004; Haines, Hurlbert, & Zimmer, 1991; McFarland & Alvaro, 2000;). Since individuals rely on these personal and social resources or mobilization of new resources in order to cope (Lazarus & Folkman, 1984), challenging or threatening situations that are adversely affecting their existing resources, will affect their ability to cope, resulting in even greater levels of stress.

De Cuyper, Notelaers and De Witte (2009) discuss two types of stress, in the context of job insecurity, based on its continuation and effects. Acute stress is a short term form of stress that arises from every day demands of the recent past and expected demands of the upcoming future. Acute stress associated with job insecurity is likely to have immediate negative effects on the individuals and the organisation. However, it is believed to be less harmful, since there is not enough time for the extensive damage of strain to take effect (De Cuyper, Notelaers, & De Witte, 2009). In contrast, chronic stress is associated with on-going demands, which elicit a continuous stress reaction, and if not resolved through coping or adaptation, may affect individuals' physical and psychological well-being (Cohen & Herbert, 1996; Sverke & Hellgren, 2001; De Witte, 1999). Job insecurity, work and role conflict, role ambiguity and overload, as well as lack of control, are one of the most common work stress sources (Burchell, Ladipo, & Wilkinson, 2002). Recent studies using similar stressor-stress-outcome frameworks also supported the assumption that job insecurity is indeed a stressor (Sverke & Hellgren, 2001; Virtanen, Vahtera, Kivimäki, Pentti, & Ferrie, 2002).

Based on recent meta analyses individuals who will experience stress in an uncertain work environment associated with job insecurity will feel less satisfied with their job and have lower job involvement (Sverke, Hellgren, & Näswall; Cheng & Chan, 2008).

Job insecurity also affects employee's psychological and physiological well-being, causing higher levels of emotional distress, leading to anxiety and/or depression (Griffin, Greiner, Stansfeld, & Marmot, 2007; Heaney, Israel, & House, 1994). This could later lead to suicidal behaviours and ideation (Classen & Dunn, 2011).

However, the potential impact of job insecurity is not limited to the well-being of the individual. Job insecurity was found to have important organisational outcomes such as lower trust in organization, resulting in lower organizational commitment and decreased individual performance (Cheng & Chan, 2008). Insecure employees engaged more frequently in work withdrawal behaviours such as absenteeism, belatedness, and work task avoidance, and were more likely to quit their job (Sverke, Hellgren, & Näswall, 2002; Cheng & Chan, 2008). That is particularly relevant to the more educated employees, who were more valuable to the organisation, but also the most attractive on the labour market. Finally, research investigating the effects of job insecurity on employee safety outcomes, suggests that employees who perceive their jobs to be insecure, report lower levels of safety knowledge, and reduced motivation to comply with safety policies in place (Probst & Brubaker, 2001). Consequently, job insecurity is associated with a decrease in safety compliance and an increase in job-related accidents and injuries (Probst & Brubaker, 2001).

2.3 Job Insecurity in Termination Process

The organisational termination and dismissal process is likely to be one of the reasons why employees would experience job insecurity and develop higher levels of acute and everyday chronic stress, affecting their well-being, as well as their performance attitudes and behaviours. In the work related context employees' job insecurity is related to their belief of impending job loss (Greenhalgh & Rosenblatt, 1984). Hence, if employees will see that their colleagues are getting terminated, or

hear that the organisation they are working in is planning to engage in organisational restructuring or downsizing, their job insecurity is most likely to rise. Most importantly, employees will develop an even higher level of job insecurity if they are the ones getting terminated.

During the termination process an increase in job insecurity will correspond to an increase in environmental demands (Lazarus & Folkman, 1984). Based on employee's initial appraisal of extra demands imposed on them and their abilities to cope, employees will perceive the situation as stressful. The stress levels employees will experience during termination will vary depending on workers' subjective judgement of their employment situation as either threatening, challenging or harmful. In addition, the uncertainty associated with perceived job insecurity during the termination process will reduce employees' ability to choose and apply effective coping strategies (Hobfoll, 1998; Lazarus & Folkman, 1984). Therefore, employees are more likely to experience a lack of adequate coping resources which will result in distress.

There are thousands of companies around New Zealand that engage in the termination process against their employees, on the basis of underperformance or violation of contract, without realising the consequences of their actions. Having an understanding of these consequences is critically important for organisational success (Tähtinen, 1999). This research will provide better understanding of business relationships in general. Identification of termination process characteristics is likely to provide important insight into control and management of employer and employee relationships, that are valuable in rebuilding and maintaining old relationships, as well as establishing new ones (Laine & Ahman, 2001). More knowledge about the termination process and how it affects employees may help to develop effective training and development strategies that would to reduce negative effects of dismissal such as poor performance and turnover.

When aiming at understanding the effects of the termination process as a whole, it would be logical to identify the procedure for termination first. New Zealand firms have to follow specific rules when it comes to termination of their employees on the basis of underperformance or violation of contract (Department of Labour, 2012; Knowsley, 2004). As a part of the process, an employer carries out an investigation of the relevant facts involved in the case. After all the facts are gathered and reviewed by employer, he/she then decides whether there are going to be allegations put against the targeted employee. If an employer decides to go forward with allegations, he/she usually holds a meeting, where all the required information is communicated to an employee. Employees are commonly advised to have a lawyer or a second person, who will serve as their witness during that meeting. The employee is then given a sufficient period of time to gather facts in his/her defence and respond to these allegations. Taking all the facts into consideration an employer then decides what action to take. If the employee was not able to defend himself and the allegations were substantial, the employer issues a verbal warning to employee with a record of offence made on file. In the situation when the employee still continues to underperform or displays undesirable behaviour, the employer follows similar investigation procedures to decide whether to issue a second written warning with a copy to go on file. Finally, if the employee's behaviour remains the same or the employer is still unsatisfied with performance of the worker, the employer carries out a final investigation. He/she will then hold a final meeting with the employee to communicate allegations and issue a dismissal notice under the employee's contract. A dismissal without notice is only appropriate for serious breach situations, where the employer must still follow all the steps previously described. For all but the most serious matters, the employer must warn the employee of the misconduct and require an improvement in behaviour. The employee must also be informed that

this is a warning, and that his or her job may be in jeopardy should their conduct or performance not improve.

The transactional model of psychological stress and coping (Lazarus, 1966; Lazarus & Folkman, 1984) can be used to explain how New Zealand termination process and job insecurity interact to create employee distress. An employee, who will receive their first verbal warning, will perceive and increase in job insecurity, which will correspond to an increase in employees' environmental demands. At this stage of the termination process, employees are likely to recognise a need for change in order to avoid receiving a second warning. Accordingly, workers will appraise their situation as challenging. Perceived imbalance between employee's abilities and their efforts against the new demands will result in an increase of employee's stress level. Induced stress is likely to motivate them to use their available resources to cope with extra demands imposed on them.

If the employee will receive his/her second written notice, their job insecurity is likely to rise even higher. Hence, employees will perceive a further increase in environmental demands. As a result, their perception of the situation is likely to change. Workers will now recognise their inability to cope with extra demands imposed on them initially, and the demands associated with the second notice. Furthermore, they will realise that they are likely to lose their job in the near future. Therefore, the situation will be perceived as a threat to their employment. Workers stress will rise even further preventing them from choosing appropriate coping strategies and leading to even greater distress levels (Ashford, Lee, & Bobko, 1989; Lazarus & Folkman, 1984). At this stage the employee will be under a large amount of stress associated with uncontrollability (perceived inability to cope with extra demands) and unpredictability (uncertainty about future employment), which will make them less capable to satisfy employers demands, leading to termination.

Finally, when the employee will receive his dismissal notice followed by loss of their job, the situation will be perceived as harmful. This event is likely to be associated with the highest level of distress followed by recovery stage. During recovery stage an employee is likely to use avoidance coping strategies to come to terms with job loss, resulting in similar or slightly lower levels of distress (Mak & Mueller, 2000; Roskies & Louis-Guerin, 1990).

Hypothesis 1: Individuals, who are engaged in the termination process, will to have higher distress levels than individuals who are not engaged in the termination process.

2.4 Job Insecurity Effects on Performance

An important relationship between stress and performance has been studied for many years. Task performance has been identified as one of the two broad classes of employee behaviour that contributes to organizational effectiveness and success (Borman & Motowidlo, 1993 cited in Kiker & Motowidlo, 1999). It incorporates patterns of behaviours that are directly engaged in production of goods and provision of services as well as other activities that provide substantial implicit support for the company's core processes. The majority of modern companies have been focused on improving these production factors to reduce their costs (Kahya, 2007). There is a substantial amount of research concerning this relationship (Bashir, 2010; Kahya, 2007; Probst, 2002), with main applications focused on improving job performance, employee training and job redesigning.

The mechanisms underlying the effects of stress on performance have been investigated and described in terms of psychological arousal (Spence & Spence, 1966), the change of attentional fields (Nideffer, 1976), and more recently, allocation of attentional resources (Eysenck & Calvo, 1992; Jones, 1990). According to attention resource-allocation approach, stress will cause

inappropriate allocation of information-processing resources that are critical for successful performance, as a result reducing individual's performance. However, Bashir (2010) suggests that some stress can have a positive effect on employees of any organization, although up to a certain point, to which employees can cope with their environmental demands. He suggests that there is a difference between stress and pressure. Generally, pressure has positive effects on an individual's performance. Everyone needs a certain amount of pressure to perform well. Take for example athletes, singers and actors. However, problems arise when the pressure of the individuals sources of demands become too frequent, without time to develop coping strategies, or when one source of pressure is too great for an individual to cope with (McGrath, 1970).

Research suggests that some insecurity is a good thing when it comes to performance (Probst, 2002). Some evidence proposes an inverted-U shape relationship between job insecurity and employee work effort (Brockner, Grover, Reed, & DeWitt, 1992; Probst, 1998). More specifically, employees with a low level of job insecurity would have a lower overall level of performance due to complacency. During employment, employees are likely to form a psychological contract that appropriate levels of performance and behaviours will guarantee their pay, promotions and job security (Rousseau, 1995). Therefore, unless the employers are engaging in the termination process against them, workers remain certain that their performance and behaviours are satisfying their employers, and layoffs are not going to take effect. As a result, they develop complacency, and see no reasons to improve their performance and/or behaviours. Alternatively, a high level of job insecurity tends to exhibit the lowest amount of work effort due to the feelings of helplessness experienced by individuals in such situations (Seligman, 1975), which is consistent with Lazarus and Folkman's (1984) transactional model of stress and coping. According to Eysenck and Calvo (1992) anxiety, which arises as a result of a threat of being dismissed, can either drain working memory

resources leading to a decrease in performance or increase cognitive arousal, therefore serving as a motivator that results in performance improvement.

In the context of New Zealand termination process, when employees receive their first dismissal warning, they will perceive their work situation more challenging due to an increase in demands, which will result in reduced complacency. Consequently, individuals will be motivated to perform the task better in order to reach equilibrium between extra demands placed on them and their performance, and as a result, reducing stress to satisfying levels. However, when employees receive their second dismissal warning, they will perceive a further increase in job insecurity. Due to this increase in environmental demands individuals will begin to perceive their work situation as a threat to their future employment. As a result, one will develop greater levels of stress. In this situation, employees are likely to develop a feeling of helplessness, which will result in reduced effort to perform.

Therefore, it is expected that individuals with moderate levels of job insecurity should have the highest performance levels as experienced job insecurity is great enough to overcome complacency but not strong enough to induce feelings of helplessness.

Hypothesis 2: It is expected that after the first dismissal warning, individuals, who are going to be informed about their poor performance and likelihood of being terminated, will have higher overall levels of performance than individuals, who are not being terminated.

Hypothesis 3: It is expected that after the second dismissal warning, individuals, who are going to be informed about their poor performance and likelihood of being terminated, will have lower overall levels of performance than individuals, who are not being terminated.

2.5 Competing Demands

Important job performance criteria includes worker productivity and product quality of output, which are often seen as competing demands faced by employees (Probst, 2002). In the modern world workers are pressured to be as productive as possible, with production frequently linked directly to pay and promotion opportunities. Employees are also expected to produce high quality outputs, which in turn help to reduce amount of scrap or waste, as well as maintain high customer satisfaction. In addition to all of the above, workers are expected to complete their tasks while following a number of safety policies and procedures designed to prevent them from injury at work. Research suggests that these demands have been seen as competitive in nature (Faverge, 1980; Janssens, Brett, & Smith, 1995; Probst, 2002). For instance, in an organisation where there is a lot of emphasis placed on production, employees are likely to perceive safety demands as less important (Janssens, Brett, & Smith, 1995). A similar association exists between production and attention to quality or accuracy (Probst, 2002).

Workers' accuracy is a unique and important type of quality measure in the industry (Duncan & Gray, 1975). It has been widely investigated in ergonomics and industrial psychology as since it is one of the most common causes of accidents, or unacceptable performance in a person-machine interactive environment (Kulich & Wong-Reiger, 1999). The critical role of worker response accuracy in automated systems was dramatically illustrated during two most serious nuclear power plant accidents at Three Mile Island (28 March 1979) and Chernobyl (26 April 1986), when operators were unable to detect mechanical failures that led to the release of radiation. In a technologically advanced person-machine environment, workers are required to process tremendous amounts of information to prevent emergency situations.

Kanfer and Ackerman (1989) proposed that people in fact have a limited number of cognitive resources that can be redistributed among a number of tasks in a given point in time. Each individual can allocate these limited cognitive resources to on-task, off-task or self-regulatory activities while performing a task. In a work specific environment, on-task activities would include behaviours related to productivity, production quality, and safety compliance. Off-task activities comprise task unrelated behaviours, such as talking with workers, thinking about personal life and family. Self-regulatory activities are directed towards monitoring of the surrounding work environment. In the dismissal/termination scenario employees involved in the monitoring of their own job security would be classified as a self-regulatory activity, which involves appraisal of organisational changes and estimation of their effect on one's job. If an employee feels secure about his job, associated self-regulatory activities are likely to be disengaged, which would leave more cognitive resources available for the on-task activities of production, quality, and safety. However, in the situation when employees perceive their job as highly insecure, some of the cognitive resources are likely to be directed towards self-regulatory activities, aimed at monitoring job status.

Valence-instrumentality-expectancy theory (Vroom, 1964) suggests that an individual generally directs one's effort towards activities that lead to desired rewards. Therefore, if an employee believes that productivity is more likely to be rewarded, that person would be highly motivated to concentrate on behaviours related to productivity. In addition, Mandler (1982) proposed that stress could force individuals to narrow their focus on a few specific aspects of their environment. Therefore, in the situation of dismissal, where individuals feel threatened about losing one's job, they are most likely to focus their attention on the aspect of their environment that is consistent with their perceptions of the organisation's prioritisation of productivity, production quality, and safety (Probst, 2002).

Consider of employment situation, where an employee perceives job demands of productivity and accuracy, as competing demands of his/her environment. During a termination process, the employee is likely to feel threatened about future employment and perceive an insufficient number of resources to deal with extra demands. Hence, the individual will be motivated to act based on his/her belief of how important the productivity and accuracy are in the work environment, and how likely those demands are, to be rewarded with job security. Therefore, if an employee believes that demands of productivity are more important, or they are more likely to be rewarded, accuracy motivation is likely to be replaced by the productivity motivation. This will result in the majority of available resources directed towards productivity improvement. The reverse will happen if an employee perceives demands of accuracy as more important.

Hypothesis 4: It is expected that individuals, who are going to be informed that productivity is more important to an organisation and/or more likely to be rewarded than accuracy, will have the highest productivity after receiving their first verbal warning, but lower accuracy than individuals who are not threatened with layoffs under the same performance prioritisation condition.

Hypothesis 5: It is expected that individuals, who are going to be informed that accuracy is more important to an organisation and/or more likely to be rewarded than productivity, will have the highest accuracy after receiving their first verbal warning, but lower productivity than individuals, who are not threatened with layoffs under the same performance prioritisation condition.

Hypothesis 6: It is expected that individuals, who are going to be informed that productivity is more important to an organisation and/or more likely to be rewarded than accuracy, will have lower productivity after receiving their second written warning, and lower accuracy than individuals who are not threatened with layoffs under the same performance prioritisation condition.

Hypothesis 7: It is expected that individuals, who are going to be informed that accuracy is more important to an organisation and/or more likely to be rewarded than productivity, will have lower accuracy after receiving their second written warning, and lower productivity than individuals who are not threatened with layoffs under the same performance prioritisation condition.

2.6 Gender differences in coping with job loss

There has been a growing numbers of women engaged in part-time and full-time employment in New Zealand, between 1991 and 1996 the number of women in paid employment increased by more than 135,000, and between 1996 and 2001 it increased by more than 69,000 (Baines, Newell, & Morgan, 2005; Statistics New Zealand, 2004), increasing the total number of women employed from 752,685 in 1996 to 822,007 in 2001. However, under current economic environment women have become a target population for job termination. This has been supported by research around the globe (Hartmann, Lovell, & Werschkul, 2004; Menéndez, Benach, Muntaner, Amable, & O'Campo, 2007). Unfortunately, there is a limited amount of research conducted regarding job loss coping

behaviours of women (Leana & Feldman, 1991; Phelps & Mason, 1991), especially in New Zealand.

Initially it was suggested that job loss was less harmful for women than it was for men (Zikic, Burke, & Fiksenbaum, 2008). This belief was based on the assumption that work was only one out of three main concerns of women's lives as opposed to men. In the past, it was traditionally thought that women would centre their lives on home, children, and career, but men would be mainly concerned about their careers and occupations, as men were typically considered as the main financial provider of the family (Leana, Feldman, & Tan, 1998; Thomson, 1997). As a result, it was proposed that job loss is less important for women, as it harms only one third of women's lives and termination would only affect the secondary source of income for the family. Consequently, the majority of earlier job loss research has been conducted using male employees. However, as more women have entered the workforce and their prioritisations in life began to change, the effects of job loss on women have become more important. Recent research has revealed that in fact job loss affects all domains of women's lives, and they are more likely to experience mental health symptoms associated with it, such as distress, anxiety, and depression (Kalil, Ziol-Guest, Hawkey, & Cacioppo, 2010). Malen and Stroh (1998) proposed that this could be related to gender differences in coping with stressful events.

Earlier research found that women use more passive coping responses to stress, when men employ proactive coping responses that prevented stressful outcomes (Pearlin & Schooler, 1978). Leana and Feldman (1991) investigated gender difference in coping behaviours and found that men engaged significantly more often in problem solution behaviours that eliminated sources of stress (e.g. increase work effort), and women seemed to focus more on support-related symptoms (e.g. looking for social and financial support). Later, this was supported by Malen and Stroh (1998)

research study examining coping behaviours of male and female managers. In addition, more recent study by Skinner and Zimmer-Gembeck (2007) found that women in fact believe that their coping strategies are less effective, and they focus mainly on emotions and on seeking social support. Since there is a close association between individual's belief regarding his/her ability to cope and stress associated with increased demands, women are expected to have higher levels of distress associated with job loss threat during termination process (Lazarus & Folkmand, 1984). This will make them less likely to choose and mobilise appropriate resources to develop effective coping strategies leading to even greater experienced stress (Hobfoll, 1998). As a result, women might develop more physical and mental health symptoms (Nuttman-Shwartz, & Gadot, 2011; Yeng & Hofferth, 1998), as well as destructive and harmful behaviours such as increased smoking (Falba, Teng, Sindelar, & Gallo, 2005), alcohol abuse (Dooley & Prause, 1998), and, perhaps most importantly, suicidal behaviour (Blakely, Collings, & Atkinson, 2003).

Assuming that men are more likely than women to engage in problem-focused coping, by increasing their effort to improve performance, they are expected to have higher accuracy and productivity than women during termination process. In addition, since women are less likely to believe in their own ability to cope with extra demands, they are more likely to experience greater stress levels associated with job loss threat than men, which is likely to result in lower levels of productivity and accuracy.

Hypothesis 8: Women, who are engaged in termination process, will have higher distress levels than men, who are engaged in termination process.

Hypothesis 9: After receiving their first verbal warning men, who are engaged in termination process and informed that productivity is more important to an organisation and/or more likely to be rewarded than accuracy, are expected to have the highest productivity than both women, in the same prioritisation condition and men, who are informed that accuracy is more important than productivity.

Hypothesis 10: After receiving their second verbal warning women, who are engaged in termination process and informed that accuracy is more important to an organisation and/or more likely to be rewarded than productivity, are expected to have the lowest productivity than both men, in the same prioritisation condition and women, who are informed that productivity is more important than accuracy.

3. Method

3.1 Participants

Participants were 80 postgraduate and undergraduate students of University of Canterbury in Christchurch, New Zealand, including 41 females and 39 males. Their age ranged from 18 to 58 ($M = 24.66$, $SD = 7.19$) years. All participants self-reported normal or corrected-to-normal vision acuity and provided their written consent prior to commencing the study. There were three participants, who were excluded from the experiment due to environmental circumstances.

3.1.1 Recruitment

First, an e-mail containing an invitation to participate in the research and information sheet was sent to administration staff within the departments of University of Canterbury. The invitation email containing an information sheet (Appendix A) was then forwarded by administration to all undergraduate and postgraduate students enrolled in any course within that department. In addition, the study was advertised around the university campus using posters (Appendix B).

Students were invited to participate in the experiment that would help University of Canterbury to develop useful screening tools for selection of Unmanned Vehicle Operators. They were told that the experiment would last no more than 45 minutes. To encourage participation \$5 dollar grocery vouchers and a surprise gift (pen) were mentioned in the information sheet during the recruitment stage as an inducement. Students interested in participation contacted the researcher using their university e-mail accounts. Later all students, who had signed up for an experiment received e-mails, which contained all available time slots that students were able to sign up for using their e-mail accounts. There were total of four morning and four evening time slots available each week

with 30 vacant spots for each time slot. The data collection lasted for ten weeks starting from October 10th to December 7th 2011.

3.2 Design and Procedure

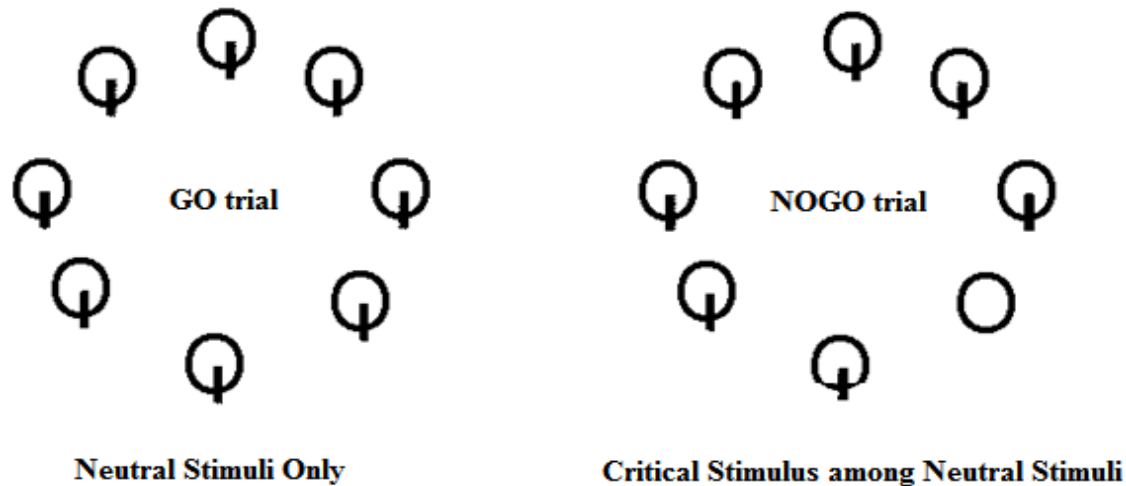
The project was conducted within the premises of University of Canterbury, New Zealand. More specifically Psychology Department computer room was used to carry out the experiment and to collect the data. The experiment was designed to model a real life situation in the work environment. Participants were performing a UAV visual search task using a computerised, sustained attention to response task (SART).

A total of 80 undergraduate and postgraduate students who had signed up for and completed the experiment were equally distributed between experimental (40 participants) and control group (40 participants). On entering the lab each participant was randomly assigned by the supervisor to either control or experimental groups and within each group participants were further allocated to either one of the performance appraisal conditions in such a way that each group had an equal number of participants in each condition (20 participants in 75% productivity and 25% accuracy condition and 20 participants in 25% productivity and 75% accuracy condition within each group). Participants in the first condition were later informed that evaluation of their overall level of performance will be based 75% on how fast they respond to screen shots that have neutral targets only and 25% on how well they withhold their responses when critical stimuli present. In the second condition participants were informed that evaluation of their overall level of performance will be based 25% on how fast they respond to screen shots that have neutral targets only and 75% on how well they withhold their responses when critical stimuli present.

Participants were randomly seated at the computer work station away from one another (if they did not perform an experiment alone) in such a way that they would not be able to read any information on the other person's screen. They were seated approximately 40 cm in front of 24 x 32cm computer screen, which was set approximately at eye level. The participant's head movement was not restricted. After being seated participants were given quick oral overview and instructions regarding the UAV visual search task they were going to perform. Simple task instructions were illustrated on a white board, which remained prominent in the lab room where the students conducted their work.

Participants were told to press "enter" to proceed to the instructions. The message presented in Appendix C appeared on the screen containing some general information about the UAV describing the task and different performance prioritisation instructions conditions, depending on the conditions that they have been assigned to by the experimenter. Finally, participants were also reminded that they are going to receive an additional reward by the end of the study (at this stage, participants did not know what it was) in order to foster participants' interest in the study and more closely mimic real-world employment situation where employees' performance is rewarded.

Participants were told to press the space bar when no critical stimulus was detected (friendly ships only) (GO trial) and to withhold pressing when a critical stimulus appeared on the screen (illegal boat) (NOGO trial). Participants were required to detect the critical stimuli as targets - an empty circle within a display of eight non-targets, circles containing a 4mm vertical line intersecting the bottom of the circle. All circles were 14mm in diameter and arranged in a circular fashion (Figure 1).

Figure 1*Examples of GO trial and NOGO trial*

To present the stimuli a computerised, successive discrimination task was used. All stimuli remained in the centre of the computer screen for 1000ms, during this time a response was recorded, and then stimuli was masked by a black rectangle for 500ms. To better mimic real world situations the appearance of the features was completely randomised such that each participant in every work session obtained different numbers of presentations of stimulus displays that included the critical stimulus. Critical stimuli occurred equally often in each of the eight circles. The program was set to show as many samples in 600 seconds as it was able to.

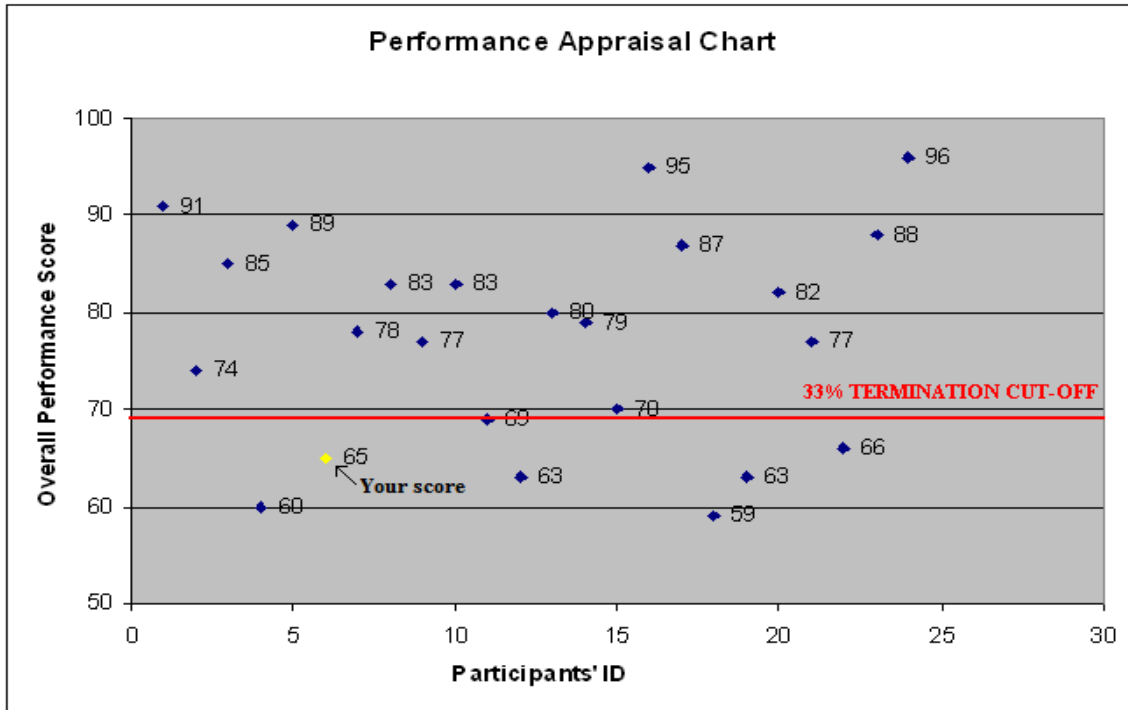
Condition requirements of the task were followed by a brief practice session lasting 1.8 minutes, replicating the appropriate experimental condition allowing participants to become familiar with the task. At the end of the trial period participants were reminded of the instructions and the condition requirement related to their overall performance appraisal. Immediately after this participants performed the actual task over three 10 minute working sessions with a break in between.

3.2.1 Manipulation

By the end of the 10-minute work period, students who were randomly assigned to the experimental group received a message informing them that due to a new Beacon Target Detection System that allows to colour code New Zealand registered ships, Ministry of Fisheries will be forced to terminate 33% of total work force. They were told that lay-offs would take place after the last work period and would be based on their overall job performance (i.e. productivity and accuracy). Subsequently, all participants in the experimental group received their performance evaluation reports that indicated their performance score (highlighted in yellow) in comparison to other participants' scores that were plotted below 33% layoff cut-off on the scatter plot (Figure 2). This and all subsequent reports were fictional and were not based on participants' actual performance. Participants were given their first termination warning in the form of the message on the screen. They were also told that if they would be laid off, they would not be rewarded at the end of the experiment. After participant's evaluation report participants were reminded of their overall performance evaluation condition and they were instructed to proceed to the next working session at their convenience.

Figure 2

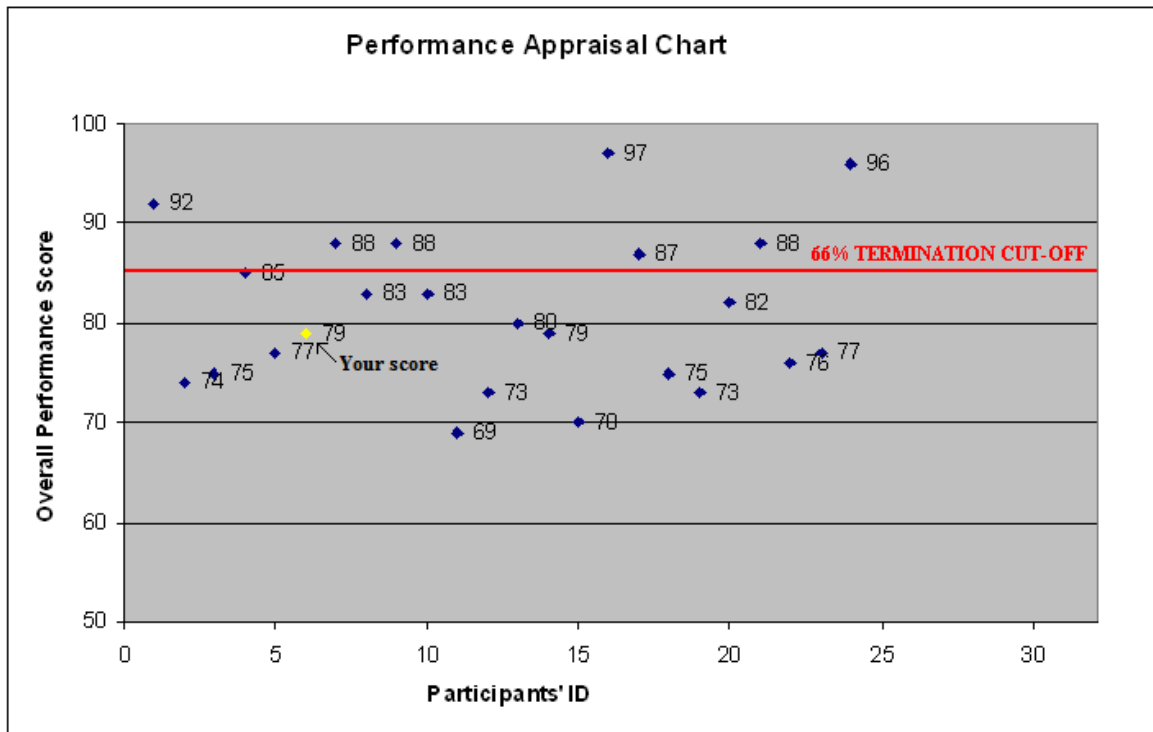
Performance evaluation report No. 1 for experimental group condition.



By the end of the second session participants received a second message informing them that due to sudden decrease of research funding from the New Zealand Ministry of Fisheries associated with harsh economic conditions, there will be an additional 33% of workers dismissed at the end of the third working period and that the evaluation process will remain the same and will be based on students' overall work performance. Participants were then shown their performance evaluation report that indicated their overall performance score below 66% lay-off cut-off (Figure 3) followed by their second termination warning. Once more participants were reminded of the bases of their overall performance depending on the condition they were in. They were able to begin their second 10-minute work session at their convenience.

Figure 3

Performance evaluation report No. 2 for experimental group condition.



At the completion of the third work session participants in the experimental group were given their performance evaluation reports with 66% lay-off cut-off (similar to Figure 3, but with different score). They were told that their performance was still below the required level and as a result they would be laid off and would not receive a surprise gift. Participants were then told to complete an SSSQ as part of their participation. It was administered using Qualtrics survey service provider. Data related to participants' age, gender and stress level during the experiment were collected and put into SPSS spread sheet for further analysis.

Participants who were randomly assigned to the control group did not receive any layoff warnings. In order to control for task interruption they received two messages between each work period thanking them for participation and stating the number of working periods left. The announcements were made at the same time, as they were made for the experimental group, which

were followed by students' performance evaluation reports that were identical to experimental group reports, showing exactly the same score (highlighted in yellow) on the scatter plot amongst other participants' scores, but they did not contain any cut-offs and no dismissal notices were given. Similarly, after the reports participants were reminded what their overall performance was based on (depending on the condition they were in) and they were instructed to proceed to the next working period at their convenience. In the end of session three participants in the control group were told that this was the end of the last session and were instructed to complete SSSQ as part of their participation.

3.2.2 Deception

The deception was used to gain a clear effect of dismissal warnings on productivity and accuracy under different performance prioritisation instructions conditions. Participants in both groups received different performance prioritisation instructions at the beginning of the study explaining how their overall performance is going to be appraised (described above). Furthermore, participants in the experimental group received job dismissal warnings between work sessions that were accompanied by their performance evaluation reports showing their overall performance score below an identified termination cut-off. However, all participants were unaware that performance evaluation reports were not based on their actual performance during the task, but instead were pre-programmed to appear on the screen depending on the group they were randomly allocated to. Revealing this information early in the study was likely to affect participants' perceptions and attitudes making them more likely to behave differently from how they would have behaved if involved in similar situation in the real world.

3.2.3 Debriefing

A debriefing sheet was handed out to all participants at the end of the study to alleviate any potential discomfort or negative feelings associated with participation in this research (Appendix D). It clearly described all deceptions used in the study informing participants that, in fact, no one is going to be laid off and the prizes will be given to everybody (5 dollar vouchers and pens). It provided a general idea of the study and explained in clear and simple language what was predicted to happen based on the core literature. Experimental conditions used to manipulate different variables were also explained and finally tools used to measure outcome variables were mentioned. At the end participants were given some potential implications of the experimental findings. Contact details of people and organisations that would be available to participants to contact for help were included in case participants would experience further discomfort associated with distress during the experiment. Participants were given an option to ask any questions related to the experiment or the study as a whole either face to face at the end of the experiment or using e-mail or telephone after participation.

3.2.4 Control over experimental treatments

This was an experimental study that allowed for maximum amount of control over a number of different variables. The computer program was specifically programmed to present all the information needed to understand the task and treatment conditions. The researcher himself was administering the experiment making sure every participant would perform under the same circumstances following all the procedures correctly.

3.3 Materials

The UAV visual search task used in the current study was created using E-prime software (Schneider, Eschman, & Zuccolotto, 2002). Each workstation was equipped with a personal computer, with specifically developed experimental program installed that provided participants with the required information and a set of instructions to complete the experiment; desktop computer controlled stimuli presentation on display, and responses were collected on a computer keyboard. The designed program recorded types of stimulus present (critical vs. neutral), participants responses (press vs. withhold) and participants response times. This information was used to calculate participants' response times and how many errors of commission and omission each participant did in a specific period. An online survey was also pre-loaded on each computer.

3.3.1 Measures

Productivity, accuracy and participants' level of distress were measured during the experiment. More specifically group differences in the overall performance (productivity and accuracy) due to induced insecurity and associated stress were examined.

Productivity was measured using participants average response time to GO trials during specific work period. Thus, lower numbers would indicate greater productivity.

Accuracy was measured using a number of errors of commission, and number errors of omission. Participants made error of commission, if they pressed the response button to NOGO trials. Participants made errors of omission, if they did not respond to GO trials. Since all participants across all groups and conditions received a random number of neutral and critical signals during each work period, proportions of commission errors on number of NOGO trials and omission errors on GO trials were used to be able to compare between participants.

Stress. Post-task Short Stress State Questionnaire (SSSQ; Helton, 2004) (Appendix E) was used to assess participant's *stress* level during the experiment. It contains twenty-four items assessing three dimensions: task engagement (items 2, 5, 11, 12, 13, 17, 21, 22), worry (items 14, 15, 16, 18, 19, 20, 23, 24), and distress (items 1, 3, 4, 6, 7, 8, 9, 10). A sample statement to gauge engagement is, "I want to succeed in the task". A sample statement to measure worry is, "I'm reflecting on about myself". A sample statement to measure distress is, "I feel sad". Participants' responses were made on 5-point Likert response scale (1 – *Not at all*, 2 – *A little bit*, 3 – *Somewhat*, 4 – *Very much*, 5 – *Extremely*). Coefficient alpha values range from 0.81 for engagement and 0.84 for worry to 0.87 for distress demonstrating good reliability (Helton, 2004). Participants' *stress* score was equal to the sum of scores on the distress dimension. Scores for remaining subscales were calculated following identical procedure.

Age and *gender* were included in the demographic section of the questionnaire. Age was measured using open-ended response text box, where individuals would enter their age. Gender was recorded using category response boxes, where individuals would mark whether they were male or female. The responses were coded as follows (1 = *male* and 2 = *female*).

3.4 Confidentiality

This research was confidential. Prior to participation participants were informed that the results of the project will be identifiable in the MCs document that will be available to the public via the UC library database. They were also informed that the research containing results may be published in the future, but in that case they will not be identified as a participant as only averaged results (but not individualised results) will be reported in a public document. An informed consent was obtained

through a signed consent informing participants of their right to withdraw the information provided at any stage of the study (See Appendix F)

3.5 Ethics

This experimental study was conducted within New Zealand context and involved deception used to gain a clear effect of particular group conditions, more specifically the effects of dismissal warnings on job insecurity and subsequently on productivity and product quality (accuracy). In addition participants in the experimental group were likely to become distressed when they were given their job dismissal warnings. As required by the Human Ethics Committee at the University of Canterbury, all research involving human participants must meet all the appropriate guidelines. As a result a full Human Ethics Application has been submitted for this project. It was reviewed and approved by the University of Canterbury Human Ethics Committee on the 5th of October 2011.

3.6 Data analysis

Experimental data was collected using E-prime and imported into an Excel spread sheet. It was then summarised calculating errors of commission (EC), errors of omission (EO), number of neutral and critical targets, and participants average response time to GO trials within each work session. The data was then imported into SPSS. SSSQ data was collected using Qualtrics online survey provider. It was then imported into SPSS and merged with experimental data for further analysis and hypothesis testing.

A 2 (group; experimental vs. control) by 2 (gender; females vs. males) mixed analysis of variance was used to test the stress level difference between participants, who performed the task in

the experimental group and the ones, who performed the task in the control group, and gender difference in stress levels in the experimental group.

A mixed repeated measure analysis of variance was used to test for the effects of the threat of layoffs on accuracy and productivity under different conditions, for different genders. A 2 (group; experimental vs. control) by 2 (condition; 75% productivity - 25% accuracy vs. 25% productivity - 75% accuracy) by 2 (gender; females vs. males) by 3 (Session; 1 vs. 2 vs. 3) factor design was used for all ANOVAs.

4. Results

Numbers of omission errors that subjects made in one ten-minute session were divided by the number of NOGO trials. Similarly, numbers of commission errors were divided by the number of GO trials in that session to generate a common measure of relative accuracy. Both measures of accuracy were then multiplied by a 100 to yield percentages. There was no missing data in the sample and there were no outliers identified to be removed from further analyses. The Greenhouse-Geisser correction was used when appropriate in all repeated measures analyses to correct for violations of the sphericity assumptions by adjusting the degrees of freedom where appropriate. Finally, Bonferroni correction was used for all Post hoc tests to adjust significance level.

4.1 Group and Gender differences in Stress

A 2 (group; experimental vs. control) by 2 (gender; females vs. males) mixed ANOVA analysis was carried out to test group and gender differences in distress subscale scores. The analysis yielded a significant group difference in distress scores, $F(1, 76) = 5.57, p = 0.02$, with higher mean distress scores for participants in the Experimental group ($M = 21.28, SD = 7.74$), who were threatened with layoffs, compared to participants in the Control group ($M = 17.83, SD = 4.97$), confirming Hypothesis 1. Distress scores did not vary significantly between men and women, $F(1, 76) = 0.69, p = 0.41$, indicating no gender differences in distress.

The interaction between group and gender was also not significant, $F(1, 76) = 0.60, p = 0.44$. The identical analysis were completed for engagement and worry subscales, where there were no significant group or gender differences found, $F(1, 76) = 0.00, p = 0.96$, $F(1, 76) = 1.76, p = 0.19$ and $F(1, 76) = 0.52, p = 0.48$, $F(1, 76) = 1.92, p = 0.17$ respectively. In addition the corresponding interactions between group and gender were non-significant for engagement, $F(1, 76) = 0.01, p = 0.94$, and for worry, $F(1, 76) = 0.04, p = 0.84$ respectively.

4.2 Errors of Omission/NOGO trials

Percentages of errors of omission were analysed with mixed repeated measure ANOVA with 2 (group; experimental vs. control) by 2 (condition; 75% productivity - 25% accuracy vs. 25% productivity - 75% accuracy) by 2 (gender; females vs. males) by 3 (Session; 1 vs. 2 vs. 3) factors. Even though the analysis revealed non-significant main effect of the group conditions on the amount of omissions errors made by the participants, $F(1.62, 116.87) = 0.18, p = 0.79$, the analysis yielded a significant conditions by session interaction, $F(1.62, 116.87) = 4.42, p = 0.02$. In Session 2 participants made significantly more errors of omission under 25% productivity - 75% accuracy instructions condition ($M = 7.47, SD = 2.40$) than under 75% productivity - 25% accuracy instruction condition ($M = 6.30, SD = 2.17$), $t(78) = -2.31, p = 0.02$, but not in Session 1 and 3, $t(78) = 0.51, p = 0.62$ and $t(78) = -1.62, p = 0.11$, respectively (Table 1). The remaining group and condition interactions were non-significant

Table 1

Descriptive Statistics and Results of Statistical Tests Obtained Using Repeated Measures Analysis of Variance for mean proportion of errors of omission

Group	Condition	Gender	Session 1		Session 2		Session 3	
			Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
C	25% productivity - 75% accuracy condition	F	8.73	3.10	7.60	2.50	7.62	3.13
		M	7.93	1.59	7.04	2.08	6.52	3.13
		Total	8.37	2.51	7.35	2.28	7.12	3.10
	75% productivity - 25% accuracy condition	F	8.65	1.46	6.80	2.29	5.86	2.18
		M	7.73	1.21	6.43	1.85	6.32	2.42
		Total	8.14	1.37	6.60	2.01	6.11	2.27
	Total	F	8.69	2.44	7.24	2.38	6.83	2.83
		M	7.82	1.36	6.71	1.93	6.41	2.69
		Total	8.26	2.00	6.97	2.15	6.62	2.73
E	25% productivity - 75% accuracy condition	F	7.22	2.83	7.95	2.93	7.39	2.59
		M	7.69	1.75	7.25	2.24	5.96	2.66
		Total	7.45	2.30	7.60	2.56	6.68	2.66
	75% productivity - 25% accuracy condition	F	7.79	2.04	5.35	2.88	5.25	3.11
		M	8.57	1.16	6.78	1.16	6.46	1.28
		Total	8.14	1.71	5.99	2.33	5.80	2.48
	Total	F	7.52	2.40	6.59	3.12	6.27	3.01
		M	8.11	1.53	7.02	1.78	6.20	2.08
		Total	7.80	2.03	6.80	2.55	6.24	2.58
Total	25% productivity - 75% accuracy condition	F	8.01	3.00	7.77	2.65	7.51	2.82
		M	7.81	1.64	7.15	2.11	6.22	2.83
		Total	7.91	2.42	7.47	2.40	6.90	2.86
	75% productivity - 25% accuracy condition	F	8.17	1.81	6.00	2.67	5.52	2.68
		M	8.11	1.23	6.59	1.55	6.38	1.94
		Total	8.14	1.53	6.30	2.17	5.95	2.35
	Total	F	8.09	2.46	6.91	2.77	6.54	2.90
		M	7.96	1.43	6.86	1.84	6.31	2.38
		Total	8.03	2.02	6.89	2.35	6.43	2.65
	Session	Session * Group	Session * Condition	Session * Gender	Session * Group * Condition	Session * Group * Gender	Session * Condition * Gender	Session * Group * Condition * Gender
<i>df</i>	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62
<i>F</i> -value	21.17	0.18	4.42	0.05	1.38	0.78	1.95	0.28
<i>p</i> -value	0.00	0.79	0.02	0.92	0.25	0.44	0.16	0.71

Note: Greenhouse-Geisser *df*, *F*-values and *p*-values are displayed; C – Control group, E - Experimental group

The ANOVA also showed that mean percentages of omission errors differed significantly between time sessions $F(1.62, 116.87) = 21.17, p = 0.00$. Post hoc tests revealed a slight reduction in errors of omission from Session 1 ($M = 8.03, SD = 2.02$) to Session 2 ($M = 6.89, SD = 2.35$) which was statistically significant, $p = 0.00$. In addition, proportion of errors of omission in Session 3 ($M = 6.43, SD = 2.65$) was significantly less than in Session 2, $p = 0.05$. Therefore, we can conclude that individuals became significantly more accurate at responding to NOGO trials through out the UAV visual search task regardless the group and the condition they were in.

4.3 Errors of Commission/GO trials

Percentages of errors of commission were subjected to a 2 (group; experimental vs. control) by 2 (condition; 75% productivity - 25% accuracy vs. 25% productivity - 75% accuracy) by 2 (gender; females vs. males) by 3 (Session; 1 vs. 2 vs. 3) mixed repeated measure ANOVA. The analysis revealed non-significant main group effect, $F(1.40, 100.76) = 0.21, p = 0.73$ and condition effect, $F(1.40, 100.76) = 0.17, p = 0.77$ on the amount of errors commissions made by the participants. The remaining group and condition interactions were non-significant.

Table 2

Descriptive Statistics and Results of Statistical Tests Obtained Using Repeated Measures Analysis of Variance for mean proportion of errors of commission

Group	Condition	Gender	Session 1		Session 2		Session 3	
			Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
C	25% productivity - 75% accuracy condition	F	40.43	25.99	20.55	21.21	16.13	28.09
		M	26.27	22.84	6.94	11.97	12.01	10.78
		Total	34.05	25.04	14.43	18.58	14.27	21.65
	75% productivity - 25% accuracy condition	F	45.59	26.72	9.05	7.72	3.40	3.77
		M	20.99	16.19	22.28	20.43	24.16	25.06
		Total	32.06	24.42	16.32	17.04	14.82	21.19
	Total	F	42.75	25.75	15.37	17.21	10.40	21.53
		M	23.37	19.10	15.38	18.48	18.69	20.44
		Total	33.06	24.44	15.38	17.63	14.54	21.14
E	25% productivity - 75% accuracy condition	F	37.07	27.52	19.73	19.64	12.25	16.98
		M	31.51	22.96	15.20	14.86	13.59	18.24
		Total	34.29	24.83	17.46	17.11	12.92	17.16
	75% productivity - 25% accuracy condition	F	23.73	30.57	16.26	24.45	14.05	19.07
		M	27.05	16.91	7.15	10.72	5.72	5.68
		Total	25.22	24.80	12.16	19.61	10.30	14.93
	Total	F	30.08	29.24	17.91	21.81	13.19	17.67
		M	29.40	19.90	11.38	13.36	9.86	14.03
		Total	29.76	24.92	14.81	18.36	11.61	15.93
Total	25% productivity - 75% accuracy condition	F	38.83	26.10	20.16	19.96	14.28	22.98
		M	29.03	22.42	11.28	13.86	12.84	14.79
		Total	34.17	24.62	15.94	17.70	13.60	19.29
	75% productivity - 25% accuracy condition	F	33.57	30.29	13.02	18.80	9.25	15.06
		M	23.72	16.37	15.47	18.10	15.86	20.80
		Total	28.64	24.54	14.24	18.26	12.56	18.23
	Total	F	36.26	27.99	16.67	19.50	11.83	19.45
		M	26.31	19.47	13.43	16.11	14.39	17.95
		Total	31.41	24.58	15.09	17.89	13.08	18.66
Variables	Session	Session * Group	Session * Condition	Session * Gender	Session * Group * Condition	Session * Group * Gender	Session * Condition * Gender	Session * Group * Condition * Gender
<i>df</i>	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
<i>F</i> - value	29.90	0.21	0.17	2.77	0.18	4.47	0.65	3.95
<i>p</i> - value	0.00	0.73	0.77	0.09	0.75	0.02	0.47	0.04

Note: Greenhouse-Geisser *df*, *F*-values and *p*-values are displayed; C – Control group, E - Experimental group

The ANOVA analysis determined that mean percentages of commission errors differed significantly between time sessions $F(1.40, 100.76) = 29.90, p = 0.00$. Post hoc tests revealed a reduction in errors of commission from Session 1 ($M = 31.41, SD = 24.58$) to Session 2 ($M = 15.09, SD = 17.89$) which was statistically significant, $p = 0.00$. A slight reduction in commission errors from Session 2 ($M = 15.09, SD = 17.89$) to Session 3 ($M = 13.08, SD = 18.66$) was non-significant, $p = 0.68$. Therefore, we can conclude that overall individuals became significantly more accurate at responding to critical signal trials in section two, but did not improve further in section three.

4.4 Response Times

Response time of correct responses to GO trials was subject to a 2 (group; experimental vs. control) by 2 (condition; 75% productivity - 25% accuracy vs. 25% productivity - 75% accuracy) by 2 (gender; females vs. males) by 3 (Session; 1 vs. 2 vs. 3) mixed-repeated measure ANOVA. Even though the analysis revealed non-significant main effect of the group conditions on participants' response times, $F(2, 144) = 0.27, p = 0.77$, the analysis yielded a significant conditions by session interaction, $F(2, 144) = 12.00, p = 0.00$. Participants were significantly faster in Session 2, $t(78) = -2.83, p = 0.00$ and Session 3, $t(78) = -3.51, p = 0.00$, but not in Session 1 $t(78) = -0.15, p = 0.88$ when performing under 75% productivity - 25% accuracy than in 25% productivity - 75% accuracy condition (Table 3). The remaining group and condition interactions were non-significant.

Table 3

Descriptive Statistics and Results of Statistical Tests Obtained Using Repeated Measures Analysis of Variance for mean response times

Group	Condition	Gender	Session 1		Session 2		Session 3	
			Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
C	25% productivity - 75% accuracy condition	F	608.96	108.16	545.59	123.06	530.99	127.43
		M	595.35	93.56	499.75	67.78	488.98	97.92
		Total	602.84	99.45	524.96	102.24	512.08	114.21
	75% productivity - 25% accuracy condition	F	642.85	81.34	479.93	79.19	450.72	97.52
		M	583.79	81.19	463.27	91.51	393.44	115.96
		Total	610.37	84.64	470.77	84.38	419.22	109.25
	Total	F	624.21	96.13	516.04	108.32	494.87	119.29
		M	588.99	84.79	479.69	81.78	436.43	116.16
		Total	606.60	91.23	497.87	96.51	465.65	119.92
E	25% productivity - 75% accuracy condition	F	606.63	91.25	541.76	136.49	507.78	98.01
		M	586.90	99.51	511.71	113.76	450.91	74.84
		Total	596.76	93.47	526.73	123.26	479.35	89.75
	75% productivity - 25% accuracy condition	F	581.14	110.76	424.43	110.96	384.76	116.98
		M	612.70	53.86	487.26	62.11	445.98	45.12
		Total	595.34	89.09	452.70	95.56	412.31	95.05
	Total	F	593.28	100.25	480.30	134.70	443.34	123.00
		M	599.12	80.10	500.13	91.34	448.58	60.92
		Total	596.05	90.14	489.72	115.13	445.83	97.36
Total	25% productivity - 75% accuracy condition	F	607.85	97.96	543.76	126.33	519.94	112.18
		M	590.90	94.13	506.04	92.47	468.94	86.27
		Total	599.80	95.31	525.85	111.78	495.72	102.73
	75% productivity - 25% accuracy condition	F	608.91	101.17	449.41	99.61	414.44	111.09
		M	596.80	70.06	474.07	78.62	417.09	93.02
		Total	602.85	86.11	461.74	89.45	415.76	101.14
	Total	F	608.37	98.29	497.74	122.37	468.48	122.49
		M	593.93	81.61	489.65	86.04	442.35	92.42
		Total	601.33	90.27	493.79	105.64	455.74	108.99
Variables	Session	Session * Group	Session * Condition	Session * Gender	Session * Group * Condition	Session * Group * Gender	Session * Condition * Gender	Session * Group * Condition * Gender
<i>df</i>	2	2	2	2	2	2	2	2
<i>F</i> - value	145.33	0.27	12.00	0.42	0.85	0.04	1.54	0.48
<i>p</i> - value	0.00	0.77	0.00	0.66	0.43	0.96	0.22	0.62

Note: Sphericity Assumption satisfied; C – Control group, E - Experimental group

The analysis determined that mean response times differed significantly between work sessions, $F(2, 144) = 145.33, p = 0.00$. Post hoc tests revealed a significant reduction in response times from Session 1 ($M = 601.33, SD = 90.27$) to Session 2 ($M = 493.79, SD = 105.64$), $p = 0.00$ and a significant reduction in RT from Session 2 ($M = 493.79, SD = 105.64$) to Session 3 ($M = 455.74, SD = 108.99$), $p = 0.00$. This indicated that participants became significantly faster at responding to GO trials through out the UAV visual search task regardless the group and the condition they were in.

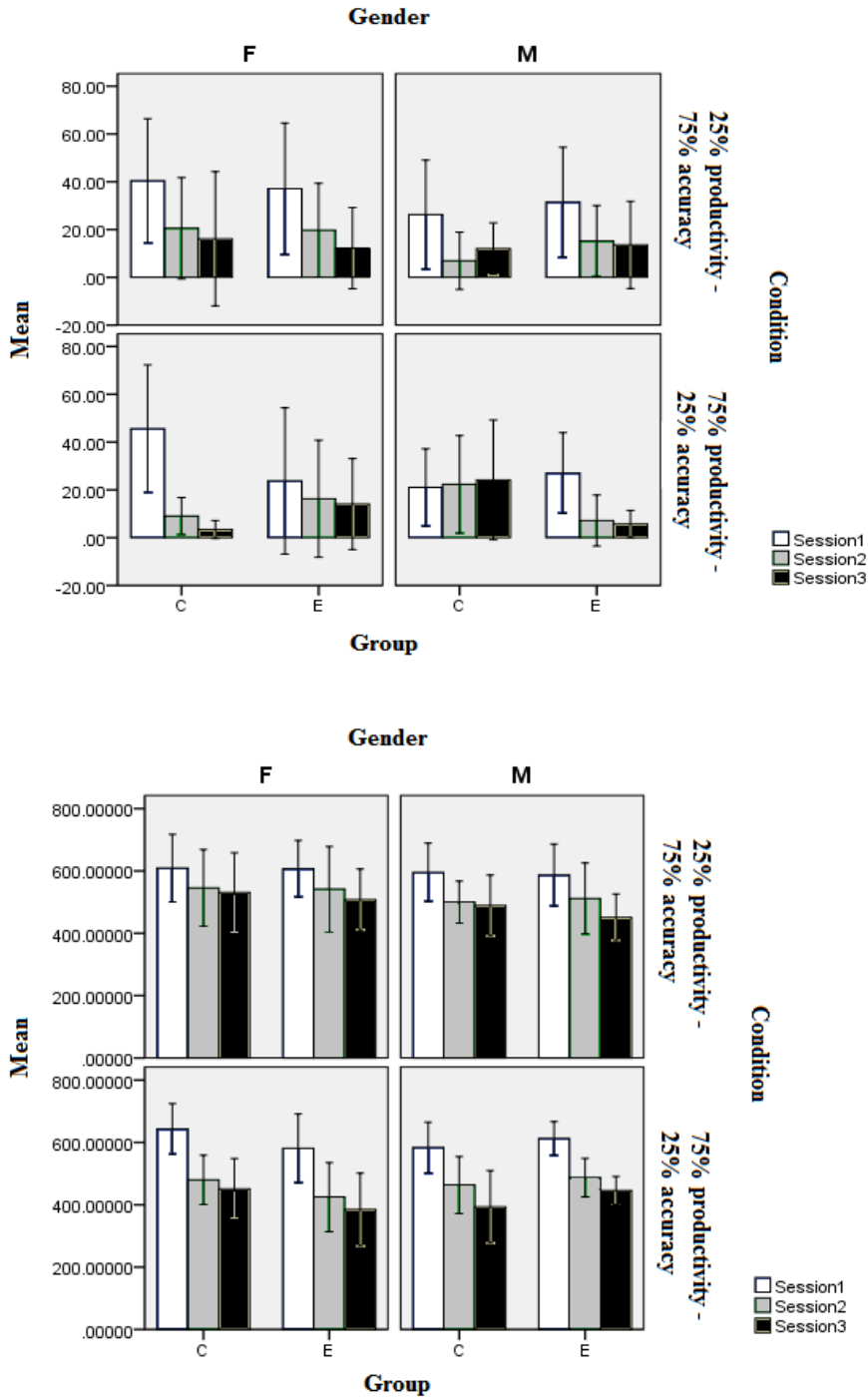
4.5 Gender differences in Accuracy and Productivity

A significant group by gender interaction, $F(1.40, 100.76) = 4.47, p = 0.02$, and group by condition by gender interaction, $F(1.40, 100.76) = 3.95, p = 0.04$, was found for the amount of commission errors made by the participants (Table 2). The analyses did not reveal any significant interactions between group, gender and/or conditions for the amount of omissions errors made by the participants (Table 1) and for participants' response times (Table 3). Overall there were less errors of commission made by males, who were in Experimental group in Session 2 ($M = 11.17, SD = 13.36$) and Session 3 ($M = 9.86, SD = 14.03$) than by females, in the same group ($M = 17.91, SD = 21.81$ and $M = 13.19, SD = 17.67$, respectively). In addition, there were less errors of commission made by males, who were in Experimental group in Session 2 ($M = 11.17, SD = 13.36$) and 3 ($M = 9.86, SD = 14.03$) than by males, who were in the Control group ($M = 15.48, SD = 18.48$ and $M = 18.69, SD = 20.44$, respectively) indicating a positive motivational effect of warnings. Nevertheless, females who received dismissal notices during the task made more errors of commission in Session 2 ($M = 17.91, SD = 21.81$) and 3 ($M = 13.19, SD = 17.67$) than females who did not receive dismissal warnings ($M = 15.37, SD = 17.21$ and $M = 10.40, SD = 21.53$, respectively) indicating

negative effect of warnings on their response accuracy (Table 2). Such effects of experimental group conditions was very pronounced in 75% productivity - 25% accuracy condition, but it was inconsistent in 25% productivity - 75% accuracy condition. Even though, the analysis revealed non-significant session by condition by gender interaction for participants' response times, $F(2, 144) = 1.54$, $p = 0.22$, there might be a potential relationship between accuracy and productivity of women in 75% productivity - 25% accuracy prioritisation condition (Figure 4).

Figure 4

Percentages of commission errors and response times in Experimental vs Control groups in 75% productivity - 25% accuracy and 25% productivity - 75% accuracy prioritisation conditions for males and females



Note: Vertical lines represent 1 standard error of the mean. C – Control group, E - Experimental group

5. Discussion

The current study examined the termination process in New Zealand. In particular, the effects of job loss threat associated with dismissal on an individual's productivity and accuracy under different prioritisation conditions. Female and male participants performed the UAV visual search task for three 10-minute work sessions in either the productivity/accuracy prioritisation condition, or in the accuracy/productivity condition. All participants received fictional appraisal reports during work session breaks followed by either dismissal warnings or an informative message regarding their performance. Subjects' productivity and accuracy were measured during all sessions. In addition, their distress levels were measured at the end of the experiment. The results supported the hypothesis that individuals exposed to threat of job loss will report higher distress levels than individuals who are not exposed to any job loss threat. Unexpectedly, this research showed no significant effects of higher levels of uncertainty and associated distress on productivity and accuracy. Nonetheless, there is empirical support showing that prioritisation of these performance factors does in fact affect the individuals' response behaviours as hypothesised. Finally, the hypotheses related to gender differences in coping behaviours with stress associated with job loss threat, leading to an increase in distress and reduction in productivity, have not been supported. Although there were some significant gender differences in accuracy found, they are inconsistent with hypothesised prediction and unlikely to be associated with an increase in stress.

5.1 Discussion of Findings

The results that were obtained from this study support findings of earlier research, that people who experience job insecurity, associated with perceived job loss threat during the termination process, have higher levels of emotional distress (Dekker & Schaufeli, 1995; Probst,

2000; Tombaugh & White, 1990). These findings are consistent with the transactional theory of stress and coping, which proposes that if individuals are facing additional environmental demands, such as job insecurity, that arise due to dismissal warnings during termination, they are likely to perceive that situation as a challenge or threat, therefore their stress is likely to rise (Lazarus & Folkman, 1984). In addition, the experimental findings provide some evidence for negative indirect effect of uncertainty associated with job loss related to an individual's ability to gather and mobilise resources. As a result, individuals would be less likely to develop and use appropriate coping strategies, reducing their ability to cope with increased demands, which would result in further increases in participants' stress levels (Hobfoll, 1998; Matthews & Campbell, 1998).

Furthermore, the results demonstrate significant effect of prioritisation instructions on participants' behaviours and attitudes towards productivity. Participants, who were told that their withholding accuracy to critical signals is less important in their overall performance appraisal, were much faster in their responses to GO trials. They were more likely to believe that productivity was more important and more likely to be rewarded with job security. Hence, they were less concerned with making wrong responses, which would make them less hesitant in their responses to trials. Results also provide partial support to the hypothesis related to the effects of prioritisation instructions on accuracy. Participants, who were told that their withholding accuracy to NOGO trials is more important in their overall performance appraisal, were more hesitant to respond to trials on the screen. Therefore, they were more likely to commit errors of omission. These findings are consistent with previous research demonstrating that individuals who face demands of productivity and accuracy, and see them as competitive in nature (Janssens, Brett, & Smith, 1995; Probst, 2002), are likely to direct or focus their limited cognitive resources (Kanfer & Ackerman, 1989) towards activities that they believe would lead to desirable rewards or outcomes (Vroom, 1994).

Contrary to the hypotheses, participants in the experimental group who were exposed to the New Zealand type termination process and received their dismissal warnings, had similar levels of overall performance with individuals in the control group, who were not threatened with lay-offs. These results provide no evidence for the proposed inverted U-shape hypothesis related to performance (Brockner, Grover, Reed, & DeWitt, 1992; Probst, 1998). There were no significant changes in subjects' productivity or accuracy after the first or the second dismissal warning, showing no substantial effects of uncertainty associated with job loss on individuals' performance. There is a possibility that the absence of substantial effects of the termination process on performance, is associated with a lack of individual complacency during the experiment. The experimental task only lasted for 35 minutes, which might be insufficient period of time for participants to form a psychological contract based on their beliefs regarding sufficient levels of performance that would insure their job security (Rousseau, 1995). Hence, subjects in the experimental group would be less likely to develop complacency during the experiment and would be more likely to increase their effort to improve performance in all subsequent sections to receive the promised reward, as partially demonstrated in the results (see Post hoc analyses).

These findings are inconsistent with a recent laboratory study by Probst (2002), where productivity and work quality differences were found between participants threatened with layoffs, and subjects who did not face any layoff threats. The strength of this particular study is that it uses a very objective measure of performance unlike Probst (2002) study, where participants' performance was rated by two research assistants. Self-reports or supervisory performance ratings are expected to be more biased. Therefore, this study provides more objective findings suggesting no association between job loss threats and overall performance. The results are also consistent with earlier studies that were using supervisor ratings as measures of individual performance (Ashford, Lee, & Bobko,

1989; Stepina & Perrewe, 1991), and those that were using more common self-report performance ratings (Robinson, 1996; Yousef, 1998).

There was no significant gender difference found in stress associated with job loss threats, which is inconsistent with the proposed theoretical framework, that women's tendency to perceive their coping strategies as less effective would lead to greater experienced stress levels associated with job loss threats and uncertainty (Lazarus & Folkman, 1984; Skinner & Zimmer-Gembeck, 2007). This increase in initial stress related to job insecurity, would make it harder for women to collect and mobilise available resources to develop strategies to deal with extra demands associated with job insecurity, leading to even greater distress levels (Lazarus & Folkman, 1984; Bar-Tal, Lurie, & Glick, 1994; Hobfoll, 1998). However, these findings are consistent with some of the earlier research, showing no gender differences in coping, resulting in similar levels of stress between female and male untenured assistant professors (Ryland & Greenfeld, 1990). A later study has also found no differences in occupational stress in men and women bank workers (Aminabhavi & Triveni, 2000). Therefore, further research is required to investigate gender differences in stress under threat of job loss.

Consequently, there were no differences found in male and female productivity levels, which is inconsistent with recent international research (Petersen, Snartland, & Milgrom, 2006) in which women in Sweden were found 1% less productive than men, 2% in U.S., and 3% in Norway. Participants in Petersen, Snartland and Milgrom's (2006) study were blue-collar manufacturing workers, which raises concerns regarding generalizability of their results to white-collar jobs. More specifically, women in the manufacturing sector are expected to be slightly disadvantaged compared to men, since productivity in such work environments usually relies heavily on individuals' physical abilities. On the other hand, in jobs that are less physically engaging, such as managerial and

medical occupations, such gender differences are questionable. Current research provides some evidence that gender differences in productivity do not hold for white-collar jobs. This is consistent with Mehay and Pema, (2006) study where women performing civil service jobs were found to have higher performance ratings than men and they were more likely to be promoted, which means that gender differences in performance might be more related to physical difference in both sexes rather than anything else. Future research is required to further investigate gender differences in productivity.

Finally, significant results were found in relation to gender difference in accuracy under termination process. Differences were only found in the effect of dismissal warnings in the number of errors of commission males and females make during UAV visual search task. It is apparent that, when threatened with layoffs, male participants had higher withholding accuracy to critical signal trials than females in the same prioritisation condition. This is consistent with Leana and Feldman (1991) finding that men tend to engage significantly more often in problem solution behaviours that eliminated sources of stress, by increasing their work effort, and women tend to focus more on support-related symptoms, by looking for social and financial support. Therefore, even though there were no gender differences in stress found, it is likely that men tend to put more effort towards improvement of their performance, hence their accuracy is slightly higher than women's. In addition, male participants in the productivity/accuracy condition were more accurate in withholding to critical signal when threatened with layoffs, compared to males, who were not facing layoffs. This suggests that job loss threats might in fact serve as a motivator for men to improve their performance. This is consistent with recent research by Wetzel and his colleagues (2006), which suggests that stress can help to improve surgeon's performance by enhancing alertness, concentration, focus, or efficiency of actions. However, when stress becomes too high and the

situation is perceived as unhelpful, stress becomes harmful to various aspects of surgical performance. On the other hand, women in the productivity/accuracy condition tended to be less accurate in withholding to critical signal when threatened with layoffs, compared to females who were not facing layoffs. In conjunction with the women's response times pattern in the productivity/accuracy prioritisation condition, these findings suggest that instead of women not dealing with the threat of job loss as well as men, they actually appear to be more compliant and sensitive to prioritization instruction conditions. Therefore, when women were told to go faster, they went faster, which also caused them to have more errors of commission. This is consistent with earlier research investigating female and male compliance with pedestrian and traffic instructions (Simon & Corbett, 1996; Rosenbloom, Nemrodov, & Barkan, 2004; Yagil, 1998, 2000), where women behaviours were more compliant than those of men. In addition, women were found more compliant with safety regulation in the hospital environment to prevent infection (Ward, 2004).

5.2 Theoretical and Implications

5.2.1 Gender differences in stress

One of the theoretical implications of this study is related to gender differences in stress. The fact that stress did not differentiate between genders, may mean that the "hypothesized" gender differences may actually not be "real". Various researches suggest that self-reported stress differences might be simply a reflection of society's tolerance for men and women to talk about stress (Anderson & Manuel, 1994; Norris, Perilla, Ibanez, & Murphy, 2001). This tolerance may also be changing with changes in female and male stereotypes in different cultural environments, and reflect generational differences, but not true gender differences in stress. More specifically, due to more masculine stereotypes of men in the early days, men would feel that it was less socially

acceptable to report feelings of emotions, such as stress or anxiety that would view them as weak to others. Women, on the other hand, were expected to express feelings of emotions more often than men. Therefore, they would be more likely to report feelings of stress or anxiety. According to the social–cognitive perspective, an individual’s gender identity develops at the early stage of personal development and is mainly determined by individuals’ belief regarding male or female roles in their social environment (Stapley & Haviland, 1989; Saxe & Wolfe, 1999). Therefore, with constant changes of male and female roles in the modern environment, social acceptance for men to express their emotions might be changing. Malen and Stroh (1998) mentioned that there are more and more women, who are entering the labour force and pursuing their careers. More recent research by Kelley and Kelley (2008) has suggested that more and more men can be seen staying at home and looking after children, suggesting a change in roles of men and women in the modern social environment. This suggests a change in society's tolerance for men and women to report their emotions, such as stress associated with job loss threat, resulting in no significant gender differences in stress, which is consistent with current findings. This should be further investigated in future research.

5.2.2 Lack of Research

There is a lack of research concerning the termination process in New Zealand. In fact, there is no research that examines both male and female performance and distress under threat of job loss in the context of New Zealand termination process, where job performance was induced rather than measured by self-reports. Hence, the main goal of this experiment was to direct potential research attention towards the termination process in general and its effects on performance. In addition, this study complements the other experiments and research studies related to job loss and job

termination, by revealing whether there are any individual differences in productivity and accuracy in different prioritisation instruction conditions. Finally, the experiment highlighted some of the problems that could be eliminated in future studies. A combination of the ideas provided by the literature discussed above and future findings of similar experiments will be an important step to a more integrated understanding of the termination process in New Zealand and around the globe. Further research of the termination process should be conducted within the environment that would mimic actual organisations more closely, in order to develop a better understanding of its effects on female and male employees' performance. In addition, safety should be added into the future studies as it has been considered another important competing demand of the modern work environment (Probst, 2002).

5.3 Practical Implications

5.3.1 Adverse effect of termination process on stress

The experimental findings confirm that individuals who are involved in the termination process and faced with the threat of job loss, become more stressed than individuals who do not face lay-offs. This association between the termination process and the employee's level of distress has an important practical implication for New Zealand organisations. Employers need to be very careful when engaging in the termination process against their employees as a performance management strategy. This elevated level of stress might have detrimental effects on employees and the organisation itself. Employee's stress is likely to lead to lower job satisfaction and commitment (Sverke, Hellgren, & Näswall, 2002). In the long run, pro-longed chronic stress is likely to result in more frequent adverse behaviours such as absenteeism, belatedness, work task avoidance (Probst, 1998), and decreased individual performance (Armstrong-Stassen, 1998; Cheng & Chan, 2008),

which would lead to unwanted lay-offs. In addition, it is likely to affect employee's psychological and physiological well-being, leading to anxiety and/or depression (Griffin, Greiner, Stansfeld, & Marmot, 2007; Heaney, Israel, & House, 1994), which could lead to suicidal behaviours (Classen & Dunn, 2011).

5.3.2 Importance of Prioritisation

The current research has an important implication, which is related to effectiveness of prioritisation instructions on employees' behaviours towards different performance factors. Understanding of the effect of instruction conditions during New Zealand termination process may identify potential tools that might be used as an effective strategy to increase productivity or accuracy of employees on jobs, where certain aspects of work are more important than others. Such strategies might help to prevent or reduce the likelihood of serious accidents. Based on the literature related to competing demands and limited cognitive resources, employees are likely to direct their effort towards job factors that they perceive to be important for the organisation, as they are more likely to lead to desired rewards. There are number of jobs where certain work aspects are significantly more important than the others. For example, people who work in the police and fire force, for whom safety would have to stand above everything else. Individuals performing those jobs are constantly placed in dangerous situations, which may result in serious injuries or even fatalities. The ignorance of safety component in these situations may not only result in their own deaths, but more importantly it will reduce the likelihood of them being able to help others in danger. Therefore, it can be suggested that in order to reduce unwanted accidents and/or improve a certain aspect of performance that is more important to organisations, companies need to provide clear instructions to their employees or reward favourable behaviours and attitudes towards that

aspect of work. In addition, some evidence related to female compliance behaviours to instructions, suggest that male employees might need to receive instructions more often.

5.4 Limitations

5.4.1 Time lapses

There is a possibility that time lapses between dismissal warnings were too short for individuals to reach substantial stress levels that would affect their performance. Participants were able to proceed to the next work session as soon as they would finish reading all the information that appeared on their screens. This would allow little or no time for them to realise the extra demands imposed on them associated with job insecurity. Hence, they were less likely to experience stress related to uncertainty of their situation. Cheng and Chan (2008) proposed that stress, which is developed due to unresolved and lasting job insecurity, is the one that is most likely to affect individual performance. Such stress develops over time and corresponds to chronic stress, which is associated with on-going demands, such as job insecurity and job loss associated uncertainty (De Cuyper, Notelaers & De Witte, 2009). The effect of longer break periods between work sessions on individuals' stress levels under current termination process could be explored in future studies.

5.4.2 Experimental manipulation and use of students

Although there is some evidence that the experimental manipulation did appear to work, since there was a difference in the distress levels between the experimental and control group, there is a possibility that it was not powerful enough to affect participants' performance. One could argue that performing a task for 35 minutes in the laboratory setting, where the consequences of job-loss are less likely to be perceived as "real" may result in different findings from studies conducted with

employees in the real work environment. It is expected that fear of job loss would be higher for people who are actually employed and perceive their job as a primary source of income.

In addition, the use of undergraduate students as participants could reduce external validity of the experimental findings. Students who participated in this experiment, were less likely to be motivated to improve their performance in order to receive promised reward, as the rewards are usually expected to be fairly small. This is also likely to result in less fear of job loss developed during the experiment. However, there are number of strengths and important points to consider that might alleviate these concerns. Firstly, a laboratory experiment is possibly the only way to draw causality interferences of the effects of the termination process on employees' productivity and accuracy outcomes. There are a number of successful experimental studies that have been using students to investigate job loss effects on stress and performance related outcomes (Kirkpatrick & Locke, 1996; Probst, 2002). This study investigates basic cognitive and affective mechanisms and reactions, such as cognitive load and distress, and their effects on performance, which are most likely to be very similar to those in "real life". Therefore, the results are likely to be generalised regardless of the context or sample. Finally, field or survey studies might face number of difficulties associated with ethics and practicality of this type research. Threats of lay-offs cannot be easily manipulated within actual organisations and employees engaged in the survey studies while involved in the termination process are most likely to be unwilling to participate or provide bias responses.

5.4.3 Stress measure

The fact that stress was measured after participants in the experimental group were terminated could have an effect on stress levels reported by those participants. According to Jacobson (1991)

individuals would experience less stress after lay-offs, since job loss would eliminate uncertainty for their environment. Therefore, participants stress levels could drop after they have received their last termination notice. This was necessary for the experimental design to mimic the complete New Zealand termination process more closely, where an employee would receive dismissal notice after their third termination warning. In order to reduce this effect, employees were asked retrospective questions regarding their experiences and feelings during the task. In the future this could be further explored by measuring participants' stress levels at different times of the experiment.

5.4.4 Productivity measure

There is a possibility that the lack of significant gender differences in productivity is related to the type of measure of productivity used in this study. More specifically, productivity measure was not sensitive enough to respond to the differences in distress. Earlier research proposed that the difference between men and women reaction times under stress maybe obscured by sex differences in processing strategy (Adam et al., 1999). Adam and colleagues (1999) have found that women tend to have a faster processing ability than males, and men had better developed motor skills. The productivity measure used in this research incorporated both decision time and movement time to respond to GO trials. Hence, it is likely that it would interfere with gender differences in productivity, since both female and male response advantages would cancel each other out. This assumption was supported in earlier research by Vercruyssen and Simonton (1994).

In addition, a self-report measure of stress was used, which could reduce the likelihood of finding significant gender differences in performances. Even when there is a gender difference in self-report of stress, sometimes it does not resolve to actual behaviour. This is consistent with recent research findings, related to student stress after the September Earthquake in Christchurch, and the

effect of associated stress on their performance (Kemp, Helton, Richardson, Blampied, & Grimshaw, 2011). In response to the earthquakes, women reported higher stress levels, but it did not affect their grade point average. In the future, potential research could look at employing different productivity measures to see if gender differences in productivity and stress do exist.

5.5 Conclusion

In conclusion, this experimental study is one of the first to examine both male and female performance and distress under threat of job loss in the context of New Zealand termination process, where job performance was induced rather than measured by self-reports. Since termination is a common process that is directed towards performance management rather than intentional dismissal, but quite often results in undesirable layoffs, it is important to understand the effects of associated job loss threat on employees. Current research revealed that employees engaged in the termination process will experience higher levels of distress. These findings support the theory of stress, that individuals would experience stress when they are faced with extra demands, such as job insecurity. Nevertheless, future research is needed to ascertain the effect of such stress on employees' performance.

In addition, this research provides important findings in relation to prioritisation of competing work demands, such as productivity and accuracy. More specifically, there is some evidence that prioritisation instructions do in fact influence individual behaviours and attitudes towards these performance factors. This research could assist workplaces, where specific performance factors are more important than the others such as air force, medical staff, police, and other common areas, where accuracy and safety are more important than productivity. There were also some interesting findings in relation to gender differences in distress, showing no differences in stress or any

performance factors. This leads to a conclusion that women and men are experiencing similar levels of distress that is leading to similar performance outcomes. In addition, men seem to be more motivated by job loss threats and women seem to show more compliance towards prioritisation instructions. These findings could be used by an organisation as an effective tool to direct male and female employees' behaviours towards more desirable performance outcomes.

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Appendix A



Department of Psychology

Information Sheet

UAV pilot selection and recruitment study

You are invited to participate in the above-named research project. The aim of this project is to examine factors that are necessary for development of useful screening tools for selection of Unmanned Vehicles Operators. These tools can potentially be used by government organisations such as Ministry of Fisheries for selection of pilots/scanners to accurately identify illegal vessels in New Zealand waters.

An **unmanned aerial vehicle (UAV)**, is a machine which functions either by a remote control by a navigator, by pilot or autonomously, that is, as a self-directing entity. Currently their largest use is within military and surveillance applications. UAVs are used to perform reconnaissance as well as attack missions and a number of civil applications, such as fire fighting or non-military security work, such as surveillance of pipelines and boarders.

Participation will involve viewing a number of screenshots for three working periods that will last for ten minutes each. For each screenshot you will be asked to analyse and respond accordingly using the computer keyboard to indicate whether you have identified an illegal vessel in the screenshot presented to you. While completing this task it is important to be aware that your performance will be recorded and analysed by the computer. You will be given a performance appraisal report by the end of each working session. More detailed instructions will be provided to you on the screen. Following this you will be asked to fill in a brief questionnaire, related to your cognitive state after the completion of this task.

This whole procedure will take no more than 45 minutes to complete. You will have a chance to ask any questions related to this experiment or the study itself by the end of this experiment.

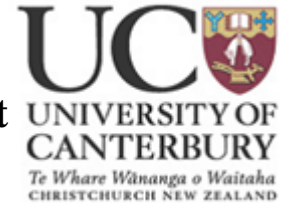
The results of this project will be identifiable in the MSc document and may be published in the future, although you will not be identified as a participant, as only averaged results (but not individualised results) will be reported in a public document. By completing this study it will be understood that you have consented to participate in the project and that you consent to the publication of results with the understanding that your confidentiality will be preserved. You are free to withdraw at any time without penalty, including the withdrawal of any information you have provided.

The research is being carried out as part of the research component of APSY660 (Masters Thesis) by Nikita Seremetovs under the supervision of Dr Katharina Näswall and Dr Deak Healton. If you have any questions please contact Nikita on 021 0673568 or nsh31@uclive.ac.nz. He will be pleased to discuss any concerns you may have about participation in the project.

The project has been reviewed **and approved** by the University of Canterbury Human Ethics Committee.

Appendix B

Participants Recruitment Advertisement



PARTICIPANTS WANTED

UAV Selection and recruitment study!!!!

The aim of this project is to examine factors that are necessary for development of useful screening tools for selection of Unmanned Vehicles Operators. These tools can potentially be used by government organisations such as Ministry of Fisheries for selection of pilots/scanners to accurately identify illegal vessels in New Zealand waters.

An **unmanned aerial vehicle (UAV)**, is a machine which functions either by the remote control by a navigator, by pilot, or autonomously, that is, as a self-directing entity. Currently their largest use is within military and surveillance applications. UAVs are used to perform reconnaissance as well as attack missions and a number of civil applications, such as fire fighting or non-military security work, such as surveillance of pipelines and borders.

Participation will involve viewing a number of screenshots for three working periods that will last for ten minutes each. For each screenshot you will be asked to analyse and respond accordingly using the computer keyboard to indicate whether you have identified an illegal vessel in the screenshot presented to you.

The experiment will last no more than 45 minutes. It will be held on the second floor computer lab 225. You will receive a **\$5 Groceries voucher and a surprise gift.**

This project received full ethics approval by Human Ethics Committee of University of Canterbury. To sign up or further questions please contact Nikita Seremetovs on nsh31@uclive.ac.nz or 0210673568.

Appendix C

Department of Psychology

Instructions



Welcome to the UAV pilot/screener Laboratory Task

The aim of this project is to examine factors that are necessary for development of useful screening tools for selection of Unmanned Vehicles Operators. These tools can potentially be used by government organisations such as Ministry of Fisheries for selection of pilots/scanners to accurately identify illegal vessels in New Zealand waters.

An **unmanned aerial vehicle (UAV)**, is a machine which functions either by the remote control of by a navigator, by pilot, or autonomously, that is, as a self-directing entity. Currently their largest use is within military and surveillance applications. UAVs are used to perform reconnaissance as well as attack missions and a number of civil applications, such as fire fighting or non-military security work, such as surveillance of pipelines and borders.

Your task is very simple. Imagine you are a pilot for Ministry of Fisheries and your job is to identify as quickly and accurately as possible unwanted (illegal) ships among friendly ships in New Zealand waters. On the screen you will see a series of screenshots that will contain a number of friendly ships (☉) and sometimes, illegal boats (⊙). You are required to PRESS the space bar when no critical stimulus will be presented (friendly ships only) and to WITHHOLD pressing when a critical stimulus appears (illegal boat).

For 75% productivity and 25% response accuracy condition:

Please note! Your overall performance will be evaluated during this task and you will be given your performance evaluation report by the end of each working period. The evaluation of your overall performance will be based 75% on how quickly you will respond to non-critical targets and 25% on how accurate you will be at withholding your responses to critical targets.

For 25% productivity and 75% response accuracy condition:

Please note! Your overall performance will be evaluated during this task and you will be given your performance evaluation report by the end of each working period. The evaluation of your overall performance will be based 25% on how quickly you will respond to non-critical targets and 75% on how accurate you will be at withholding your responses to critical targets.

!!! Also there is an additional surprise reward that you are going to receive by the end of this study!!!

First a few practice trials...

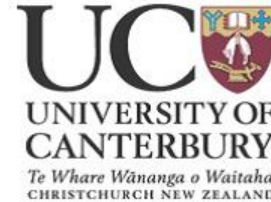
Remember to press "SPACEBAR" if there are no illegal boats identified on the screen and withhold your response if there is an unwanted vessel present on the screenshot.

PRESS ANY BUTTON TO BEGIN

Appendix D

Department of Psychology

Debriefing Sheet



UAV pilot selection and recruitment study

Thank you very much for your participation in this study.

We would like to inform you that performance appraisal reports that you have been given during this task **were not** based on your actual performance. They were set by the experimenter prior to the study and were programmed to appear on your screen depending on the group you were randomly allocated to. These reports were the same for all members of your group. Finally those of you, who have received the dismissal warning messages and termination notices during the task **will not** be terminated and will also be rewarded with the surprise reward as promised at the beginning of this study. The deception was used to gain a clear effect of particular group conditions, more specifically the effects of the dismissal warnings on job insecurity and subsequently on productivity and product quality (accuracy). Revealing this information early in the study was likely to affect your perceptions and attitudes making you more likely to behave differently from how you would have behaved if involved in a similar situation in the real world.

This study aims to examine the effects of the New Zealand termination system on employees' overall performance. More specifically, this experiment was designed to assess the effects of job insecurity on employee productivity and product quality. The aim of this study was not disclosed to participants before and throughout the study as it may have had an impact on the response behaviours during the task and answers given on the questionnaire (without realising it), and as a consequence, result in failure to give a true depiction of the outcomes.

Previous research suggests that employees with low level of job insecurity tend to have lower productivity due to complacency, because they remain certain that layoffs are not going to affect them (Brockner, Grover, Reed, & DeWitt, 1992; Probst, 1998). Alternatively, a high level of job insecurity tends to exhibit the lowest amount of work effort due to the feelings of helplessness experienced by individuals in such situations (Seligman, 1975). Your level of job insecurity was manipulated using termination warnings, performance appraisal reports and dismissal notices very similar to how it would happen in the real life. In addition, Mowday's (1996) Equity Theory to the work environment proposes that employees are likely to form ratios of their inputs, such as job skills, abilities, time and effort in any given work situation to their outcomes, which would include job security, pay and promotions. Rousseau (1995) suggested that a compilation of these ratios generate a psychological contract, which reflects employee's expectations of the organisation and their beliefs regarding reciprocal obligation between them and their employer, which is the foundation of employment relationships and a key determinant of employees' attitudes and behaviours in the workplace (Shore & Tetrick, 1994). Psychological contract will help to reduce worker's insecurity and give employees a sense of being able to influence what happens to them in the organisation (Shore & Tetrick, 1994). When threatened with layoffs employees are likely to perceive contract inconsistency, which would force them to take actions according to their belief based on information that was available to them. The type of information available to you during this experiment was manipulated throughout the experiment. More specifically, the information that was related to your performance appraisal and what it was based on (e.g. *Please note! Your overall performance will be evaluated during this task and you will be given your performance evaluation report*

by the end of each working period. The evaluation of your overall performance will be based 75% on how quickly you will respond to non-critical targets and 25% on how accurate you will be at withholding your responses to critical targets). Hence those of you who would receive their first dismissal warning were expected to perform better than those, who did not receive any warnings due to the perceived threat of job loss serving as a motivator for you to perform better. In addition, you were expected to act in accordance to your belief regarding the evaluation of your overall performance. Hence those of you who were told that 75% of your overall performance will be based on how fast you respond to non-critical targets and 25% on your withholding accuracy to critical targets, are going to have higher productivity than participants who were told that 75% of your overall performance will be based on your withholding accuracy to critical targets and 25% on how fast you respond to non-critical targets (*faster response times*), but your accuracy is expected to be lower (*higher number of errors of commission* (pressing when you are not supposed to press) *and omission* (not pressing when you are supposed to press)).

However, after the second warning this paradigm is expected to change. Those of you who were given their second dismissal warning were expected to have slower response times and make more errors than participants who did not get any warnings. Regardless of your beliefs related to your overall performance appraisal, your perceived level of job insecurity and associated cognitive workload is likely to rise to more critical level, leading to experienced helplessness. Consequently, reducing your ability to perform any better.

Finally, the questionnaire that has been given to you is designed to measure the level of your cognitive workload. It is expected that those of you who have received termination notices will have higher cognitive workload than those who did not receive any warnings.

These finding can help to understand and maybe even predict behaviours and attitudes of New Zealand employees during termination and dismissal. This could also outline some areas for training and development of employees within the organisation (e.g. high cognitive workload environment). In addition to all this there might be some interesting findings related to individual's performance during UAV visual search tasks.

Those of you who were allocated to the experimental group, please be aware that there is a likelihood of some feelings of distress associated with your performance evaluation reports showing your overall performance below an identified termination cut-off, followed by the job dismissal warnings. If you have any concerns that you may be experiencing stress or want to discuss a stress related problem then a GP or counsellor at the Student Health Centre at the University of Canterbury can be contacted on 03 364 2402 or LifeLine New Zealand can be contacted for free on 0800 534 354.

Please remember that participation in this study was completely voluntary. You have the right to withdraw from this study at any time without penalty. If you withdraw, any information relating to you will be removed. All information collected in this study will remain confidential, and the data will be stored securely at all times. You can also be assured of complete confidentiality in publication of the data collected in this study.

You now have a chance to ask any questions about the experiment or the study itself. Please, put your hand up, so the supervisor can see that you have a question. If you do not have any questions, please be polite and wait until all other questions are answered. If you have any further questions or for a summary of the findings of this research, please contact Nikita Seremetovs on nsh31@uclive.ac.nz.

You are now free to go!!! Please collect your supermarket voucher and a surprise prize from the supervisor. Thank you again for your participation!!!

Appendix E

Short Stress State Questionnaire

General Instructions

This questionnaire is concerned with your feelings and thoughts while you were performing the task. Please answer every question, even if you find it difficult. Answer as honestly as you can, what is true of you. Please do not choose a reply just because it seems like the 'right thing to say'. Your answers will be kept entirely confidential. Also, be sure to answer according to how you felt **WHILE PERFORMING THE TASK**. Don't just put down how you usually feel. You should try and work quite quickly: there is no need to think very hard about the answers. The first answer you think of is usually the best.

Please indicate how well each word describes how you felt **DURING THE TASK**.

Not at all = 1 A little bit = 2 Somewhat = 3 Very much = 4 Extremely = 5

1. Dissatisfied	1	2	3	4	5
2. Alert	1	2	3	4	5
3. Depressed	1	2	3	4	5
4. Sad	1	2	3	4	5
5. Active	1	2	3	4	5
6. Impatient	1	2	3	4	5
7. Annoyed	1	2	3	4	5
8. Angry	1	2	3	4	5
9. Irritated	1	2	3	4	5
10. Grouchy	1	2	3	4	5

Please indicate how true each statement was of your thoughts **WHILE PERFORMING THE TASK**.

Not at all = 1 A little bit = 2 Somewhat = 3 Very much = 4 Extremely = 5

11.	I was committed to attaining my performance goals	1	2	3	4	5
12.	I wanted to succeed on the task	1	2	3	4	5
13.	I was motivated to do the task	1	2	3	4	5
14.	I tried to figure myself out.	1	2	3	4	5
15.	I reflected about myself.	1	2	3	4	5
16.	I daydreamed about myself.	1	2	3	4	5
17.	I felt confident about my abilities.	1	2	3	4	5
18.	I felt self-conscious.	1	2	3	4	5
19.	I was worried about what other people think of me.	1	2	3	4	5
20.	I felt concerned about the impression I was making.	1	2	3	4	5
21.	I performed proficiently on this task.	1	2	3	4	5
22.	Generally, I felt in control of things.	1	2	3	4	5
23.	I thought about how others have done on this task.	1	2	3	4	5
24.	I thought about how I would feel if I were told how I performed.	1	2	3	4	5

Department of Psychology

Appendix F

Consent Form



Telephone: +64 3 364 2987 ext 4029

Email: nsh31@uclive.ac.nz

UAV pilot selection and recruitment study

I have been given a full explanation of this project and have been given an opportunity to ask questions.

I understand what will be required of me if I agree to take part in this project.

I understand that my participation is voluntary and that I may withdraw at any stage without penalty.

I understand that any information or opinions I provide will be kept confidential to the researcher and that any published or reported results will not identify me.

I understand that all data collected for this study will be kept in locked and secure facilities at the University of Canterbury and will be destroyed after five years.

I understand that I will receive a report on the findings of this study. I have provided my email details below for this.

I understand that if I require further information I can contact the researcher, Nikita Seremetovs. If I have any complaints, I can contact Nikita Seremetovs or the Chair of the University of Canterbury Educational Research Human Ethics Committee.

By signing below, I agree to participate in this research project.

Name: _____

Date: _____

Signature: _____

Email address: _____

Please return this completed consent form to Nikita Seremetovs in the envelope provided by the end of the experiment.