

**Stress and Coping in Teachers Exposed to Violent and**

**Aggressive Student Behaviour**

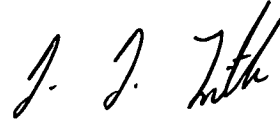
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A report submitted in partial requirement for the degree of Master of Psychology

(Clinical) at the University of Tasmania, March 2010.

I declare that this thesis is my own work and that, to the best of my knowledge and belief, it does not contain material from published sources without proper acknowledgement, nor does it contain material which has been accepted for the award of any other higher degree or graduate diploma in any university.

A handwritten signature in black ink, appearing to read 'J. J. Frith', is positioned above a horizontal line.

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Judy J. Frith

October 2010

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## **Literature Review**

## **Occupational Stress**

## **Abstract**

This paper reviews the literature on occupational stress. The review commences with a consideration of the key terms used in the occupational stress literature. This is followed by a discussion about the historical context of stress theories. Three models of work stress that have played a dominant role in occupational stress research in the past three decades are outlined. A general perspective on stress which also can be applied to the occupational stress context is then presented.

A range of sources of occupational stress and research pertaining to these are reviewed. Specifically, physical environmental and psychosocial risk factors, along with the individual difference variables that make an individual more or less likely to develop work place stress are discussed.

This is followed by a discussion about aggressive and violent behavior in the work place. The key constructs of workplace violence and aggression are defined. Additionally, the negative consequences of exposure to workplace aggression and violence at the individual, organizational and societal level are discussed. The review concludes with a summary of the key points and identifies a gap in existing occupational stress research. It is noted that despite the large body of research that exists in relation to occupational stress and teachers' experience of workplace stress, there has been little research into the impact of student aggression and violence against teachers.

## **Introduction and Overview**

In Australia employees are entitled to workers' compensation for stress when the employees' employment significantly contributes to the stress experienced. Most states in Australia report an increasing number of occupational stress claims per annum (Dollard, Winefield, & Winefield, 2001) resulting in a heavy financial burden. For example, the National Occupational Health and Safety Commission (2003) estimated that nationally the cost of occupational stress in 2000-2001 was approximately 105.5 million dollars. This data highlights the high cost of occupational stress in Australia.

Additionally, there is a high cost to organizations in terms of lost productivity, staff turnover, absenteeism, poor work relations and even accidents in the workplace (Tillman & Beard, 2001). The individual cost to employees' suffering from occupational stress can include a range of psychological problems (Berry, 1998), physiological problems such as hypertension and coronary heart disease, and behavioral problems (Dollard, 2001).

There are many different theories about how occupational stress arises and how it causes and contributes to a range of adverse health effects. The current review discusses three dominant theories of occupational stress: the person-environment fit theory, job demand-control support model and the effort-reward imbalance model. It is noted that despite their limitations each of the models discussed has contributed to the understanding of occupational stress. A general perspective on stress is then outlined and discussed.

A myriad of sources have been implicated in the development of occupational stress. Findings pertaining to physical environmental risk factors,

psychosocial risk factors, along with the individual difference variables that make an individual more or less likely to develop occupational stress response are discussed.

This is followed by a discussion about aggressive and violent behavior as a source of stress in the work place. The key constructs of workplace violence and aggression are defined. The negative consequences of exposure to workplace aggression and violence at the individual, organizational and societal level are discussed. The review concludes with a summary of the key points and identifies that the consequences of student instigated violence and aggression towards teachers has been a much neglected area of research.

### **The Meaning of Stress**

The concept of stress, including occupational stress, has been the subject of extensive research but continues to be variously defined and interpreted (Beehr & Franz, 1986). Stress has commonly been defined as distressing circumstances external to the person (i.e., situational factors) or the disturbance of a person's normal state, measured either psychologically or physiologically (i.e., reaction) or as an interaction between the two (Holt, 1986; Ivancevich & Matteson, 1980).

Hiebert (1985) found that there is frequent confusion in the stress literature concerning the meaning of the terms pressure, demands, stressors, stress and strain, which are often used interchangeably. Differentiating between these terms provides clarity in thinking. The term pressure refers to the demands placed on an individual (Hiebert, 1985). Stressors refer to environmental situations or events that have the potential to produce a state of stress (Beehr & McGrath, 1992; Greenhaus & Parasuraman, 1987). When a situation or event is perceived by an individual to be beyond his or her coping resources a demand can become a stressor (Hiebert, 1985).

Demands that do not result in a stress response remain as pressures (Hiebert 1985). Strain refers to symptoms of stress which may be physical, psychological (e.g., anxiety, depression, anger) and/or behavioral (e.g., reduced work performance, excessive use of alcohol and drugs, absenteeism) (Beehr & Franz, 1986; Dollard, 2001).

Another concept often used interchangeably with stress is burnout. Although there is no one single definition for the phenomenon of burnout, it is usually defined as a syndrome of physical, emotional and mental exhaustion resulting in cynicism and reduced professional efficacy (Goddard, O'Brien, & Goddard, 2006; Maslach, Jackson, & Leiter, 1996).

Stressors are typically categorized as being either acute, chronic, or traumatic (Dollard, 2001; Pratt & Barling, 1988). Acute stressors have a sudden and specific time onset, are of short-term duration, usually occur infrequently and are of high intensity (Pratt & Barling, 1988). Typically, exposure to an acute stressor brings about a sharp rise in a person's arousal state, which abates and returns to normal after a short period of time. Examples of acute stressors in the workplace include such events as a job transfer, commencing a new position, the introduction of new procedures or awaiting the renewal of a contract (Pratt & Barling, 1988).

Unlike acute stressors, chronic stressors have no specific time onset, are of long duration lasting from weeks to years, are repeated frequently and may be of high or low intensity (Pratt & Barling, 1988). Examples of chronic stressors can include psychosocial factors such as job insecurity, high job demands and lack of social support as well as environmental factors such as noise and heat. Chronic stress is a cumulative reaction to a slow build-up of pressure over a long period of time.

In contrast to acute and chronic stressors, traumatic stressors refer to events or experiences of exceptional severity that are catastrophic and of a life threatening nature (Davison & Neale, 1996). In the context of a work place employees could witness or experience events that have the potential to be traumatic. A robbery, a hostage situation, physical assault, and being physically or verbally threatened are all examples of events that can occur in the workplace (Work Cover NSW, 2002; WorkCover VIC, 2005) that may represent a traumatic stressor. Exposure to traumatic stressors can lead to the development of short term stress responses (i.e., acute stress disorder) or long term stress responses (i.e., post traumatic stress disorder) (PTSD). The Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association [APA], 2000) and the International Classification of Diseases (ICD-10, 1992) provide the criteria for diagnosis of acute stress disorder and PTSD. Symptoms of PTSD typically include intrusive recollections, sensitivity to stimuli associated with the traumatic event, avoidance of activities or situations associated with the trauma and persistent symptoms of increased arousal (APA, 2000). Further insight into some of the physiological processes involved in stress can be gained through examination of some of the early conceptualizations of the stress response.

### **Historical perspective**

Over the years a number of models or theoretical frameworks have been developed to explain the stress response. Some models have been developed with the intention of explaining general stress responses whereas others focus specifically on the development of occupational stress. Cannon (1932, 1935), one of the first to take an interest in stressors, viewed them as external events that disrupt the body's state of

homeostasis. The founder of modern stress research, Selye (1936), was concerned with the internal components of stress. Selye studied the effects of chronic stressors on the physiological response of the body and attempted to explain the effects with the General Adaptation Syndrome (GAS).

The GAS is so called because it represents the body's attempt to adapt to the demand situation created by the stressor. The GAS is proposed to contain three distinct phases: the initial alarm reaction, the resistance phase and the exhaustion phase. The alarm phase is a healthy response to demanding situations during which the body mobilizes for action. The body's alarm reaction to stress causes a surge of adrenalin which may result in physical changes such as increased pulse rate, increase in blood pressure which leads to improved blood circulation to muscles, decreased digestion, faster blood clotting time, and raised blood sugar levels (Selye, 1983). Other researchers have noted increased respiration rates, increased oxygen consumption, increased carbon dioxide production, pupil dilation, and perspiration (Cannon, 1935). If the stressor abates the body is returned to its normal state. If the stressor persists the body enters the resistance phase during which some bodily changes return to normal (e.g., heart and respiration rates decrease) but hormone levels remain high indicating that the body is still in defense mode. Lastly, if the stressor continues the body enters the exhaustion phase during which bodily processes break down and illness occurs. However, neither Cannon (1932, 1935) nor Selye (1936, 1983) focused specifically on occupational or work related stress.

### **Theories of Occupational Stress**

Several theoretical perspectives and models focus specifically on the development of occupational stress. These perspectives have all attempted, with varying levels of

success, to identify the broad range of variables that contribute to and influence the development of occupational stress and the negative physiological, psychological and behavioral consequences that result. In the past three decades person-environment fit theory, job demand-control support model and the effort-reward imbalance model have all played an influential and dominant role in occupational stress research. These models continue to drive current research into occupational stress (Bakker & Demerouti, 2007). Each of these models is discussed. A general perspective on stress (Berry, 1998) which has been successfully used in previous investigations of occupational stress (Cardoz, 2007; Carson, 2003) is then presented.

### **Person-environment fit theory**

The Person-Environment (P-E) fit theory of occupational stress (Caplan, 1983; Caplan & Harrison, 1993; Van Harrison, 1978) proposes that stress arises from a misfit or incongruence between the person and the environment, rather than the person or the environment separately. The fundamental premise of P-E fit theory is that occupational stress is determined by both person characteristics and environmental characteristics. Indeed, a number of studies have demonstrated how individual differences such as Type-A behavior, locus of control, hardiness (Kobasa, 1979), negative affectivity, and coping style (Parkes, 1990), along with environmental factors such as role conflict and ambiguity (Jackson & Schuler, 1985), and under use of ability play a role in the development of occupational stress (Edwards, Caplan, & Van Harrison, 1998). These person and environmental characteristics are discussed further under sources of occupational stress.

P-E fit theory also makes a distinction between objective and subjective representations of the person and the environment. Objective representations are



attributes of the person or the environment as they actually exist whereas subjective representations refer to the person's perceptions of his or her attribute or situations and events as encountered and perceived by the person (Edwards et al., 1998).

Additionally, P-E fit theory proposes that subjective and objective representations combine in four ways to determine the degree of fit between person and environment. Firstly, objective P-E fit occurs when there is a fit between the objective person and the objective environment. Secondly, subjective P-E fit occurs when there is a fit between the subjective person and the subjective environment. Thirdly, *contact with reality* is determined by the degree of correspondence between the subjective environment and the objective environment. Finally, *accuracy of self assessment* or accessibility of the self is determined by the congruence between the objective person and the subjective person (Van Harrison, 1978).

P-E fit theory makes a further distinction between demands of the environment such as role expectations and organizational norms, and the needs, goals and abilities of the person. Accordingly, when the work demands do not fit the person's abilities and needs that individual will display signs of strain that will eventually lead to illness.

There is some support for the basic tenets of P-E fit theory in the occupational stress research literature. For example, Pithers and Soden (1999) examined the relationship between P-E fit and occupational stress and strain in a group of 300 Australian and Scottish teachers. Teachers were divided into two groups on the basis of self reported predominant interest type. The two groups consisted of teachers who reported predominantly practical interests and teachers who reported predominantly social interests (i. e. people contact). On the basis of P-E fit theory, it was hypothesized that teachers who reported less personality-

occupational congruence (i.e. practical group) would show significantly higher levels of strain compared to teachers with more personality-occupational congruence (i.e. social group). Results showed some support for this hypothesis, teachers with lower personality-occupational congruence reported significantly higher levels of physical and psychological strain than teachers with higher personality-occupational congruence.

P-E fit theory provides a useful framework for understanding how person and environmental constructs combine to produce strain and how coping and defense can resolve P-E misfit. However, it does have several limitations. In the P-E fit model, physiological and behavioral coping mechanisms serve as a defense against stress however, P-E fit theory devotes little attention to coping and defense (Edwards et al., 1998). Moreover, though P-E fit theory identifies a set of possible relationships it fails to propose specific hypotheses regarding the relationship between P-E fit and stress.

### **Job demand-control support model**

A popular theory conceptualizing occupational stress has been the demand-control model (DCM; Karasek, 1979). The original version of the model focused on the interaction between two dimensions of work: job demand and job control. Job demand refers to sources of stress or stressors present in the work environment, such as time pressure, excessive work, task complexity, and conflicting roles. Job control, also called job decision latitude, refers to the “working individual’s potential control over his tasks and his conduct during the work day” (Karasek, 1979, pp. 289-290). Job control is related to decision authority and skills utilization. The opportunity to

learn new things, to be creative, and to participate in decisional processes can enhance feelings of job control.

The job demand-job control model proposed that an employee facing high job demand, coupled with low job control, will experience job strain. This job strain is predicted to impact on the employee's health and well-being. Ten years after its inception a third dimension, social support at work, was added to the job demand-job control model to create the Job Demand-Control Support model (JDCS; Johnson & Hall, 1988; Johnson, Hall, & Theorell, 1989). According to the JDCS model, social support at work can be provided by coworkers or employers and serve as a moderator of job demand, just as does job control. Accordingly, employees facing high job demand coupled with low job control and low social support are most at risk of experiencing occupational stress.

The JDCS model has received some empirical support. Research shows that occupations (e.g., correctional officers) with high demand, low control and low support from supervisors or co-workers carry the highest risk of physical and psychological disorders (Dollard & Winefield, 1998). More recently in an investigation of burnout amongst teachers, Peeters and Rutte (2005) surveyed 123 elementary school teachers and found partial support for the JDCS model. Results showed an interaction between work conditions (i.e., work demands, time management, and autonomy) and teachers' feelings of exhaustion. However, empirical support for the premise that job control can serve as a buffer against the negative effects of high demand on well-being is not consistent (see Van der Doef & Maes, 1999 for a review). Research using the JDCS model has also been criticized for failing to acknowledge the relevance of a wider range of job demands and resources. Studies on the JDCS are often restricted to a limited set of independent

variables (e.g., job demand, autonomy, social support) overlooking other variables that may be relevant (e.g., inspirational leadership in an internet company) in certain work situations (Bakker & Demerouti, 2006).

### **Effort-reward imbalance model**

Another theoretical model that is commonly used to understand occupational stress is the Effort-Reward Imbalance Model (ERI; Siegrist, 1996; Siegrist, Siegrist, & Weber, 1986). The ERI model emphasizes that work related benefits depend upon a reciprocal relationship between efforts and rewards. Efforts refer to demands placed on the employee and can include work pressure, interruptions, inconsistent demands, and task complexity. Rewards include job-related benefits such as money, esteem and job security/career opportunity. According to the ERI model, workers expend effort at work and expect rewards as part of a socially negotiated exchange process of work. Lack of balance in this relationship can result in negative physical (e.g., increased risk of cardiovascular disease) and mental (e.g., depression) outcomes (Van Vegchel, de Jonge, Bosma, & Schaufeli, 2005). Workers who have high job demands and low pay, or who experience a threat to their job security or status, are likely to experience stress as a result of this imbalance. Additionally, the ERI model postulates that employee over-commitment can contribute to this process. The concept of over-commitment is seen as a personality characteristic based on the motivational and behavioral characteristics of Type A behavior (Siegrist, 1996).

A large number of studies have demonstrated the ERI model's capacity to predict health and well-being outcomes such as cardiovascular health, subjective health, mild psychiatric disorders, and burnout (for a review see Van Vegchel et al., 2005). However, the ERI model does have its limitations. Bakker and Demerouti

(2006) argued that the ERI model accounts for only a handful of variables that predict employee well being, leaving little room for the integration of other job resources and demands (e.g., supervisory support) that can and have been found to be responsible for employee well being. Also, the ERI model focuses on specific aspects of the work environment completely ignoring job demands such as the emotional demands involved in working with people involved in certain occupations (e.g., teachers, nurses, doctors) (Bakker & Demerouti, 2006).

### **A general perspective on stress**

Berry (1998) has proposed a general perspective on stress which can also be applied to the development and understanding of occupational stress. Berry's (1998) model acknowledges the influence of individual differences (e.g., the way in which an individual interprets a situation, their personality, cognition, and past experiences) and environmental factors (e.g., physical and social conditions) in the stress process. Berry's model includes the role of particular workplace events or conditions, along with the physiological, psychological, and behavioral impacts that may result. Additionally, Berry's conceptualization of stress considers the moderating role of coping in the stress experience.

As shown in Figure 1, Berry (1998) proposes that a person-environment interaction determines whether or not a stressful event occurs. Stressful events at work may trigger an immediate psychophysiological response which determines to what extent the event is manageable for the individual. In Figure 1 the connection between the stressful event and resulting psychophysiological response is denoted by a double line to emphasize the intimate relationship between these two concepts. The psychophysiological response the person experiences at the time of the event

may lead to either coping, stress-related illness, and/or behavioral disturbance. Berry (1998) also acknowledges that illness and behavioral problems can sometimes result despite the coping efforts of the individual.

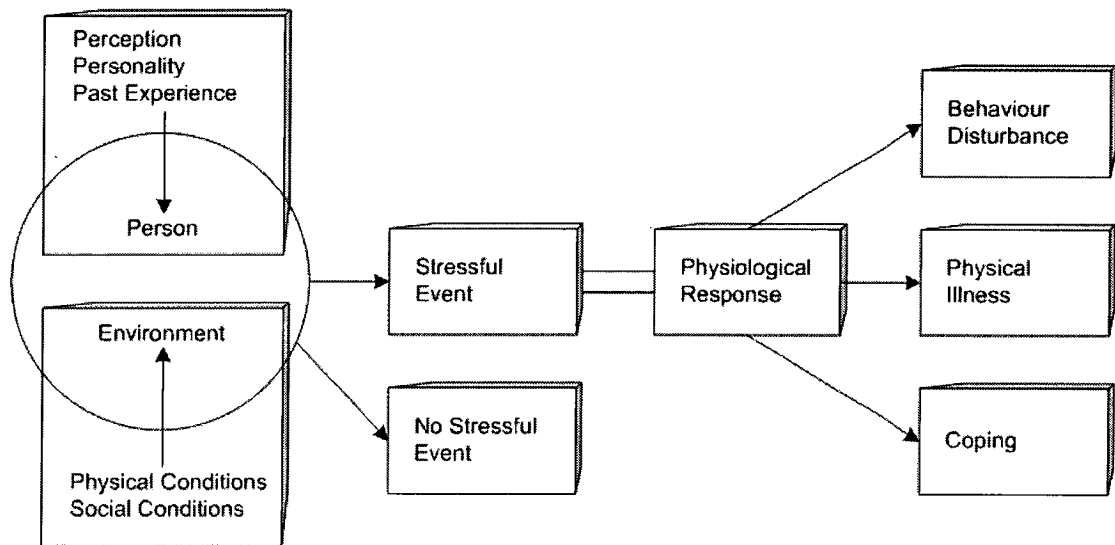


Figure 1.

*Berry's (1998) model outlining a general perspective on stress.*

There has been much research support for the various components of Berry's model and the findings from these studies are discussed in detail in the sources of occupation stress section of this review.

In summary, each of the theoretical perspectives explains some aspect of the occupational stress picture, though each has its own limitations. Berry's model though not necessarily superior in explanatory power than the other more focused models does have several advantages in that it provides a more structured framework to examine various aspects of the stress process, including a range of individual differences, environmental variables and physiological responses (Carson, 2003).

## **Sources of Occupational Stress**

What is clear from the theoretical models discussed is that a myriad of risk factors can be involved in the development of occupational stress. A broad range of physical and environmental aspects, psychosocial factors, and individual difference variables have been identified as playing either moderating or mediating roles in occupational stress (Dollard, 2001; Holroyd & Lazarus, 1982). Moderator variables are those which influence the strength of the relationship between two variables (Rahim, 1996), whereas mediator variables explain why there is a relationship between two variables (Baron & Kenny, 1986). Factors that have been shown to moderate or mediate the occupational stress response are discussed in the following section.

### **Physical environmental factors**

Studies of occupational stress often overlook the attributes and properties of the physical environment of work in favour of the psychosocial variables (Sparks & Cooper, 1999; Vischer, 2007). However, a growing body of work focusing on the environmental psychology of workspace is finding links between the physical features of the work environment and occupational stress (Vischer, 2007). Physical components of the work settings that do not support the needs and requirements of employees can influence physiological processes (e.g., blood pressure, cortisol, skin conductance) and result in psychological symptoms of stress (e.g., self-reports of negative affect) (McCoy & Evans, 2005). Physical features of the work environment can also have an adverse impact on employee task performance, motivation, social relationships and cooperative behaviors (McCoy & Evans, 2005). Additionally, physical factors of the work environment have been implicated in 'sick building

syndrome' (Crawford & Bolas, 1996). 'Sick building syndrome' is defined as a collection of symptoms suffered by staff whilst at work in certain buildings.

Aspects of the physical environment which have been found to function as stressors in work settings include spatial organization of work spaces, visual access or views, ambient conditions such as noise, heat, and lighting along with furniture and resources (Dollard, 2001; McCoy & Evans, 2005; Vischer, 2007). It is important to note, however, that occupational health is determined by an interaction between physical environmental factors and the psychosocial variables of the work environment (Crawford & Bolas, 1996; McCoy & Evans, 2005). For example, in a cross sectional study of 174 community members, Lercher, Hortaogl and Kofler (1993) found a small positive association between noise at work and diastolic blood pressure. However, this relationship was significantly amplified among employees with high levels of job dissatisfaction and little social support (Lercher et al., 1993). This finding suggests that physical characteristics of the work environment can interact with and exacerbate the impact of simultaneously occurring psychosocial stress. Consequently, physical aspects of the work environment should not be studied in isolation from the psychosocial qualities of the organizational environment (McCoy & Evans, 2005).

### **Psychosocial factors**

Psychosocial factors refer to characteristics of the job, the nature of the work, the organizational environment, and aspects of the social environment that have the potential to cause stress in occupational settings (Berry, 1998; Dollard, 2001; Sutherland & Cooper, 1988). Characteristics of the job that have been identified as stressors include job content/demands, workload, time pressures, underutilization of



skills, and job insecurity (Beehr, 1985; Berry, 1998; Dollard, 2001; McCoy & Evans, 2005). Job characteristics such as role ambiguity and role conflict also have the capacity to elicit a stress response (Beehr, 1985; Matteson & Ivancevich, 1987).

Role ambiguity results when there is a lack of clarity about one's job objectives/goals and responsibilities (Matteson & Ivancevich, 1987; Sutherland & Cooper, 1988). Role ambiguity has been linked to job dissatisfaction, job-related tension, lowered levels of self confidence, anxiety and depressive symptomatology, as well as physical symptoms of stress such as increased blood pressure and pulse rate (Sutherland & Cooper, 1988).

Role conflicts exist when an employee is torn by conflicting demands and is required to undertake tasks that are not perceived to be a part of the job or are inconsistent with personal values and beliefs (Beehr, 1985; Sutherland & Cooper, 1988). Like role ambiguity, role conflict can act as a source of stress and lead to a range of negative physical (e.g., headaches, insomnia) and psychological outcomes (e.g., emotional exhaustion, increased anxiety, depression) (Beehr, 1985).

Furthermore, the nature of the work undertaken can play a role in the development of occupational stress. Jobs that involve high physical, mental and or emotional demands, time pressure, a lack of variety, fragmented or meaningless work, work under load or overload and high uncertainty all have the potential to be stressful (Berry, 1998; Dollard, 2001). A number of studies have highlighted the deleterious consequences on employees in jobs with high workloads, time pressures and emotional demands. For example, Wilks, Beale, Hall, Rees, Watts and Denne (1998) found that work overload was a significant contributor to work stress in community nurses. Townley (2000) found that the need to manage excessive workloads and meet unrealistic targets and deadlines were associated with a range of

stress symptoms including excessive fatigue and headaches in managers. Rahim and Psenicka (1996) investigated the effects of job stress on psychiatric symptoms and propensity to leave a job in a US sample of 526 members of the Chamber of Commerce in a southern state. Results revealed that role overload and role insufficiency positively influenced psychiatric symptoms such as cognitive disturbance, anxiety, depression and anger. Furthermore, role insufficiency positively influenced propensity to leave a job.

In terms of the organizational environment, the culture of the organization, employees' roles in the organization, inadequate career development opportunities and lack of performance feedback can represent sources of stress (Dollard, 2001; Matteson & Ivancevich, 1987). Sutherland and Cooper (1988) proposed that, like individuals, organizations also have personalities. The personality of the organization reflects the culture of the organization and the way in which it treats its members. Organizational environments in which there is a lack of consultation and communication with employees, restricted employee autonomy and/or participation in decision making processes has been shown to result in negative affect, illness and job dissatisfaction (Karasek, 1979). More recently, Kalimo, Tenkanen, Harma, Poppius and Heinsalmi (2000) examined the relationship of job demands and job control to sleep disorders and strain in a nationally representative random sample of 3079 US men from a range of occupations. Results indicated that sleep disorders were more prevalent in employees experiencing high levels of strain, in jobs characterized by high demands and low decision latitude (Kalimo et al., 2000).

Also related to employee participation and sense of belonging is the social environment of the organization (Sutherland & Cooper, 1988). The social environment of an organization is a reflection of the quality and nature of the

interpersonal relationships employees have with superiors and colleagues. In an organizational context, high quality interpersonal relationships include social support, trust, communication, involvement, participation and appreciation of individual worth and dignity (Terborg, 1985). Moreover, perceived sense of support from co-workers and supervisors can be critical to employees' sense of mastery over situations (Thoits, 1982) and, hence, their ability to cope with stress.

### **Individual differences**

Individuals experiencing similar stressors at work do not necessarily develop similar symptoms and some do not develop any symptoms of occupational stress at all (Dollard, 2001). Personal characteristics within the individual such as past experiences, capabilities, and characteristic ways of viewing and interacting with the world account for some of the variability in people's response to stressors (Berry, 1998; Greenhaus & Parasuraman, 1987; Payne, 1988). Personality variables play a role by influencing the way in which an individual appraises his or her environment, the nature and magnitude of the individual's response to stress, the type of coping mechanisms evoked and the social support that is sought to deal with the stressor (Dollard, 2001; Greenhaus & Parasuraman, 1987). Ingrained personality variables, cognitive, behavioural and affective response and access to practical and emotional resources have all been identified as having the potential to contribute to the stress process (Dollard, 2001; Greenhaus & Parasuraman, 1987; Schaubroeck & Ganster, 1991).

The way in which a person copes with stress has been shown to impact on the physiological response and the particular stress-related illness that may develop (Holroyd & Lazarus, 1982). Coping can be defined as "cognitive and behavioral

efforts to manage psychological stress” (Lazarus, 1993; p. 237). Lazarus and Folkman (1984) proposed that the type of coping strategies people choose to use in response to an event influences adaptation to stress. Two broad types of coping strategies have been identified, namely, problem-focused and emotion-focused coping (Lazarus, 1993). Problem-focused coping strategies are directed towards management of the problem. In contrast, emotion-focused coping strategies involve attempts to deal with the negative emotions associated with a problem through strategies such as escapism, avoidance, and self-blame (Lazarus, 1993; Lazarus & Folkman, 1984).

Because emotion-focused coping involves a failure to confront the problem, in general, it is thought to be less adaptive than problem-focused coping (Aldwin & Revenson, 1987). There is some evidence in support of this view. In a longitudinal community survey of 291 adults gathered over a five year period, Aldwin and Revenson (1987) found that the use of emotion-focused coping strategies, namely escapism and self-blame, resulted in increased emotional distress. In contrast, the use of instrumental action, a problem-focused coping strategy that involves efforts directed towards solution of the problem, moderated the impact of a stressful episode.

In a similar sample, Billings and Moos (1981) found that active cognitive (e.g., logical analysis) and behavioral coping (e.g., taking positive action) strategies moderated the relationship between stressful events and indices of negative mood and physical symptoms. In particular, individuals who were more likely to use active cognitive strategies and less likely to use avoidance coping strategies (e.g., emotional discharge) demonstrated better outcomes.

In a survey of 274 UK public sector employees, Guppy and Weatherstone (1997) found that the use of avoidance coping was associated with lower well-being, whereas the use of problem-oriented coping methods was associated with better mental health. In a sample of 100 lawyers, Callan, Terry and Schweitzer (1994) found that lower levels of anxiety were linked to less use of emotion-focused coping strategies. In a more recent study, Litchfield and Gow (2002) investigated how problem-focused and emotion-focused coping mediate various forms of strain in 180 males and 68 females (aged 17-59 yrs) in administrative, supervisory and managerial roles. These researchers found that a greater use of problem-focused coping was associated with a decrease in psychological strain whereas greater use of emotion-focused coping increased psychological strain.

Research findings indicate that the relationship between emotion-focused coping strategies and adjustment is stronger than that observed for problem-focused coping responses (Terry, Tonge, & Callan, 1995), also, there is some evidence suggesting that an individual's choice of coping strategy and its effectiveness may be dependent on the individual's appraisal of the situation (Lazarus, 1993). For example, Forsythe and Compas (1987) investigated whether psychological distress varied as a function of the match between cognitive appraisal (high versus low in personal control) and a range of life stressors. Eighty four college students reported events that they experienced as highly stressful and rated each event in terms of perceived personal control ("I had a great deal of control" versus "I had very little control"). Results indicated that problem-focused coping strategies were adaptive in stressful encounters appraised to be high in control (e.g., exams) but maladaptive in situations appraised to be low in control (e.g., illness, death of a family member). Furthermore, emotion-focused coping was found to be adaptive in situations

appraised as having little potential for control but resulted in a negative impact on adjustment in situations assessed as high in control. However, other researchers have found either partial support (Terry et al., 1995) or no support (Felton & Revenson, 1984) for a match between the effectiveness of particular coping strategies and appraisals of control.

In contrast to coping strategies, coping resources are stable characteristics of a person's disposition and environment and refer to what is available to people when they develop their coping strategies (Lazarus & Folkman, 1984; Moos & Billings, 1982; Zegans, 1982). Typically, a distinction is made between social resources and personal resources or personality attributes that people draw upon when coping with stressful situations (Zegans, 1982).

In occupational contexts social resources refer to the availability of emotional and tangible help from supervisors, co-workers and non-job sources such as family and friends in times of need (Beehr, 1985; Cohen, 2004; Kaufmann & Beehr, 1986; Rahim & Psenicka, 1996). Research into the stress-buffering or protective role of social support with regard to occupational stress has yielded mixed results (Beehr, 1985; Luszczynska & Cieslak, 2005; Rahim & Psenicka, 1996). For instance, Terry et al. (1995) investigated the stress buffering effect of social support in 153 middle managers employed in an Australian public sector organization. Results showed that under high levels of stress employees who believed that they had support from their supervisors for work-related problems had greater levels of well-being than colleagues with low levels of supervisor support. However, Rahim and Psenicka (1996) found no evidence for the stress buffering effect of social support in a US sample of 526 members of the Chamber of Commerce. Similarly, Dollard and Winefield (1995) found no evidence that social support buffered the negative impact

of work demands in a sample of 419 correctional officers. However, they did find that social support directly impacted on the level of strain experienced. Similarly, Brunborg (2008) found that social support had a significant negative main effect on perceived job stress. It has been suggested that these contradictory findings might partially stem from methodological shortcomings in studies of work stress, such as the failure to use an experimental design or at least a longitudinal design (Luszczynska & Cieslak, 2005) and from a lack of consensus in the conceptualization and measurement of social support (Beehr, 1985; Cohen, 2004; House, 1987).

With regard to personal resources, research has demonstrated that certain individual attributes render some employees more resistant to the deleterious effects of stress and others relatively vulnerable (Rahim, 1996). One such attribute is locus of control (Callan et al., 1994; Payne, 1988). Locus of control refers to the extent to which individuals believe that they can control events affecting them (Rotter, 1966). People with an internal locus of control generally believe that events in their lives are the result of their own actions and behavior. In contrast, people with an external locus of control tend to believe that events in their lives are the result of chance, fate or other people.

Callan et al. (1994) found that lower levels of anxiety and depression amongst lawyers were associated with higher levels of internal locus of control. Rahim and Psenicka (1996) found that locus of control moderated the relationship between stress and strain. Also, Anderson (1977) found that following a hurricane, business owners with an internal locus of control perceived their circumstances as less stressful and used more task-centered coping and less emotion centered coping behaviors than those with an external locus of control. Parkes (1984) found that

student nurses with an internal locus of control reported more adaptive coping responses, particularly in situations which were assessed as controllable and important to the participant. Nevertheless, Hurrell and Murphy (1991) suggested that internal locus of control may be of questionable benefit in the work place, as occupational stressors (unlike stressors in other life areas) are less likely to be under the control of the individual.

Self-esteem has emerged as a personal coping resource in the occupational stress literature. Self-esteem refers to the extent to which individuals believe they are capable, successful, and worthy (Kivimaki & Kalimo, 1996). Research has demonstrated that employees with high self-esteem exhibit lower levels of anxiety (Callan et al., 1994) and high levels of psychological well-being (Terry et al., 1997) compared to individuals with poor self-esteem. It has been speculated that high self-esteem predisposes a person to feelings of confidence in their ability to overcome problems and cope more effectively with the negative effects of occupational stress (Brunborg, 2008; Callan et al., 1994). Another possible explanation is that self-esteem may be a stable pattern of influence on a person's appraisal of threats and patterns of autonomic arousal (i.e., heart beat, respiration) (Brunborg, 2008). However, in a study of 5,450 blue collar workers, Kivimaki and Kalimo (1996) found no evidence to support the hypothesis that individual differences in self-esteem is a determinant of strain symptoms. These researchers did find that chronic occupational stress is associated with increased psychological distress, lack of competence and decreased level of global self-esteem.

Hardiness is another commonly cited personal coping resource. Hardiness refers to a particular cluster of personality characteristics that have been identified in individuals who cope well with stress (Kobasa, 1979). Hardy individuals possess



three general characteristics: 1) an internal locus of control, 2) the ability to feel deeply involved in or committed to work life activities, and 3) the ability to view change as challenge rather than threat (Atella, 1999; Kobasa, 1979; Kobasa, Maddi, & Courington, 1981).

A growing body of research evidence has indicated that hardiness plays a role in the stress-strain relationship (Maddi, 2002). For example, Kobasa (1979) found that among managers who experienced highly stressful events at work, those high in hardiness showed fewer mental and physical illness symptoms than those low in hardiness. Maddi (1999) found that hardiness was negatively related to both self-report and an objective measure (i.e., blood pressure) of strain, in a sample of 20 male managers from a US utilities firm. In a second study, Maddi (1999) used a sample of 124 male managers to investigate the impact of hardiness on coping. Results from this study showed that in the face of work stressors individuals high in hardiness used more active coping strategies and were less reliant on avoidance coping than individuals low in hardiness (Maddi, 1999). Britt, Adler and Bartone (2001) investigated the relationship between personality hardiness and stress in a sample of military personnel on a peace keeping mission midway through a one year deployment and four to five months post deployment. Results showed that hardiness was associated with increased ability to deal with stress months after the soldiers' deployment was over. In a longitudinal study of middle and upper-level managers, Kobasa et al. (1981) found a direct rather than moderating role for hardiness. In this study the additional presence of personality based hardiness decreased the effects of constitutional predisposition and stressful events. Similarly, Manning, Williams and Wolfe (1988) found that hardiness had a significant direct effect on the emotional and psychological well-being of managers.

However, some researchers have been unable to replicate the predicted association between hardiness and health (e.g., Greene & Nowack, 1995). Furthermore, there have been a number of criticisms surrounding the hardiness literature, including questions about the validity and reliability of the hardiness measures, the conceptualization of hardiness as a unitary construct and questions whether hardiness predicts both psychological and physical health status (Greene & Nowack, 1995; Nowack, 1989). Despite these criticisms, the personal resource of hardiness continues to be a much researched phenomenon in the occupational stress literature.

Two other personal attributes relevant to occupational stress that have received a great deal of research attention are Type A behavior pattern (TABP) and negative affectivity. TABP is characterized by ambitiousness, aggressiveness, competitiveness, lack of patience, irritation and increased potential for hostility (Day & Jreige, 2002). Individuals who manifest this behavior pattern are regarded as Type A. A number of studies have investigated the relationship between TABP, perceived stressfulness of the occupational environment and symptoms of strain. Results from these studies have indicated that individuals high in TABP are hyper-responsive to subjective work stressors, report more psychological strain symptoms and exhibit some of the physiological signs of strain than individuals low on TABP (e.g., Dearborn & Hastings, 1987; Ivancevich, Matteson, & Preston, 1982; Van Dijkhuizen & Reiche, 1980).

Some people exhibit a general tendency towards negative responses across time and situations. This stable personality disposition towards a negative mood state has been termed negative affectivity (NA) (Watson & Clark, 1984). Individuals

high in NA frequently experience a broad range of aversive mood states such as anger, disgust, guilt, fearfulness and depression.

Results from a number of studies have suggested that NA is also an important personality variable in occupational stress and employee wellbeing. For example, in a study of 271 female health care workers, Klainin (2009) found that workers high in NA were more likely to perceive high levels of workload, interpersonal conflict at work, role conflict and ambiguity. Moreover, high NA workers tended to experience poorer physical health and a higher level of psychological distress (e.g., depression and anxiety) than low NA workers. These results are consistent with previous studies which have found that NA is significantly correlated with job stress (Barsky, Thoresen, Warren, & Kaplan, 2004), and job satisfaction (Connolly & Viswesvaran, 2000) and individuals high in NA handle work stressors with less restraint resulting in more interpersonal conflict (Penny & Spector, 2005).

In summary, a great deal of empirical effort has been directed towards identifying the most important sources of occupational stress. As a result of these efforts, it has become clear that a range of physical environmental factors, psychosocial factors and individual difference variables have the potential to interact and lead to the development of occupational stress. Among these variables one that requires special mention is aggression and violence in the workplace.

### **Aggression and Violence in the Workplace**

Although often used interchangeably, the terms workplace aggression and workplace violence are two empirically related but distinguishable constructs (Barling, Dupré, & Kelloway, 2009; Schat & Kelloway, 2005). According to Schat and Kelloway (2005), workplace aggression is the more general term used to encompass a range of

interpersonally harmful behaviors that can occur in the workplace. In contrast, workplace violence refers to a distinct form of workplace aggression that comprises behaviors that are intended to cause physical harm to the victim (e.g., physical assaults and/or the threat of assault) (Schat & Kelloway, 2005). Thus, all violent behaviors are aggressive whereas not all aggressive behaviors are violent (Barling et al., 2009; Schat & Kelloway, 2005). In their definition, Verdugo and Vere (2003) included any attack, assault, or threat which results in physical injury or psychological stress to an individual or group as a violent act.

Schat and Kelloway (2005) suggested that it is also important to consider how workplace aggression is related to workplace bullying and other constructs such as workplace abuse, mistreatment, victimization, and workplace incivility. They pointed out that their definition of workplace aggression differs from these constructs in three respects. Firstly, Schat and Kelloway's (2005) definition of workplace aggression is broader than the definitions of these other constructs, in that it does not reference the frequency and duration of the aggressive behavior. Second, it does not limit the source of the aggression to organizational members alone and includes extraorganizational sources of aggression. Finally, Schat and Kelloway's (2005) definition of workplace aggression does not make explicit reference to outcomes, thus recognizing that personal and situational variables may impact on whether and the extent to which negative outcomes occur.

Variations in defining and operationalizing workplace aggression, problems with obtaining data about covert forms of aggression, the nature of the occupations included, the time frame covered and issues about reporting make it difficult to estimate the actual prevalence of workplace aggression (Barling et al., 2009; Schat & Kelloway, 2005). Nonetheless, having reviewed the literature pertaining to

workplace aggression and violence, Barling et al. (2009) concluded that whereas workplace aggression occurs relatively frequently, workplace violence is an infrequent occurrence. Indeed, results from studies in the United States (e.g., Baron & Neuman, 1998; Cortina, Magley, Williams, & Langhout, 2001) have suggested that covert and non-physical forms of aggression (verbal, indirect) are more prevalent in the work place than overt aggression or violent behaviors (physical assault, homicide).

A growing body of empirical literature has linked aggression and violence in the workplace to a range of negative consequences at the individual, organizational and societal level (Leighton, 1999; Verdugo & Vere, 2003). At the individual level the consequences can generally be categorized as psychological, physical and behavioral (Schat & Kelloway, 2005). It should be emphasized that the negative consequences experienced by an individual as a result of exposure to workplace aggression or violence is determined by the type, severity, and frequency of the aggressive behavior, as well as the situational and individual difference variables present (Schat & Kelloway, 2005). Exposure to direct acts of violence that are sudden, unexpected and potentially life threatening and beyond the person's control can result in psychological trauma for the victim (see Flannery, 1996 for review).

It has been estimated that approximately 30 to 40% of individuals who experience a violent event develop noteworthy distressing reactions by one year follow up (Raphael, 1986). Symptoms of psychological trauma include hyper vigilance, sleep disturbance, exaggerated startle response, intrusive recollections and avoidance of daily activities (APA, 2000). If the resulting psychological trauma goes untreated or does not resolve itself the employee victim could go on to develop PTSD (Deville, Gist, & Cotton, 2006).

However, PTSD is not the only nor even the most likely psychopathological outcome associated with traumatic exposure. Exposure to violence in the workplace can also lead to stress and emotional problems including a loss of self-esteem, fear, anxiety, depression, anger and grief (Deville et al., 2006; Flannery, 1996; LeBlanc & Kelloway, 2002; Schat & Kelloway, 2005; Verdugo & Vere, 2003). Moreover, victims of direct violence can experience disruption to their sense of mastery, caring attachment to others and meaningful purpose in life (Flannery, 1996). The stress and negative affect experienced by employee victims of workplace aggression and violence can also manifest itself physiologically in the form of headaches, skin conditions, sleep difficulties, respiratory infections, and gastrointestinal problems (Rogers & Kelloway, 1997; Verdugo & Vere, 2003). Also, identified are a range of behavioral outcomes associated with exposure to workplace aggression and violence. These include substance use, reduced productivity and performance, absenteeism, aggressive behavior, revenge and retaliation (Schat & Kelloway, 2009; Verdugo & Vere, 2003).

Although occurring at the individual level, these negative behavioral outcomes also impact at the organizational level. Moreover, organizations often have to bear the costs for medical bill and the utilization mental health services, as well as costs associated with litigation and hiring and training new employees due to worker injury, resignation, or even death (Verdugo & Vere, 2003). In terms of societal and community costs, workplace aggression and violence can involve the judicial system, and strain both the welfare and the health systems. Furthermore, decreased organizational productivity can mean an economic loss for society (e.g., reduced tax contributions) (Verdugo & Vere, 2003).

Although no worker is immune from becoming the target of workplace aggression or violence some are at greater risk due to the nature of their occupation (Steffgen & Ewen, 2007; WorkCover NSW, 2002). Research has indicated that people employed in the service sectors, particularly health care, law enforcement, education, retail, and transportation are at greater risk of exposure to aggression and violence than people not employed in the service sectors (Flannery, 1996; Steffgen & Ewen, 2007; Verdugo & Vere, 2003).

### **Summary and Conclusions**

It is clear that the concept of stress and occupational stress in particular has been the subject of much empirical research. Nevertheless, there appears to be confusion about how various terms and concepts are defined and used in the occupational stress literature. In the current review the key concepts of stress, strain, pressure, demands, stressor and burnout are clearly defined. It is hoped that clearly defining each of these concepts has provided clarity in thinking and understanding.

This review has discussed three influential theories of occupational stress: person-environment fit theory, the job demand-control support model and the effort-reward imbalance model. In general, these theories all describe occupational stress as being the result of an interaction between person and environment. It is clear that each of the models discussed has received some empirical support and contributed much to our understanding of occupational stress and the negative physiological, psychological and behavioral effects that can ensue. Nevertheless, each of the models discussed are not without their limitations.

Berry's (1998) general perspective on stress is outlined and discussed. Berry's model has been successfully applied in occupational stress research (Carson,

2003; Cardoz, 2007). Each of the components of Berry's model has received much empirical support and is discussed throughout this literature review. Most importantly, Berry's conceptualization of stress allows for the investigation of the myriad of factors which play a role in and influence the development of occupational stress.

As highlighted by the theoretical models discussed in the current review, a broad range of risk factors or sources of stress are involved in the development of occupational stress. An impressive amount of research has been undertaken to identify these factors. Some sources of occupational stress have been identified as being conditions of the physical environmental. Psychosocial factors have also being identified as playing a role, along with a number of individual difference variables. Indeed research suggests that certain personality attributes have the potential to render some employees more resistant to the deleterious effects of occupational stress and others more vulnerable. However, the research pertaining to personality attributes are not unequivocal.

In terms of individual difference variables, the manner in which people cope with stress and how the coping resources they have available to them impact on their adaption to stress has emerged as an important area of research. As discussed in the current review, some studies have found that certain coping strategies and resources can moderate the impact of stressful events on physical and psychological well being. In an occupational context, knowing which coping strategies and resources are most effective in relieving stress and promoting the physical and psychological well being of employees can have a number of practical implications at the individual and organizational levels. From an organizational intervention standpoint, knowledge about effective coping strategies and resources could assist organizations in the



targeted design of intervention programs for the management of occupational stress. Through such programs employees could be assisted to develop their individual capacities to prevent and effectively cope with occupational stress, thus promoting the physical and psychological well being of employees and enhancing productivity.

As discussed in this review it is well established that aggression and violence, or the threat of it, is a prime work stressor for employees (Leighton, 1999). As a source of stress, aggression and violence in the workplace has been well researched. Consequently, much is known about the psychological, physiological and behavioral outcomes that can ensue in employees as a result of being exposed to aggression and violence in the workplace. Much of the research undertaken in this area has been with those occupations that are traditionally expected to encounter violence, such as the police, prison officers, health care workers and employees handling cash and valuable goods (Leather, Beale, Lawrence, Brady, & Cox, 1999). However, the threat of aggression and violence is a concern for a variety of occupations, including teachers (Di Martino, Hoel, & Cooper, 2003; Flannery, 1996). Moreover, aggression and violence in the workplace has been shown to be a significant source of occupational stress for teachers (Galand, Lecocq, & Philippot, 2007). In particular, a much neglected area of research has been the effects of student aggression and violence against teachers (Dzuka & Dalbert, 2007). Such a study would address the gap in the literature and bring about a better understanding of the impact on teachers of aggressive and violent events. Furthermore, analysis of findings from such research would facilitate the provision of appropriate support to teachers, in the form of targeted assistance programs.

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## **Empirical Study**

### **Stress and Coping in Teachers Exposed to Violent and Aggressive**

#### **Student Behaviour**



## **Abstract**

Using Berry's (1998) general perspective on stress as a guiding framework, this study investigated the psychophysiological and psychological responses of Australian public school teachers to violent/aggressive student behaviour, using personalized staged guided imagery. Teacher coping strategies and resources for dealing with their exposure to violent/aggressive student behaviour were also investigated. Heart rate measurements and psychological ratings were obtained during guided imagery of a violent/aggressive work event, stressful but non-violent/aggressive work event and a neutral event from 23 teachers. Forty teachers completed questionnaires on coping strategies and coping resources. Heart rate responses of teachers did not differ significantly between the violent/aggressive event, the stressful event, and the neutral event. Also, teachers who reported high levels of stress did not experience greater arousal levels than teachers who reported low levels of stress. Imagery of the violent/aggressive work event did elicit more negative psychological responses than the stressful event and the neutral event. Also, significantly more anger, anxiety, and fear, and less control were reported during the incident and consequence stages of the violent/aggressive event. Thus, the current study identifies some of the negative psychological responses that can ensue for teachers exposed to violent/aggressive student behavior. Limitations and methodological issues are discussed and directions for future research are suggested.

## **Introduction**

There is strong indication that teaching can be a demanding and stressful occupation. The stressful nature of teachers' work has been consistently demonstrated in many studies in different countries. Research in New Zealand (Hawe, Tuck, Manthei, Adair, & Moore, 2000; Manthei & Gilmore, 1996), Great Britain (Travers & Cooper, 1993; 1997), Malta (Borg, Riding, & Falzon, 1991), North America (Tokar & Feitler, 1986), Canada (Younghusband, Garlie, & Church, 2003), Scotland, and Australia (Pithers & Soden, 1998). In comparison with other professions, teachers also report relatively high levels of burnout symptoms (De Heus & Diekstra, 2000; Kyriacou, 1987; Maslach, Jackson, & Leiter, 1996). Consequently, prevalence and sources of occupational stress among teachers have become important topics for research.

The common stressors repeatedly identified are work load, time restraints, lack of resources, relationships with colleagues, poor working conditions, poor school ethos, physical demands of teaching, and dealing with non-teaching tasks (Borg & Riding, 1991; Borg et al., 1991; Dewe, 1986; Hawe et al., 2000; Kelly & Berthelsen, 1995; Naylor, 2001; Younghusband et al., 2003). Another often cited source of stress and burnout among teachers is student misbehavior (Borg et al., 1991; Johnstone, 1989; O'Halloran, 2005; Oi-Ling, 1995; Tokar & Feitler, 1986; Vinson, 2002; Wilson, 2002; Younghusband et al., 2003). In Australia, for example, the Vinson Report (2002) into public education in New South Wales identified that student misbehaviour such as refusal to cooperate, swearing and confronting behaviour made the day-to-day tasks of teaching distressing and difficult for teachers.

Closely related to student misbehavior is the issue of aggressive and violent behavior by students towards teachers. Aggressive and violent behavior by students is a particular concern not only because it can represent a significant source of occupational stress (Galand, Lecocq, & Philippot, 2007) but because of its occupational health and safety implications (House of Representatives Standing Committee on Employment, Education and Training, 1994; Leyden, 2001; O'Halloran, 2005; Wynne, Clarkin, Cox, & Griffiths, 1996).

Unlike the United States, most countries do not collect national statistics on school violence (Verdugo & Vere, 2003). Consequently, data are not available to make international comparisons. A report into violence in Australian schools by the House of Representatives Standing Committee on Employment, Education and Training (1994) considered the results of surveys from Victoria, South Australia, Western Australia and the Australian Capital Territory (ACT) and concluded that violence against teachers was at an unacceptable level and increasing. For example, the survey data for the ACT, a system of forty thousand students and approximately three thousand teachers, revealed 430 incidents of violence towards staff, approximately 1.2 incidents per school per four weeks. Primary and special schools reported the highest number of incidents. Incidents included use of foul language 59%, physical assault 28%, use of weapons 8.5% and vandalism 4.5%. Female staff were the main recipients and male students were the main perpetrators of the incidents. The data for Western Australia drawn from the report indicated that over 4700 teachers reported having experienced incidences of verbal assault, over 1300 teachers had experienced physical violence, and 600 teachers had experienced damage to personal property.

Underreporting of incidents by teachers (House of Representatives Standing Committee on Employment, Education & Training, 1994; Leyden, 2001; Swanton, 1989) and a paucity of research (Galand et al., 2007; Steffgen & Ewen, 2007) have acted as barriers to understanding the nature and effects of student aggression and violence against teachers. Moreover, methodological problems with existing research make it difficult for findings to be generalized, with studies suffering from low response rates, sampling errors, and the persistent problem of failure to achieve a shared understanding of what constitutes a violent act (Leyden, 2001).

Indeed, terminology has remained a consistent problem in the literature with the terms aggression and violence often used interchangeably. According to Schat and Kelloway (2005), workplace aggression is a general term used to encompass a range of interpersonally harmful behaviors whereas workplace violence refers to a distinct form of aggression that comprises behaviors that are intended to cause physical harm to the victim (e.g., physical assaults and/or the threat of assault). Thus, all violent behaviors are aggressive whereas not all aggressive behaviors are violent (Barling, Dupre, & Kelloway, 2009; Schat & Kelloway, 2005). Verdugo and Vere (2003) included any attack, assault, or threat which results in physical injury or psychological stress to an individual or group as a violent act. The European Commission defined workplace violence as incidents where persons are abused, threatened or assaulted in circumstances related to their work, involving an explicit or implicit challenge to their safety, well-being, or health (Wynne et al., 1996).

However, it should be noted that aggressive and violent behavior by students towards teachers has not been considered a regular feature of school life in Australia and, by and large, schools are safe environments for both students and teachers (House of Representatives Standing Committee on Employment, Education &

Training, 1994; Swanton, 1989). At present there is no current research conducted in Australian schools that is publicly available and readily accessible to determine whether this statement still holds true.

Summarizing the major findings from studies investigating violence towards teachers, Leyden (2001) concluded that in the UK the major source of violence towards teachers is pupils, but the risk of actual physical violence to an individual teacher is low. The limited literature that is available in relation to student aggression and violence towards teachers suggests that physical aggression towards teachers is a rare occurrence (e.g., Hart, Wearing, & Conn, 1995; Johnson, Oswald & Adey, 1993; Leyden, 2001). Nevertheless, Terry (1998) did find evidence of student violence against teachers in seven urban high schools in the UK, as did Elliott et al. (1998) in the US. Elliott, Hamburg and Williams (1998) found that 56% of the teachers surveyed did not feel safe because of the threat of violence in their schools.

When aggressive and violent incidents do occur they have a negative impact on teachers as well as students (House of representatives Standing Committee on Employment, Education & Training, 1994; Leyden, 2001). Regardless of whether they sustain physical injury or not, victims of aggression and violence can experience a range of distressing emotions (Brady, 1999; Leyden, 2001). Immediately following the incident victims may experience confusion, shock, tearfulness, feelings of disorientation, difficulties with thinking clearly, and problems with decision making. Emotions such as fear, anger, guilt, loss and withdrawal are common among victims of violence (Brady, 1999). Furthermore, although one person may recover and return to work, others can go on to experience a lack of confidence in their ability to deal with situations or actions associated with the incident (Brady, 1999). Also, in the medium to long-term, exposure to violence can result in

psychological trauma and lead to the development of posttraumatic stress disorder (PTSD) in the victim (Brady, 1999; Breakwell, 1997; Flannery, 1996). Wieclaw and colleagues (2006) found that exposure to work related threats and violence is a risk factor for depression and stress related disorders in both sexes.

Only a handful of studies have directly examined the impact on teachers following exposure to aggressive and violent behavior by students. In a recent study of 364 teachers from Slovakian secondary schools, Dzuka and Dalbert (2007) found that harmful verbal and physical behaviors, along with damage to personal property, social coercion and manipulative behavior by students impacted on teachers' well-being. The more student violence teachers reported experiencing, the less satisfied they were with life, the less often they experienced positive affect and the more often they experienced negative affect (Dzuka & Dalbert, 2007).

Galand et al. (2007) found that student misbehavior, perceived violence at school and verbal victimization were strongly related to teacher reports of anxious, depressive and somatic symptoms. Johnson, Gold and Vickers (1982) found that stress levels in a sample of 135 teachers of students with emotional and behavioral disorders were related to physical and verbal attacks by students. Horenstein and Voyron-Lemarie (1997) cited in Galand et al. (2007) found a high level of PTSD among French teachers who were victims of physical aggression at school. However, Galand et al. (2007) noted that the Horenstein and Voyron-Lemarie (1997) study suffered from a number of methodological limitations, including the use of a convenience sample, very low response rates and failure to include a control group.

For teachers who have experienced an incident of student aggression and violence, a return to work involves renewed contact with students and the setting in which the teacher's security was threatened (House of Representatives Standing

Committee on Employment, Education and Training, 1994; Leyden, 2001). Some teachers who have been exposed to aggression and violence have great difficulty returning to school, and some never return due to the impact on their confidence and inability to again feel safe in a school environment (House of Representatives Standing Committee on Employment, Education and Training, 1994).

Ways of measuring teacher stress has relied heavily on information gained from self-report measures (Travers & Cooper, 1994), and more recently log books, diaries and observation have been used to supplement these (Wilson, 2002). Because of their subjective nature, self-report measures may not provide a full picture of the stress experience and it may be useful to combine their use with more objective methodologies such as physiological indices of stress. In addition to psychological and behavioural symptoms, the stress response is associated with a range of physiological symptoms that should be considered (Stephoe, 1991). For example, McLaren (1997) found that police officers' systolic blood pressure was significantly higher on workdays when stressful events occurred compared with workdays on which no such events occurred.

Yet, stress research based upon tests of physiological changes has rarely been conducted with teachers (Wilson, 2002). Steptoe (1991) noted that there are two major reasons why studies of physiological responses are valuable; firstly, the links between stress and illness are mediated by psychophysiological pathways and, second, physiological parameters provide objective markers of stress responses. In their critique of physiological measures of work stress, Fried, Rowland and Ferris (1984) noted that cardiovascular symptoms (i.e., blood pressure, heart rate) are highly sensitive to transient events and recommend the use of cardiovascular measures in the study of acute work stressors. Moreover, heart rate has been shown

to be a reliable and robust measure of psychophysiological arousal (Hennigan & Worthham, 1975) and has been used in studies of occupational stress in the context of exposure to stressful work events (Haines, Williams & Carson, 2002).

Personalized guided imagery, developed from the imagery procedures used by Lang and colleagues for the study of fear and phobias (Lang, Levin, Miller & Kozak, 1983) have proved useful in eliciting stress responses following exposure to traumatic events. For example, Furthermore, as noted by Orr and Kaloupek (1987), research into PTSD using psychophysiological techniques have provided a consistent picture of physiological reactivity to depictions of the traumatic event. For example, psychophysiological recordings made during personalized guided imagery of a past traumatic event have been found to reliably discriminate war veterans with PTSD from veterans without PTSD (Orr, Pitman, Lasko, & Herz, 1993), as well as civilian subjects who had experienced a single traumatic event and gone on to develop PTSD from those who did not develop PTSD (Shalev, Orr & Pitman, 1993).

Two important features of the script driven guided imagery method is that it can be individualized to capture each person's unique experience of an event and can also be used to assess emotional reactivity to any traumatic event (Orr & Kaloupek, 1987). A four stage (scene setting, approach, incident, consequence) guided imagery methodology has been successfully used in the study occupational stress and workplace phobia (Haines et al., 2002), and specific clinical behaviors such as self-mutilation (Brain, Haines, & Williams, 1998; Haines, Williams, Brain, & Wilson, 1995).

Stress is not a simple function of exposure to a stressor but may be affected by the coping responses used and the coping resources available to the individual (Griffith, Steptoe, & Cropley, 1999). Coping responses and resources (e.g., social



support) have been shown to directly affect the perception of teacher stress (Griffith et al., 1999) and modulate the impact of stress on psychological well-being and physiological responses (Folkman & Moskowitz, 2004; LeBlanc, Regehr, Jelley, & Barath, 2008; Steptoe, 1991; Uden, 1994).

In his investigations of teacher stress, Dewe (1985) made the distinction between coping strategies which focus on reducing the source of the stress, and those that deal with the negative emotions experienced. Similarly, Lazarus (1993) distinguished between problem-focused and emotion-focused coping. Problem-focused coping strategies are directed towards management of the problem whereas emotion-focused coping strategies involve attempts to deal with the negative emotions associated with a problem (Lazarus & Folkman, 1984; Lazarus, 1993). Due to their failure to deal with the problem, emotion-focused coping strategies are generally believed to have a negative effect on adjustment (Callan, Terry & Schweitzer, 1994; Lazarus & Folkman, 1984), particularly if used in isolation. In contrast, problem-focused coping is described in positive terms in the stress literature and there is some evidence to suggest that the use of problem-focused coping can alleviate stress (Aldwin & Revenson, 1987; Lazarus & Folkman, 1984).

Coping strategies also have been divided into task-oriented, emotion-oriented, or avoidant-oriented categories (Endler & Parker, 1994; Folkman & Moskowitz, 2004). Task-oriented coping involves attempts to reduce or eliminate the source of stress through action; emotion-oriented coping involves managing the emotional reactions to a stressor; and avoidant-oriented coping involves attempts to avoid the problem and engaging in behaviors to reduce or avoid emotional tension (e.g., smoking, alcohol use, drug use, overeating) (Billings & Moos, 1981).

LeBlanc et al. (2008) found that the type of coping used by police recruits, in response to stress inducing scenarios, was associated with biological and psychological indicators of stress. Task-oriented coping was associated with lower subjective ratings of anxiety both before and after the event, whereas avoidant and emotion-oriented coping was associated with increased physiological stress responses (i.e., heart rate and salivary cortisol). Moreover, recruits who used emotion-oriented and avoidant-oriented coping were more likely to suffer from trauma symptoms than recruits who did not use emotion-oriented and avoidant-oriented coping (LeBlanc et al., 2008).

A number of studies have examined the strategies teachers use to cope with job-related general pressures and manage occupational stress (see Johnstone, 1989 for a review). However, there is a notable absence of research on how teachers cope with the stress and psychological distress that can arise from exposure to aggressive and violent student behaviors.

The primary aim of the current study is to investigate the psychophysiological and psychological responses of teachers exposed to violent and aggressive student behavior, using personalized script driven guided imagery. It is anticipated that the psychophysiological (i.e., heart rate) and psychological responses of teachers will be significantly higher for the violent/aggressive work event than the stressful but non-violent/aggressive work event and the neutral event. In particular, it is expected that their arousal (i.e., heart rate) will peak, and the most negative responses will occur during the incident stage of the violent/aggressive work event. It is also expected that teachers who report high stress levels will respond most strongly and negatively to the imagery of the violent/aggressive work event. Furthermore, in view of the limited research on teacher coping, following exposure to violent and aggressive

student behavior, the current study aims to obtain information on coping resources and coping strategies used by teachers following such an event. The information on coping resources and coping strategies will be used to determine whether differences exist between teachers who report high levels of stress and those who do not. It is anticipated that teachers with high stress responses will report fewer coping resources and a greater reliance on emotion focused and avoidant coping strategies than teachers with low stress responses.

## **Method**

### ***Design***

The current study utilized 2 (Group: high stress response, low stress response) x 3 (Script: violent/aggressive work event, stressful nonviolent work event, neutral event) x 4 (Stage: setting the scene, approach, incident, consequence) mixed factorial design with repeated measures. Group was the between subjects factor. Script and Stage were the within subject factors. The dependent variables were the psychophysiological responses and psychological responses obtained on Visual Analogue Scales (VASs). Additionally, a between groups questionnaire study was conducted to examine differences in coping resources and use of coping strategies between the sexes and the high and low stress groups.

### ***Participants***

Participants were a mix of primary and secondary school teachers (N = 40) who had experienced a violent/aggressive behavior by a student. Participants were divided into a high stress (n = 17) and a low stress (n = 23) based on self reported symptoms on the Impact of Events Scale – Revised (IES-R; Weiss & Marmar, 1997).

The high stress group comprised 14 females and 3 males with a mean age of 44.7 years and the low stress group comprised 17 females and 6 males with a mean age of 44.9 years. Forty teachers completed the questionnaire component of the study. Twenty one teachers completed both the questionnaire and the psychophysiological components of the study.

Participants were recruited from public schools across Tasmania, by placing information sheets in staff pigeon holes, via email and through placement of an advertisement in the Australian Education Union newsletter. This study had approval from the Southern Tasmania Social Sciences Human Research Ethics Committee and the Department of Education. The information sheet and statement of informed consent used in this study are appended in Appendices A and B respectively

### ***Materials***

*Imagery Scripts:* Participants were interviewed to establish details for a personalized script for three separate events: a violent/aggressive incident of student behavior (violent/aggressive script), a stressful but non-violent and non-aggressive work event (stressful script), and a neutral event (making a cup of coffee). Participants were encouraged to discuss these events in terms of the physical environment in which the event occurred, their behavior, and their emotional and psychophysiological reactions at the time. Example scripts are presented in Appendix C.

Each imagery script was composed of four distinct stages 1) setting the scene (a description of the environment in which the incident took place; 2) approach (events that occurred in the moments leading up to the incident; 3) incident (details

of the actual incident as it occurred); and 4) the consequence (what occurred immediately after the incident).

*Visual Analogue Scales:* Visual Analogue Scales (VASs; McCormack, de Horne, & Sheather, 1988) were administered after each guided imagery script to obtain a subjective measurement of psychological reactions to imagery at each stage. The four VASs were rated from 0 to 100 in response to imagery on bipolar dimensions: unafraid/afraid, not anxious/anxious, in control/not in control, not angry/angry. The higher the scores on these dimensions, the more negative the experience. Additionally, two VASs were administered as control measures; one to determine how well participants were able to image material presented (clear/not clear), and one to assess the accuracy of the details included in the scripts (close/not close). Higher scores on these scales were indicative of better imagery and more accurate script content. The six VASs are presented in Appendix D.

*Questionnaires:* The IES-R (Weiss & Marmar, 1997) was administered to determine levels of intrusive, avoidance and hyperarousal stress symptoms. The IES-R assesses posttraumatic stress symptoms for any specific life event. Symptoms occurring in the seven days prior to administration of the IES-R in relation to the violent/aggressive incident were assessed. The IES-R has high internal consistency, with a Cronbach's alpha of .86 and test-retest reliability of .87 (Weiss & Marmar, 1997).

The Coping Resources Inventory-Revised (CRI-R; Hammer & Marting, 2004) was used to assess the range of coping resources available to each participant for managing stress associated with the violent/aggressive incident. In a sample of

323 adults the CRI-R was found to have high internal consistency with a Cronbach's alpha of .91 and test-retest (6 weeks) reliability of .73 ( $n = 115$ ) (Marting & Hammer, 2004). The CRI-R is a 60-item self report instrument that measures coping resources in five domains: cognitive, social, emotional, spiritual/philosophical, and physical. Examples of representative items for each domain are as follows: cognitive – *"I feel as worthwhile as anyone else"*; social – *"I am part of a group, other than my family that cares about me"*; emotional – *"I can cry when sad"*; spiritual/philosophical – *"I know what is important in life"*; physical – *"I exercise vigorously 3-4 times a week"*.

The Ways of Coping Questionnaire - Revised (WCQ-R; Lazarus & Folkman, 1984) was used to assess coping strategies used in relation to the violent/aggressive incident. The WCQ-R is a 66-item questionnaire containing a wide range of thoughts and acts that people typically use to deal with the demands of specific stressful encounters. The WCQ-R is comprised of eight coping scales: Confrontive coping, distancing, self-controlling, seeking social support, accepting responsibility, escape-avoidance, planful problem-solving and positive reappraisal. Cronbach's alpha for the eight coping scales for a sample middle aged married couples ( $n = 75$ ) are as follows: Confrontive coping = .70, distancing = .61, self-controlling = .70, seeking social support = .76, accepting responsibility = .66, escape-avoidance = .72, planful problem solving = .68 and positive reappraisal = .79 (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986).

*Apparatus and Psychophysiological Recording:* A portable PowerLab data acquisition system with Chart software was used to record heart rate responses to imagery. Heart rate data were recorded using 7mm Ag/AgCl electrodes, one placed

on each side of the ribcage along the lateral line with an earth measure taken from the mastoid process. Heart rate was used as the most reliable measure sympathetic nervous system activation.

### ***Procedure***

Prior to commencing the initial session, the study was explained to participants and they were provided with an information sheet, following which written informed consent was obtained. Participants were then interviewed in-depth about a violent/aggressive event of student behavior, a stressful work event, and a neutral event. Interviews were audio taped and used to develop individualized imagery scripts. Participants then completed the IES-R in relation to how they felt about the violent/aggressive incident in the last seven days and were provided with a questionnaire package to be completed at home. Participants then attended a second session during which electrodes were attached to record psychophysiological responses during the verbal presentation of imagery scripts. Following a 60 second baseline period, each stage of the imagery script was administered with 10 second pauses between stages. VAS ratings were obtained following the administration of each imagery script. A 30 second period of psychophysiological data was scored for each stage of each script.

### **Data Analysis**

Data was analyzed to a significance criterion of .05. Repeated measures analyses of variance (ANOVA) were performed on the psychophysiological and VAS data. Fisher's least significant difference post hoc analyses were employed to determine significant differences between groups, between scripts, and across script

stages on the psychophysiological and VAS data. Additionally, chi-square and t-test analyses were performed on the data obtained from the coping questionnaires.

## **Results**

### ***Description of sample***

Determination of symptom status for the purpose of group allocation was based on where participants IES-R scores were situated relative to the mean. Participants' scoring above the mean were placed in the high stress group whereas participants scoring below the mean were placed in the low stress group. The high stress group comprised 14 females and 3 males ( $n = 17$ ) with a mean age of 44.7 years and the low stress group comprised 17 females and 6 males ( $n = 23$ ) with a mean age of 44.9 years. A chi square analysis showed that the proportion of males and females in the low stress and high stress groups were not significantly different,  $\chi^2(1, N = 40) = 0.40, p > .05$ . Also, the high stress and low stress groups did not significantly differ in age,  $t(38) = 0.1, p > .05$ .

With regard to the nature of the incidents that were the focus of the study, the high and low stress groups did not significantly differ in terms of the time elapsed since the identified violent/aggressive incident,  $\chi^2(3, N = 40) = 2.3, p > .05$ , or in the nature of that incident,  $\chi^2(2, N = 40) = 0.1, p > .05$ . Similarly, the proportion of participants who had experienced a previous violent/aggressive incident did not differ between the high and low stress groups  $\chi^2(1, N = 40) = 2.1, p > .05$ . These results are shown in Table 1.



Table 1.

*Frequencies of participants in the low and high stress groups by nature of incident, time elapsed since incident and prior experience of an incident.*

Variable	Low	High
Nature of Incident		
Physical Assault	14 (60.9%)	11 (64.7%)
Verbal Assault	4 (17.4%)	3 (17.6%)
Physical Threat	5 (21.7%)	3 (17.6%)
Time Elapsed		
Less than 6 Months	2 ( 8.7%)	3 (17.6%)
6 Months – 1 Year	5 (21.7%)	6 (35.3%)
1 – 3 Years	7 (30.4%)	3 (17.6%)
4+ Years	9 (39.1%)	5 (29.4%)
Prior Experience		
Yes	11 (47.8%)	12 (70.6%)
No	12 (52.2%)	5 (29.4%)

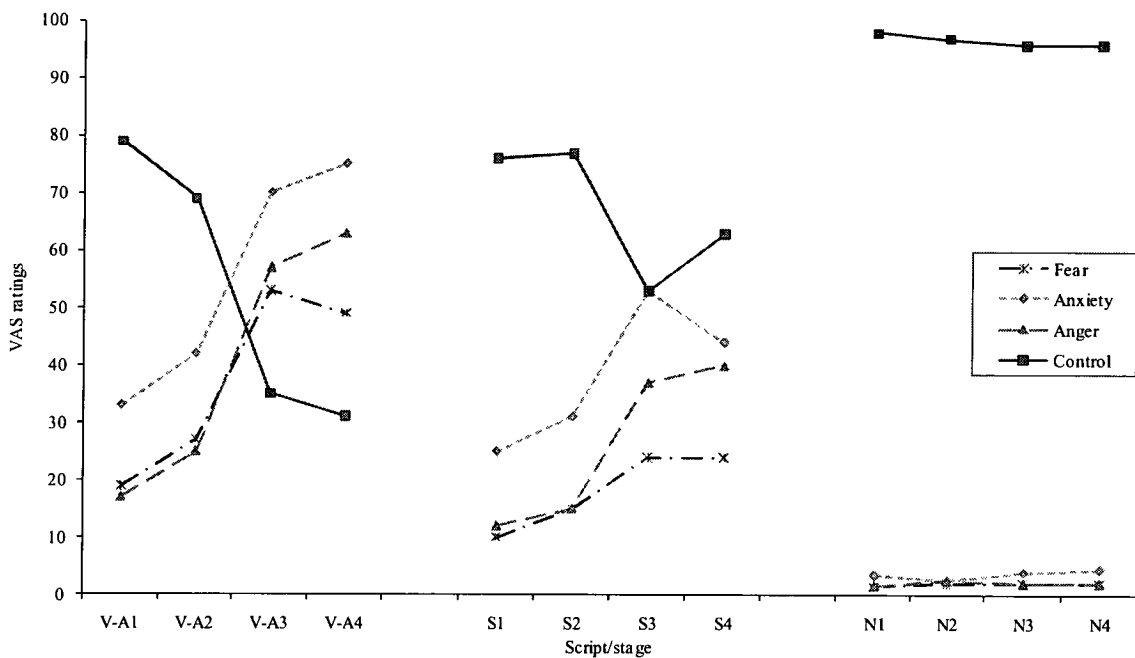
### ***Psychophysiological responses to guided imagery***

No significant interactions were observed for script x stage x group or for script x stage for heart rate.

### ***Psychological responses to guided imagery***

Data for each of the four VASs (Anger, Anxiety, Fear and Control) were analyzed separately. No significant main effects or interactions were observed for the two control measures of Clarity and Closeness.

No significant script x stage x group interactions were observed for the four VAS. There were significant script x stage interactions, for Anger  $F(6,126) = 9.06$ ,  $MSE = 3295.13$ ,  $p < .001$ , Anxiety,  $F(6,126) = 8.9$ ,  $MSE = 2494.78$ ,  $p < .0001$ , Fear  $F(6,126) = 6.1$ ,  $MSE = 1555.8$ ,  $p < .0001$ , and Control,  $F(6,126) = 10.96$ ,  $MSE = 3411.77$ ,  $p < .0001$ . These are presented in Figure 2.



*Figure 2.*

*Mean ratings of fear, anxiety, anger and control for each of the three scripts (V-A, S, N) at the four imagery stages.*

Consideration was given to script differences at each stage. These results are presented in Table 2. As shown in Table 2, the patterns for the Anger, Anxiety and Control VASs were similar. At the setting the scene and approach stages both the stressful and violent/aggressive scripts were rated higher than the neutral script for both Anger and Anxiety VAS, and lower than the neutral script for the Control VAS. At the setting the scene and approach stages there were no differences between the stressful and violent/aggressive scripts. However, at the incident and consequence stages the violent/aggressive script was rated higher on the Anger and Anxiety VASs than the stressful script, which in turn was rated higher than the neutral script. For the Control VAS, a similar pattern was noted, although this was in reverse, with violent/aggressive scripts were rated significantly lower than the stressful script which in turn was rated significantly lower in control than the neutral script. For the Fear VAS, at the setting the scene stage the violent/aggressive script is rated higher in fear than the stressful and neutral scripts, with no difference between the stressful

and neutral scripts. At the approach, incident and consequence stages the violent/aggressive script is rated significantly higher in fear than the stressful script which in turn is rated significantly higher than the neutral script.

Table 2.

*Analyses for script differences at each stage for the anger, anxiety, fear and control VAS.*

Stage	F	MSE	<i>p</i>	Fishers	Differences
<b>Anger</b>					
Setting the Scene	5.6	1368.3	.01	9.3	S,V-A >N
Approach	8.8	2897.3	.001	10.8	S,V-A>N
Incident	22.3	17920.2	.001	16.8	V-A>S>N
Consequence	21.5	21645.8	.001	18.9	V-A>S>N
<b>Anxiety</b>					
Setting the Scene	16.9	5177.2	.001	10.4	S,V-A >N
Approach	21.5	9402.4	.001	12.4	S,V-A>N
Incident	51.3	27454.8	.001	13.7	V-A>S>N
Consequence	52.5	28747.3	.001	13.9	V-A>S>N
<b>Fear</b>					
Setting the Scene	7.9	1675.8	.001	8.7	V-A >S,N
Approach	9.5	3508.0	.001	11.4	V-A>S>N
Incident	20.2	15111.7	.001	16.2	V-A>S>N
Consequence	24.7	12686.6	.001	13.5	V-A>S>N
<b>Control</b>					
Setting the Scene	8.8	3230.0	.001	11.4	V-A,S<N
Approach	12.4	5092.9	.001	12.1	V-A,S<N
Incident	35.1	22783.4	.001	15.1	V-A<S<N
Consequence	37.0	24329.5	.001	15.2	V-A<S<N

*Note:* V-A=Violent/Aggressive Script, S=Stressful Script, N=Neutral Script

Across stage differences were also considered for each script type with the results presented in Table 3. As can be seen in Table 3, for the neutral scripts no significant differences were observed between the stages for any VAS. For the

violent/aggressive script, Anger, Anxiety, and Fear VAS ratings were significantly lower at the setting the scene and approach stages than the incident and consequence stages. However, Control VAS ratings were significantly lower at the incident stage than they were at the setting the scene and approach stages, and Control VAS ratings were significantly lower at the consequence stage than the approach stage.

Table 3.

*Analyses for stage differences for the anger, anxiety, fear and control VAS.*

Script	F	MSE	<i>p</i>	Fishers	Differences
<b>Anger</b>					
Stressful	10.9	4982.6	.0001	12.6	1,2<3,4
Violent/Aggressive	20.1	12179.5	.0001	14.5	1,2<3,4
Neutral	1.4	2.2	NS		
<b>Anxiety</b>					
Stressful	6.1	3802.8	.0009	14.6	1<3,4; 2<3
Violent/Aggressive	36.6	10121.9	.0001	9.8	1,2<3,4
Neutral	0.4	13.8	NS		
<b>Fear</b>					
Stressful	2.7	1171.1	NS		
Violent/Aggressive	20.4	6348.9	.0001	10.4	1,2<3,4
Neutral	0.5	.3	NS		
<b>Control</b>					
Stressful	5.8	3040.4	.0015	13.5	1,2>3; 2>4
Violent/Aggressive	11.8	12996.1	.0001	11.8	1,2>3; 2>4
Neutral	1.4	15.8	NS		

*Note:* 1,2,3,4 refer to the Guided Imagery Stages, Setting the Scene, Approach, Incident and Consequence respectively.

For the stressful scripts, the ratings on the anger VAS were significantly lower at the setting the scene and approach stages than the incident and consequence

stages. Anxiety VAS rating were significantly lower at the setting the scene stage than the incident and consequence stages, and significantly lower at the approach stage than the incident stage. Also for the stressful scripts, ratings of Control were significantly higher at the setting the scene and approach stages than the incident stage, and significantly higher at the approach stage than the consequence stage. There were no significant differences in Fear across the four stages of the stressful scripts.

### *Coping Responses*

As shown in Table 4, participants in the low stress group were significantly lower on the three subscales of the IES-R, which is to be expected given that the groups were formed on the basis of total IES-R scores. As can also be seen in Table 9 participants in the high and low stress groups did not significantly differ on any subscales or on the total score of the CRI and did not significantly differ on any subscales of the Ways of Coping – Revised. This indicates that the low and high stress groups had comparable use of coping resources and coping strategies, and only differed in regard to the impact of the violent/aggressive incident.

Table 4.

*Low stress and high stress group comparisons (t-test) for the subscales of the IES – R, CRI-R and the WCQ - R.*

Scale	<i>t</i>	<i>df</i>	<i>p</i>
IES-R			
Avoidance	7.0	38	.0001*
Intrusion	8.5	38	.0001*
Hyperarousal	7.4	38	.0001*
CRI			
Cognitive	0.3	38	NS
Social	0.6	38	NS
Emotional	1.3	38	NS
Spiritual/Philosophical	0.9	38	NS
Physical	1.9	38	NS
CRI Total	1.0	38	NS
WCQ-R			
Confrontive	1.1	38	NS
Distancing	0.7	38	NS
Self Controlling	0.4	38	NS
Social Support	0.8	38	NS
Accepting Responsibility	0.1	38	NS
Escape-Avoidance	1.7	38	NS
Planful Problem Solving	1.0	38	NS
Positive Re-Appraisal	0.8	38	NS

*Note: \*indicates that the High Stress Group has a significantly higher score*

## Discussion

The aims of the current study were twofold. Firstly, the psychophysiological and psychological responses of teachers exposed to violent and aggressive student behaviour were examined using guided imagery methodology. It was expected that teachers' experience of psychophysiological arousal (i.e., heart rate) and negative psychological affect would be strongest for the violent/aggressive work event in

comparison to the stressful but non-violent/aggressive work event and the neutral event. In particular, it was expected that their arousal would peak and the most negative psychological responses would occur during the incident stage of the violent/aggressive work event. It was also expected that teachers who reported high levels of stress (high stress group) would respond most strongly to the imagery of the violent/aggressive work event than teachers with low levels of stress (low stress group).

Secondly, the present study investigated the coping resources and coping strategies used by teachers following exposure to a violent/aggressive event of student behavior. It was anticipated that teachers with high levels of stress would report fewer coping resources and a greater reliance on emotion focused and avoidant coping strategies than teachers with low levels of stress.

When considering the composition of the groups, it was evident that the high stress group and the low stress group of teachers did not differ significantly in terms of sex, age and the nature of the incidents that were the focus of the study, such as the time elapsed since the violent/aggressive incident, the nature of the incident, and prior experience of a violent/aggressive incident. This suggests that the sample of teachers in the current study were a homogenous group.

The mean age of the teachers who participated in the current study suggests that participants were relatively experienced teachers. With regard to the nature of the violent/aggressive incidents that were reported, it was evident that some teachers' experiences were of a more severe nature (e.g., physical assault, threatened with a weapon) than others (e.g., verbal assault). In the current study, twenty two out of the forty teachers who participated reported being physically assaulted. Additionally, three teachers reported that they were threatened with a weapon. Furthermore, in the

current sample twenty three teachers reported that they had experienced more than one incident of aggressive/violent student behaviour. Literature on workplace violence and aggression suggests that re-exposure to violent or aggressive events in the work place may cause a cumulative negative effect on individual well-being (Chappell & Di-Martion, 2006; Dzuka & Dalbert, 2007).

Contrary to expectations, results indicated that the heart rate responses of teachers did not differ statistically between the violent/aggressive work event, the stressful work event, and the neutral event. Consequently, the expectation that arousal levels would be highest during the violent/aggressive work event, and in particular during the incident stage of the guided imagery, was not supported by the results of the current study. Moreover, the high and low stress groups were not distinguishable based on their heart rate responses. Therefore, the prediction that teachers who report high levels of stress would experience greater arousal levels than teachers who report low levels of stress was not confirmed. Consequently, the current study failed to replicate findings from previous studies which have demonstrated that imaging stressful work events result in statistically elevated psychophysiological responses (e.g., Haines et al., 2002; McLaren, 1997).

However, there are factors that might have impacted on this result. It is important to note that the sample of teachers in the current study was not particularly differentiated in terms of their stress responses as measured by the IES-R. The high stress response group in this sample of teachers contained only a few individuals with clinically significant levels of distress. Consequently, the unavoidably narrow split between the high and low stress response groups meant that it would have been more difficult to achieve statistical significance.



With regard to the psychological responses, results indicated that the experimental methodology of personalized script driven guided imagery was successful in eliciting responses that were in line with expectations. Overall, teachers reported experiencing the most negative emotional responses during imagery of the violent/aggressive work event. Imagery of the violent/aggressive work event elicited more negative psychological responses than the stressful but non-violent/aggressive work event which in turn invoked more negative psychological responses than the neutral event.

Comparisons made between the guided imagery stages for each of the scripts further confirmed that the methodology used was successful in eliciting responses consistent with expectations. In particular, teachers reported experiencing significantly more anger, more anxiety, more fear and less control during the incident and consequence stages of the violent/aggressive work event than the stressful work event and the neutral event. The violent/aggressive work event was also rated significantly higher in fear at the setting the scene and approach stages than the stressful work event and the neutral event. Perceived threat at the incident stage manifested in these higher ratings of negative psychological response at the time when involvement in the violent/aggressive event would have been the greatest. There was little indication that the negative psychological responses resolved in the immediate aftermath of the event. Indeed, teachers did not report any significant changes in fear between the four guided imagery stages for the violent/aggressive work event. Successful and rapid resolution of negative psychological responses following a threatening event would be likely to occur only if identifiable safety signals were present, reassuring the individual that the danger had passed. However, in a classroom context the student who instigated the violent/aggressive behavior is

likely to remain in the class, unless of course measures are taken to transfer the student to another class. Moreover, the teacher would be required to continue to teach and interact with this student and engage in behavior management when required. This, of course, makes it difficult for the teacher concerned to establish that the danger has passed.

Overall, imagery of the violent/aggressive work event elicited significantly more negative emotional responses than the stressful work event and the neutral event. In general, this finding is consistent with that of Dzuka and Dalbert (2007) who found that the experience of student violence was associated with negative affect in teachers. Indeed, the negative psychological responses elicited in the current study are consistent with the nature of the incident being investigated, for example, feelings of anger when threatened, and feelings of anxiety and fear in the face of a direct threat to one's safety. Nevertheless, it should be acknowledged that these results could be due to expectation effects such as knowing that one should be more angry or anxious during imagery of the violent/aggressive work event than the stressful but non-violent/aggressive work event.

Not surprisingly, teachers in the current study reported a significant loss of control during the violent/aggressive work event. Occupational stress research on control has demonstrated that a greater sense of perceived control of the stressful situation being dealt with moderates the relationship between stress and strain (Rahim & Psenicka, 1996) and is associated with more adaptive coping responses (Parkes, 1984). The constraints placed upon teachers within their role in relation to physical contact with students and the power imbalance that already exists in a teacher-student relationship effectively removes teachers' ability to defend

themselves or retaliate. Reduced perceived control may result from these restraints, thus hampering a teacher's ability to manage such demanding events.

When considering teachers' coping resources and coping strategies used in relation to violent/aggressive work event, no significant differences between the high and low stress groups were apparent. Therefore, the expectation that the high stress response group would report fewer coping resources and a greater reliance on emotion focused and avoidant coping strategies was not confirmed. When the mean scores for the various coping strategies used in response to violent/aggressive work event are examined, it is clear that teachers in both the high stress and low stress groups used social support, planful problem solving and self controlling coping strategies more often than confrontive coping, distancing, escape-avoidance and positive reappraisal. Accepting responsibility was the least often used coping strategy for both the high and low stress group. These results suggest that, in general teachers used a range of coping strategies in response to the violent/aggressive work event. In summarizing the findings from research conducted using the WCQ Lazarus (1993) noted that people tended to use most of the strategies of coping in every stressful encounter.

In terms of coping resources teachers had available to them and utilized following the violent/aggressive work event, the high stress group made greater use of social and cognitive resources than emotional, spiritual/philosophical and physical resources. The low stress group made greater use of physical and to a lesser extent social resources than emotional, spiritual/philosophical and cognitive resources. However, it is important to note that the differences between the low and high stress in relation to coping strategies and coping resources were not statistically significant.

As discussed previously, the majority of teachers in the high stress response group were not individuals with clinically significant stress levels. It is possible that this lack of differentiation between the high and low stress groups was a factor in the lack of distinction between the low and high stress groups in relation to coping. According to the stress buffering model, coping resources and adaptive coping strategies buffer the individual from the adverse effects of stress, with their effects being most marked at high levels of stress (Callan, Terry, & Schweitzer, 1994). There is some support for this position. For example, Aldwin and Revenson (1987) and Callan et al. (1994) both found that the use of problem-focused coping strategies were effective in reducing the effects of stress but only at high levels of appraised stress. Also, McCormick (1997) argued that higher levels of appraised stress are associated with immature defensive coping responses. The majority of teachers who participated in the present study appraised their stress levels as being below clinically significant levels. Thus, the present study was not able to examine the type of coping strategies and the amount of coping resources available to teachers who experienced clinically significant levels of stress following the violent/aggressive work event. The availability of coping resources and use of specific coping strategies, and its relationship to adaptational outcomes clearly needs to be explored further by comparing participants with clinically significant levels of appraised stress with participants with low levels of appraised stress.

The current study has identified some of the negative psychological responses experienced by teachers following their exposure to violent/aggressive student behavior. It is important to note that from the perspective of the teachers who participated in this study exposure to violent/aggressive student behaviour was significantly more distressing than stressful work events. It is possible that the

teachers who did come forward and were willing to participate in a study involving exposure to a stressful and possibly traumatic event were individuals who were no longer experiencing significant levels of stress as a result of their experience. This is borne out by the fact that the majority of teachers who participated in the present study had experienced the violent/aggressive incident of student behavior more than 6 months prior to participation. It is likely that the length of time that had elapsed since the incident meant that these teachers stress levels had abated and as a result they were more prepared to be interviewed about their experience and be exposed to imagery of that event.

It is noteworthy that in the present study the subjective measures of emotional responses showed significant differences between the three events despite the objective measure of heart rate failing to show heightened physiological response. This result also highlights the importance of using both subjective and objective methodology in the assessment of stress responses and psychological outcomes. As demonstrated in the current study, an individual's subjective psychological experience to an event may not always be reflected in the physiological data. It is also noteworthy that comments made by many of the teachers during the interview process suggest that the response of senior staff and colleagues in the immediate aftermath of the violent/aggressive incident was an important factor. In particular, teachers noted that the response of the principal or assistant principal in providing emotional and practical support was a key factor in their immediate psychological state and subsequent adjustment. In general, perceived support from colleagues and, in particular, from managers has been shown to reduce perceived distress after exposure to workplace stressors (Holder & Vaux, 1998; House, 1981).

Some limitations of this study should be acknowledged. First, as discussed previously, the sample of teachers in this study did not report clinically significant levels of stress. This resulted in a lack of differentiation between the two groups, which in turn impacted on findings. A second limitation of this study was the failure to control for prior mental health status and stress levels of participating teachers. Mental health status and stress levels of individuals prior to their experience of the violent/aggressive work event are important because these factors can confound results. Third, despite the availability of portable equipment and the provision of information about the methodology being used to measure heart rate some teachers were reluctant to participate. There was greater willingness among teachers to participate in the questionnaire component of the study rather than the psychophysiological component. This may have been due to the unfamiliar nature of the methodology and the potential for it to elicit negative emotions. Future research will need to take these factors into consideration.

The use of online questionnaires that teachers can access through an email link is likely to result in a better response rate. Using this method, teachers could provide information about their experiences immediately following a violent/aggressive event, three months and then six months after the event. There are a number of benefits to such an approach. Firstly, it will be possible to gather information on teachers' stress levels, psychological responses, and coping processes almost immediately following a violent/aggressive event. Secondly, collecting data at three and six month intervals will enable the researcher to examine differences in subjective responses across time. A third benefit of using online questionnaires is the greater level of convenience for participants. Teachers could be given the option to indicate their willingness to participate in the psychophysiological component of

the study. The psychophysiological response of an individual immediately following a traumatic event may lead to either coping, stress-related illness, and/or behavioral disturbance (Berry, 1998). Given the lack of research in Australia about outcomes for teachers who have been exposed to violent/aggressive student behavior, a study utilizing both objective and subjective measures would have much to contribute.

### **Summary**

In summary, the current study examined the psychophysiological and psychological responses of teachers exposed to violent and aggressive student behaviour, using personalized, staged guided imagery methodology. Teachers' psychological responses, coping resources and coping strategies in the face of violent and aggressive student behaviour were also examined. Contrary to expectations, no significant differences in psychophysiological arousal levels were observed between a violent/work event, a stressful but non-violent/aggressive work event and a neutral event. Moreover, teachers who reported high levels of stress did not experience greater arousal levels than teachers who reported low levels of stress. Results did indicate that imagery of the violent/aggressive work event elicited more negative psychological responses a stressful but non-violent/aggressive work event and a neutral event. Thus, the current study has identified some of the negative psychological responses that can ensue for teachers following exposure to violent/aggressive student behaviour. Finally, the methodological limitations and weaknesses of the current study have been discussed and directions for future research suggested.

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## **Appendix A**

### **Information Sheet**

## Appendix A



UNIVERSITY  
OF TASMANIA

### **Stress and Coping in Teachers Exposed to Violent Student Behaviour**

The above project is being conducted by Dr. Janet Haines, and Mrs. Judy Frith of the School of Psychology at the University of Tasmania. The purpose of this study is to examine whether there are differences between the psychophysiological and psychological reactions, and coping of teachers who develop clinically significant stress responses and those who do not, following exposure to violent student behaviour. The results of this project may contribute to a greater understanding of the different reasons behind why some individuals develop a clinically significant stress response whilst others do not. This project is being undertaken as part of a Master of Psychology (Clinical) degree.

If you agree to participate, you will be interviewed about the following: a specific event in which you were exposed to violent student behaviour; a work event of your choosing that was stressful but did not involve violence; and an emotionally neutral event (such as making a cup of coffee) that will be used for comparison purposes. This interview will be recorded on audiocassette. The information from the interview will then be used to devise imagery scripts. An imagery script is a structured, written account of the story provided by you during the interview. The imagery scripts will be used to guide you through the memory of events whilst having electrodes and measurement instruments fitted so that recordings of your heart rate can be taken.

You will be given the option of attending the imagery laboratory at the University of Tasmania or choosing a location convenient to you (e.g., school) to have electrodes and measurement instruments applied to your torso so that measures of heart rate can be taken. The application of these electrodes is very safe and not intrusive and you will not be required to remove any clothing. The administration of these electrodes and measurement instruments do not cause discomfort although it should be noted that there is a very small risk of skin rash. Please let us know if you have any allergies.

Measurements will be taken while you are guided through imagery of an episode of violent behaviour by a student, a stressful but non-violent work event, and an emotionally neutral event of your choosing. You will be asked to rate your psychological response to the content of the imagery scripts as well as the accuracy of their content, and how easy it was for you to visualise the details. You will also be asked to complete a range of questionnaires and rating scales that are designed to

elicit information about the following: the way in which you cope, the type of coping resources you have available to you and your reactions to the violent work event. The interview will take approximately one hour of your time and the laboratory session will also take one hour.

We wish to emphasise that the information you share with us will be treated in a confidential manner. You will not be able to be identified in any research output, and all information that you provide will remain anonymous. All written information, computer data files and audio cassettes will be stored with a participant number rather than your name. The data will be secured in a locked cabinet. Furthermore, the data collected from this study will be kept in the School of Psychology for at least 5 years and will be destroyed by shredding paper documents and erasing audiocassettes

Participation in this study is completely voluntary. If you agree to participate in the study but then change your mind and wish to withdraw, you may do so at any time without prejudice. You may also choose to withdraw any data that you have provided. If you are receiving counselling or psychological support, you may wish to discuss participation in this project with your counsellor or psychologist prior to commencement.

Some people may find that talking about their stressful experiences is difficult and causes anxiety. If this is the case for you, we recommend that you do not participate in this project because we are asking for people to discuss the nature of their reactions to their experiences. In addition, if you agree to participate but then find it causes you undue anxiety to talk about these issues, please let us know. We will assist you with your anxiety and provide you with the opportunity to withdraw from the study. We do not wish for participation in the project to be distressing for you. If you wish to discuss the project before, during or after participation, please contact Judy Frith on 0418998399 or at [jfrith@utas.edu.au](mailto:jfrith@utas.edu.au) or Dr Janet Haines on (03) 6226 7124 or at [J.Haines@utas.edu.au](mailto:J.Haines@utas.edu.au)

This project has been approved by the Southern Tasmania Social Sciences Human Research Ethics Committee and the Department of Education. Should you have any concerns, questions or complaints with regard to the ethical conduct of this research, please contact the Executive Officer of the Human Research Ethics (Tasmania) Network, on 6226 7479 or [human.ethics@utas.edu.au](mailto:human.ethics@utas.edu.au) <<mailto:human.ethics@utas.edu.au>> You will need to quote ethics reference number H9766.

Should you wish to discuss your experience of violent student behaviour with someone unaffiliated with the project, we would suggest that you contact M, W+ (Vicki Martin, with Associates) the independent and confidential counselling service provided at no cost to Department of Education employees (state wide telephone: 1800 064 039). Alternatively, you could contact the University Psychology Clinic in Hobart (telephone: 62262 805), or your general practitioner. The services provided by the University Psychology Clinic are free of charge. If you require immediate assistance, please let us know as we would be happy to provide support.

We would be happy to discuss your individual results with you. Overall results will be available in hard copy or electronic form on the School of Psychology website at the completion of the project if you are interested ([www.scieng.utas.edu.au/psychol/](http://www.scieng.utas.edu.au/psychol/)). Please include your e-mail address if you would like to receive notification by email when the project is completed and results available from the School of psychology website.

If you decide to withdraw from the project, we would welcome the opportunity to discuss with you any concerns you have about the project and your participation in it.

Please keep this information sheet and, if necessary, refer to the information it contains. In addition, if you agree to participate, you will be asked to sign a statement of informed consent. A copy of this statement will be provided to you. Thankyou

## **Appendix B**

### **Statement of Informed Consent**

## Appendix B

### STATEMENT OF INFORMED CONSENT

I have read and understood the 'Information Sheet' for this study. The nature and possible effects of the study have been explained to me.

I understand that the study involves:

- Discussing an incident of violent student behaviour I have experienced;
- Discussing a non-violent stressful work event of my choosing
- Discussing an emotionally neutral event of my choosing;
- These discussions will be recorded on audiotape to facilitate the preparation of imagery scripts;
- Attending a recording session and having electrodes and measurement instruments fitted so that recordings of my heart rate can be taken while I am being asked to image aspects of the events;
- Rating my psychological responses to these events;
- Completing questionnaires about my coping resources and the way I cope.
- The duration of the interview and the laboratory session is one hour each.

I understand that the data collected from this study will be kept in the School of Psychology for at least 5 years and will be destroyed by shredding paper documents and erasing audiocassettes.

I understand that all research data will be treated as confidential and that my name will not be attached to the data that are collected. Any questions that I have asked have been answered to my satisfaction. I agree to participate in this study and understand that I may withdraw at any time without prejudice, and that I may also choose to withdraw any data that I have provided. I agree that research data gathered for the study may be published. I am aware that I will not be able to be identified in the published material.

Name of participant:

.....

Signature of participant: .....

Date:

.....

I have explained this project and the implications for participation in it to this volunteer and I believe that the consent is informed and that s/he understands the implications of participation.

Name of Investigator:

.....

Signature of investigator: .....

Date:

.....

## **Appendix C**

### **Examples of Personalized Guided Imagery Scripts of a Neutral Event, Stressful Non-Violent Work Event, and Violent/Aggressive Work Event**

## Appendix C

### Neutral Event

#### *Setting the Scene*

**Right**, you come out of the bathroom and go into the kitchen. Notice the cream walls and the TAs oak cupboards in the kitchen. Notice the small area of bench space. You are thinking about making a cup of tea. You are feeling calm and relaxed. **Concentrate on that feeling right now [pause]**. You walk to the kettle and pick it up from its base. You take the kettle to the sink. You turn on the tap and fill the kettle with filtered water. You place the kettle back on its base. You are waiting for the kettle to boil. You are not thinking about anything in particular. You are still feeling calm and relaxed. **Concentrate on that feeling right now [pause]**. **Now open your eyes and switch that scene off.**

#### *Approach*

**Close your eyes. Right**, you are waiting for the kettle to boil. You reach down and get out a cup. It is the china cup your granddaughter gave you. Notice the colour of the cup. You move the cup close to the kettle and set it down. You are feeling calm and relaxed. **Concentrate on that feeling right now [pause]**. Notice the 3 canisters of sugar, tea and coffee sitting on the bench. You are thinking about having an earl grey tea today. You get out an earl grey tea bag out of the canister. You are putting the tea bag into your china cup. Notice that you are still feeling calm and relaxed. **Concentrate on that feeling right now [pause]**. **Now open your eyes and switch that scene off.**

#### *Incident*

**Close your eyes. Right**, the kettle has boiled. You pick up the kettle and pour the boiled water into your cup. You let the tea bag draw for a few minutes. Notice the water changing colour. You are walking over to the fridge to get the soy milk. You take the soy milk container to the bench. You tip some soy milk into your cup of tea. Notice that you are still feeling calm and relaxed. **Concentrate on that feeling right now [pause]**. Smell the aroma of the tea. Notice that the soy milk has changed the colour of the tea. The tea still looks weak. You leave the teabag in so it draws more. You take your cup of tea over to the kitchen table. Notice that you still feeling calm and relaxed. **Concentrate on that feeling right now [pause]**. **Now open your eyes and switch that scene off.**

#### *Consequence*

**Close your eyes. Right**, you have finished making your cup of tea. You are sitting at your kitchen table. You are ready to enjoy your cup of tea. Notice the newspaper sitting on the kitchen table. Your husband has left it there for you. You open up the newspaper and start reading it. You are focused on the article you are reading. You are feeling calm and relaxed. **Concentrate on that feeling right now [pause]**. You pick up your cup and take a sip of tea. The tea feels warm. You keep reading the newspaper and sipping your tea. You are enjoying your tea. You are still feeling calm and relaxed. **Concentrate on that feeling right now [pause]**. **Now open your eyes and switch that scene off.**



## Stressful Non-Violent Work Event

### *Setting the Scene*

**Right**, it is early morning. You are at home. You have just received a phone call from a teacher informing you that she is sick. You have to find a relief teacher. You get your phone details of all the relief teachers available and start ringing them. No one is available. You ring manpower to see if they have anyone available who can do the relief. You are feeling a little anxious. **Concentrate on that feeling right now [pause]**. You think if I can't get anybody I will have to do the relief myself. It is 7.45. You have not found anyone to do relief yet. You know that you are unlikely to get somebody today. You are thinking about the day ahead of you and what it will be like. Notice that you are feeling anxious. **Concentrate on that feeling right now [pause]**. **Now open your eyes and switch that scene off.**

### *Approach*

**Close your eyes. Right**, you are driving to school. You haven't found anyone to the relief. Your head is full of thoughts about how you will manage the day. You are thinking about what you will do because you haven't planned for the class you will be taking. You are feeling worried and anxious. **Concentrate on that feeling right now [pause]**. As you are driving you are doing the planning for the class you will be taking over for the day. You are thinking that there must be some literacy, some numeracy and some fun activities for the students to do. You are also thinking about how to manage any behaviour you may encounter during the day. All these thoughts are going through your head. You feel worried and anxious. **Concentrate on that feeling right now [pause]**. **Now open your eyes and switch that scene off.**

### *Incident*

**Close your eyes. Right**, you have got to school. You are thinking about what you have to do next. You are thinking that you have to speak to every teacher that has you for ICT today. You go to find these teachers. You have to negotiate with them what they can do for the day. You say this was the plan for the day and give them your plan. This helps the teacher taking the class. You know that this puts the teacher under pressure. You are feeling uncomfortable. **Concentrate on that feeling right now [pause]**. It is now just past 8O'clock. You are thinking I still haven't thought about how I will manage 25 children for the rest of the day. You plan what you have to do. You don't know the class well enough. You have to make sure that the activities you choose are challenging but not too challenging. You are feeling tense. **Concentrate on that feeling right now [pause]**. **Now open your eyes and switch that scene off.**

### *Consequence*

**Close your eyes. Right**, it is the end of the school day. You are thinking about how your day has been. The day's teaching and managing of behaviour went well. The students cooperated and seemed to enjoy the activities you gave them. You are feeling quite stressed and tired. **Concentrate on that feeling right now [pause]**. You have not had a break at all during the day. You had your lunch on the run too. You are glad it is the end of the day. You are feeling relieved and very tired. **Concentrate on that feeling right now [pause]**. **Now open your eyes and switch that scene off.**

## Aggressive/Violent Event

### *Setting the Scene*

**Right**, you are in the computer lab. S is in the lab. You haven't had time to unblock his e-mail access from when he had harassed another student. S has just returned from suspension. He is trying to log on. He is not able to log on. He is becoming verbally aggressive. S is swearing at you. His language is abusive. There are other students in the lab. Really hear him swearing at you. You are keeping calm. **Concentrate on that feeling right now [pause]**. You say to S that he needs to wait a few moments and you will come and talk to him. S keeps yelling about you having blocked his e-mail off. You are staying calm and controlled. **Concentrate on that feeling right now [pause]**. **Now open your eyes and switch that scene off.**

### *Approach*

**Close your eyes. Right**, S is yelling at you. He is saying I will fucking get you, you don't have the right to do that. You are saying to S that you do have the right to do that and you will discuss it with him once you get the rest of the class settled. S does not accept this. He wants his e-mail unblocked straight away. You are making a conscious effort to stay calm and controlled. **Concentrate on that thought right now [pause]**. You say to S that it will take a few minutes for the unblocking to happen. S is swearing at you. You are saying to S I will ask you not to swear at me any more and if you don't stop you will need to leave the room. S is continuing to swear. You say to S that he needs to step outside. You are telling S that if he keeps swearing at you his e-mail will not be unblocked at all. S is leaving the room. He is kicking the bin, pulling a display down and slamming the door as he leaves. As he is leaving you ask him to find a place to calm down. You are trying to stay calm and controlled. **Concentrate on that feeling right now [pause]**. **Now open your eyes and switch that scene off.**

### *Incident*

**Close your eyes. Right**, you follow S to make sure that there is no one in the corridor for him to vent his anger on. You see him going to the canteen. He sits at a table. You are thinking he has done what I asked him to do. **Concentrate on that thought right now [pause]**. You return to class. Suddenly S comes back in swearing and saying he is going to get you. He is going to the next class. He is getting a cricket bat. He comes up to you and says I am going to fucking hit you with this. You say I hope you don't. S says I am fucking going to hit you around the head with this. You say to him I hope you don't make that choice. He comes up beside you yelling and swearing and hits you with the bat. You ask him to move away. He drops the bat. You say to S 'you need to walk that way and go home now'. S is leaving. You can hear him swearing at you and saying he hates the school as he leaves. You feel shocked at what has happened. **Concentrate on that feeling right now [pause]**. **Now open your eyes and switch that scene off.**

### *Consequence*

**Close your eyes. Right**, S has left the building. You are going to the office. See yourself walking to the office. You tell the office staff to ring S's mother and let her know that S was coming home. You are trying to stay calm. **Concentrate on that feeling right now [pause]**. Another teacher puts her arm around you. You fall to pieces and break down crying. The principal comes out of her office. You are

telling the principal what just happened. You sit outside with the principal for awhile. The principal is very supportive. You realize you have to do something more than just suspend S. **Concentrate on that thought right now [pause]. Now open your eyes and switch that scene off.**

## **Appendix D**

### **Visual Analogue Scales**

## Appendix D

### Visual Analogue Scales

*How do you feel?*

Unafraid \_\_\_\_\_ Afraid

Not Anxious \_\_\_\_\_ Anxious

In Control \_\_\_\_\_ Not In Control

Not Angry \_\_\_\_\_ Angry

*How well were you able to put yourself in the scene?*

Clear \_\_\_\_\_ Not Clear

*How close to real life was that scene?*

Close \_\_\_\_\_ Not Close

## **Appendix E**

### **Means and Standard Deviations for Heart Rate, VAS and Coping Measures**

## Appendix E

Table 5.

*Means and standard deviations for heart rate for the three scripts (V-A, S, N) by group (high and low stress) by imagery stage.*

Script	Group	Stage	Mean	Standard Deviation
Violent-Aggressive	High	Setting the scene	67.63	6.98
		Approach	69.04	10.37
		Incident	68.92	11.08
		Consequence	67.80	10.25
	Low	Setting the scene	66.42	10.35
		Approach	67.60	9.94
		Incident	68.92	11.02
		Consequence	67.80	10.25
Stressful Non-Violent	High	Setting the scene	67.33	8.11
		Approach	66.55	7.89
		Incident	67.96	9.25
		Consequence	67.77	8.84
	Low	Setting the scene	67.35	11.51
		Approach	67.68	11.48
		Incident	68.28	10.37
		Consequence	68.07	10.73
Neutral	High	Setting the scene	66.25	6.43
		Approach	67.57	7.80
		Incident	67.66	6.99
		Consequence	66.87	6.44
	Low	Setting the scene	66.30	11.51
		Approach	66.78	11.30
		Incident	67.45	11.55
		Consequence	67.74	11.36

Table 6.

*Means and standard deviations for the anger VAS for the three scripts (V-A, S, N) by group (high and low stress) by imagery stage.*

Script	Group	Stage	Mean	Standard Deviation
Violent-Aggressive	High	Setting the scene	23.29	32.85
		Approach	26.43	22.98
		Incident	81.86	11.74
		Consequence	82.57	28.71
	Low	Setting the scene	13.88	23.43
		Approach	24.13	28.29
		Incident	46.38	34.73
		Consequence	54.25	39.98
Stressful Non-Violent	High	Setting the scene	11.86	16.73
		Approach	19.86	22.62
		Incident	36.43	39.87
		Consequence	50.14	47.09
	Low	Setting the scene	12.31	15.81
		Approach	12.88	16.39
		Incident	37.56	33.39
		Consequence	36.38	37.22
Neutral	High	Setting the scene	2.86	3.67
		Approach	3.00	4.32
		Incident	2.57	3.78
		Consequence	2.43	3.41
	Low	Setting the scene	1.19	1.47
		Approach	2.19	3.17
		Incident	1.81	2.95
		Consequence	2.13	3.16



Table 7.

*Means and standard deviations for the anger VAS for the three scripts (V-A, S, N) by imagery stage.*

Script	Stage	Mean	Standard Deviation
Violent-Aggressive	Setting the scene	16.74	26.23
	Approach	24.83	26.28
	Incident	57.17	33.74
	Consequence	62.87	38.63
Stressful Non-Violent	Setting the scene	12.17	15.71
	Approach	15.00	18.26
	Incident	37.22	34.55
	Consequence	40.57	39.89
Neutral	Setting the scene	1.70	2.40
	Approach	2.44	3.48
	Incident	2.04	3.16
	Consequence	2.23	3.16

Table 8.

*Means and standard deviations for the anxiety VAS for the three scripts (V-A, S, N) by group (high and low stress) by imagery stage.*

Script	Group	Stage	Mean	Standard Deviation
Violent-Aggressive	High	Setting the scene	33.00	29.92
		Approach	37.43	19.72
		Incident	73.00	24.64
		Consequence	82.29	19.50
	Low	Setting the scene	32.31	24.42
		Approach	43.31	26.15
		Incident	69.25	31.26
		Consequence	71.69	26.44
Stressful Non-Violent	High	Setting the scene	28.14	24.94
		Approach	33.29	29.80
		Incident	37.86	27.07
		Consequence	38.57	40.51
	Low	Setting the scene	23.19	22.78
		Approach	30.65	26.54
		Incident	60.31	29.27
		Consequence	46.50	29.23
Neutral	High	Setting the scene	7.14	11.32
		Approach	3.57	5.35
		Incident	2.86	3.93
		Consequence	2.71	4.65
	Low	Setting the scene	1.94	2.44
		Approach	2.13	2.92
		Incident	4.38	8.07
		Consequence	5.13	7.06

Table 9.

*Means and standard deviations for the anxiety VAS for the three scripts (V-A, S, N) by imagery stage.*

Script	Stage	Mean	Standard Deviation
Violent-Aggressive	Setting the scene	32.52	25.51
	Approach	41.52	24.08
	Incident	70.39	28.90
	Consequence	74.91	24.60
Stressful Non-Violent	Setting the scene	24.70	23.00
	Approach	31.44	26.90
	Incident	53.48	29.93
	Consequence	44.09	32.31
Neutral	Setting the scene	3.52	6.71
	Approach	2.57	3.75
	Incident	3.91	7.01
	Consequence	4.39	6.41

Table 10.

*Means and standard deviations for the fear VAS for the three scripts (V-A, S, N) by group (high and low stress) by imagery stage.*

Script	Group	Stage	Mean	Standard Deviation
Violent-Aggressive	High	Setting the scene	18.42	28.84
		Approach	17.43	15.95
		Incident	50.57	46.70
		Consequence	51.86	33.95
	Low	Setting the scene	18.84	21.15
		Approach	30.63	27.57
		Incident	53.81	32.34
		Consequence	47.25	28.86
Stressful Non-Violent	High	Setting the scene	16.00	23.91
		Approach	17.43	25.52
		Incident	11.85	24.15
		Consequence	25.29	32.70
	Low	Setting the scene	7.06	9.88
		Approach	13.44	18.16
		Incident	29.38	30.02
		Consequence	23.63	23.75
Neutral	High	Setting the scene	2.43	3.51
		Approach	2.29	3.09
		Incident	2.29	3.25
		Consequence	2.00	3.23
	Low	Setting the scene	1.31	1.85
		Approach	1.75	2.44
		Incident	1.44	2.53
		Consequence	1.56	2.45

Table 11.

*Means and standard deviations for the fear VAS for the three scripts (V-A, S, N) by imagery stage.*

Script	Stage	Mean	Standard Deviation
Violent-Aggressive	Setting the scene	18.72	23.10
	Approach	26.61	25.02
	Incident	52.83	36.20
	Consequence	48.65	29.78
Stressful Non-Violent	Setting the scene	9.78	15.50
	Approach	14.65	20.15
	Incident	24.04	29.00
	Consequence	24.13	26.02
Neutral	Setting the scene	1.65	2.44
	Approach	1.91	2.59
	Incident	1.70	2.72
	Consequence	1.70	2.64

Table 12.

*Means and standard deviations for the control VAS for the three scripts (V-A, S, N) by group (low and high stress) by imagery stage.*

Script	Group	Stage	Mean	Standard Deviation
Violent-Aggressive	High	Setting the scene	79.00	23.66
		Approach	66.81	29.98
		Incident	40.38	32.93
		Consequence	38.94	32.86
	Low	Setting the scene	78.86	29.90
		Approach	72.43	22.55
		Incident	23.57	24.25
		Consequence	14.14	16.96
Stressful Non-Violent	High	Setting the scene	76.38	29.59
		Approach	76.10	21.05
		Incident	49.50	31.71
		Consequence	65.13	31.03
	Low	Setting the scene	76.71	25.01
		Approach	78.71	28.65
		Incident	61.00	35.30
		Consequence	59.00	41.59
Neutral	High	Setting the scene	98.60	2.94
		Approach	97.00	5.60
		Incident	97.57	3.82
		Consequence	97.86	3.39
	Low	Setting the scene	97.94	2.54
		Approach	97.63	3.22
		Incident	95.94	5.41
		Consequence	95.81	4.94

Table 13.

*Means and standard deviations for the control VAS for the three scripts (V-A, S, N) by imagery stage.*

Script	Stage	Mean	Standard Deviation
Violent-Aggressive	Setting the scene	78.96	25.01
	Approach	68.52	27.54
	Incident	35.26	31.02
	Consequence	31.39	30.83
Stressful Non-Violent	Setting the scene	76.48	27.70
	Approach	76.87	22.97
	Incident	53.00	32.48
	Consequence	63.26	33.71
Neutral	Setting the scene	98.13	2.62
	Approach	97.44	3.96
	Incident	96.41	4.95
	Consequence	96.41	4.55

Table 14.

*Means and standard deviations for the high and low stress groups on the eight coping scales of the Ways of Coping-Revised questionnaire.*

Group	WCQ-R Coping Scales	Mean	Standard Deviation
High	Confrontive coping	5.4	3
	Distancing	5.1	3.6
	Self-controlling	8.2	5.6
	Seeking social support	11.1	4.7
	Accepting responsibility	2.5	1.8
	Escape-Avoidance	8.6	5.5
	Planful problem-solving	9.5	4
	Positive reappraisal	4.4	3.7
Low	Confrontive coping	4.3	2.9
	Distancing	5.9	3.8
	Self-controlling	8.8	4.8
	Seeking social support	9.9	4.6
	Accepting responsibility	2.4	2.3
	Escape-Avoidance	5.7	4.9
	Planful problem solving	8.2	4.3
	Positive reappraisal	5.4	4.1



Table 15.

*Means and standard deviations for the high and low stress groups on the five scales of the Coping Resources Inventory-Revised.*

Group	CRI-R Scales	Mean	Standard Deviation
High	Cognitive	48.6	11.1
	Social	51.2	9.2
	Emotional	44.3	11.5
	Spiritual/Philosophical	44.5	8.4
	Physical	44.5	11.3
Low	Cognitive	47.7	8.6
	Social	49.4	9.3
	Emotional	48.7	9.2
	Spiritual/Philosophical	47.1	9.7
	Physical	51.2	11

Table 16.

*Means and standard deviations for the high and low stress groups on the Impact of Event Scale-Revised.*

Group	IES-R Scale	Mean	Standard Deviation
High	Avoidance	14.9	6.6
	Intrusion	16.9	7.0
	Hyperarousal	11.9	6.3
	Total	43.7	14.2
Low	Avoidance	3.6	3.5
	Intrusion	3.2	3.0
	Hyperarousal	1.7	1.9
	Total	8.4	7.4