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Title:

Examination of the instantaneous relationship between perceptions of workload on emotions in the context of a longitudinal study.

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Declaration

I hereby declare that this dissertation is my own work. It is submitted for the Masters degree in Industrial Psychology at the University of Witwatersrand and has not been submitted to any other university, or for any other degree.

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Abstract

The overall aim of this research thesis was to explore the instantaneous relationship between perceptions of workload employees experience on a daily basis in the working environment and emotions they may be experiencing over a period of time in the context of a longitudinal study. This may seem as an expected relationship, as emotions form part of basic human anatomy, and are often dictated by daily activities. It is crucial to understand this process as a dynamic process hence the need to assess the relationship over a period of time, instead of in a cross-sectional nature. In doing so the study aimed to understand the concepts of workload and emotions as found in the context of various literatures. An understanding was gained of the concepts of workload and emotion that would allow the current study to find a foundation for a better investigation and exploration. The study was performed in a longitudinal manner, which assisted in accommodating the dynamic relationship presented by the variables at hand.

The study was conducted online via a survey engine, where the instruments were administered to the sample collected, over a three week period on alternated days, three times a day. The instruments used consisted of a biographical questionnaire, a workload questionnaire comprised of selection and open ended questions and the single item Affect Grid to measure emotions along with open ended questions. A final sample of 60 participants was collected, consisting of 26 females and 34 men.

The results of this study showed for the emotion arousal, time of day was significant. The study identified that the afternoon period is when the arousal was at its highest, thus participants felt most aroused towards this time of day. Workload also had no significant influence on the emotion arousal. The results also showed that for the emotion pleasure, workload had a significant influence; however pleasure had no significance to the time of day

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Introduction:

This thesis explores the instantaneous relationship between perceptions of workload on emotions, in the context of a longitudinal study. This study will highlight the concept of stress, paying specific attention to perceived workload as being a typical form of organisational stress. The study will also look at the role of emotions in the workplace, in doing so the interrelations of perceived workload and emotions at work will be explored in a longitudinal context. Stress in understood as being derived from various environmental factors. Occupational stress pays particular note to organisational sources of stress, which include workload. Workload as a source of stress may result in various outcomes. The experiencing of various or fluctuating emotions in the workplace may be a result of factors, including workload. This study attempts to draw on the theory and research of both perceived workload and emotion, in an attempt to explore the instantaneous relationship between perceptions of workload on emotions, in the context of a longitudinal study. The study is focused as a longitudinal study as the processes linking perceived workload and emotions are dynamic in nature, hence the need to avoid a cross-sectional design.

Environment

Organisations are made up of a vast array of components, which include formal structures, processes and the roles employees serve in these organisations. Organisations most importantly comprise of employees, who as individuals are subject to the organisational environment they work in. Environmental Psychology has shown that the organisational environment has a profound influence on the behaviour of employees. The Hawthorne studies were one of the first studies to identify the importance of the human component in the work environment (Reiger, 1995). These studies were one of the centre points to the development and understanding of organisational behaviour as it "legitimized the human factor as an element of business" (Reiger, 1995: 56). The study conducted initially conducted by Mayo and Roethlisberger was a failure

when these researchers attempted to connect physical working conditions and employee output. Mayo and Roethlisberger however found that the women under observation had felt important for being chosen, and thus for sore social and personal rewards due to management consideration, group affiliation and social recognition. The Hawthorne studies found that productivity increased due to the human factor rather than pure physical environment, hence placing value on the human factor (Reiger, 1995), and developing the understanding of organisational behaviour.

The physical environment can be defined as to include office layout, noise levels and access to resources. The Hawthorne studies found no relation between working conditions, which was the physical environment and employee output. Although the study did make emphasis on the human factor being crucial to output, research in this field has shown that employees report that the working conditions or physical environment does have an influence on productivity (Haynes, 2008). Oseland (2004 cited in Haynes, 2008) found that the physical environment which included temperature, air quality, noise and privacy all influenced productivity. Roelofsen (2002 cited in Haynes, 2008) further established that temperature and air quality, or ventilation did have an influence on the productivity of employees. Thus it can be said, the physical components of the environment do have an influence on behaviour of employees. The focus however was mainly on physical environmental characteristics, which as shown still have an influence; in addition the psychological components were also identified as influential in the literature.

The work environment thus comprises of both the physical as well as psychological components. It is crucial to make a clear distinction between the two. The physical environment pertains to office layout, noise levels and access to resources, while the psychological components of the work environment include personalities of individuals, experiences, work relations and expectations (Haynes, 2008). Reviewing various literatures around the subject of office comfort and its influencing productivity, Hayes (2008) identifies studies that look at temperature, air quality and lighting. This author concludes that the above variables do have an influence on productivity, as identified by the studies presented. Oseland (1999 cited in Haynes, 2008) acknowledges that both the physical environment and the psychological components of the work environment play a role in the productivity of employees.

As a result of these common findings in the literature, organisational psychology has gone on to incorporate aspects of how the work environment, which includes both the physical as well as psychological components of the work environment, influences behaviour in the organisation. This increase in the focus of the work environment has positioned employers to place importance on the influence of a productive friendly environment for employees in terms of productivity and satisfaction. This shift in perception has been seen in the contemporary organisation.

Microsoft is listed 35th on the Fortune 500 list of 2009 as one of the best companies to work for because of the training and development programmes it offers to employees, while Google gives stock options to employees and is known for its employee friendly work environment. General Mills was rated one of the best companies as a result of their maternity policy which allowed mothers to work in on a part time bases (CNN Money, 2009). These examples of the lengths companies have gone to keep their employees satisfied demonstrates that organisational literature as well as organisational practise has come a long way from only considering the physical environment as being influential to an employees' productivity and satisfaction, to delving deeper and looking at the psychological aspects that may influence job satisfaction and overall wellbeing of employees. This review will now go on to look at what particular influence the environment, in terms of both physical and psychological, has on the employee, with a focus on stress in a broad sense.

Stress

Environments, both on a physical and psychological level as discussed play a crucial role in the impact on an employee's overall job satisfaction and wellbeing. When looking at the environment it is important to look at the role of stress. Stress may stem from the environment, thus having an influence on both the physical and psychological wellbeing of an employee. Stress is a very common, but confusing concept. The word alone has been used broadly; Lazarus (1993) discusses how stress has been used in the medical field to describe both physiological as well as psychological reactions to noxious agents, while in the sociological field stress is viewed as a disturbing agent and strain, which refers to the response to the stressor, could be both

psychological as well physiological strain. Lazarus (1993) points out that there is clear distinction between psychological and physiological stress. Physiological stress refers to the impact the physical environment may have on the body, this may include influences on blood pressure, musculoskeletal problems, and eyestrain (Melin, Lundberg, Soderlund & Granqvist, 1999). Psychological stress "is the negative emotional and cognitive states that occur when individuals believe the demands placed on them surpass their ability to cope" (Lazarus & Folkman, 1984, cited in Hayes & Weathington, 2007). Psychological stress thus describes an inability to adapt and cope well in a situation with heavy cognitive demands. The above definitions allows one to make the distinction between psychological and physiological stress, taking note that both may be influenced by the environment. For the purpose of this study, psychological stress will be the main focus.

In order to clarify, an overview of the definitions of stress is needed. McGrath (1976 cited in Schuler, 1982:6) defines stress in terms of a set of conditions having stress in it: 'Stress involves an interaction of person and environment. Something happens "out there" which presents a person with a demand, or a constraint or an opportunity for behaviour' Selye (1956 cited in Schuler, 1982:6) defined stress as the non-specific response to any demand. Both the definition by Selye (1956) and McGrath (1976) are simplistic in its view, placing emphasis in the reactions individuals will have to demands placed on them. Although simplistic, they point to the interaction between the person and the environment. This interaction is a key feature of stress. Stress according to French, Rogers and Cobb (1974 cited in Schuler, 1982:6) is a misfit between a person's skills, abilities and demands of the job, and a misfit in terms of a person's needs supplied by the environment. This definition is more specific, as it encompasses skills, abilities and demands. As this definition refers to demands of the job, it is specific to job stress rather than the broader sense of stress.

Beehr and Newman (1978 cited in Schuler, 1982:6) define (job) stress as a condition wherein job related factors interact with the worker to change (disrupt or enhance) his/her psychological or physiological condition, such that the persons (mind and/or body) is forced to deviate from normal functioning. This definition teases out the key points of job stress, being it emanates from

job related factors or demands, which have an influence on the individual. The individual has a reaction towards the demand; this reaction may deviate from the norm. It seems that there is no set definition for stress. Definitions vary according to understanding. The above definitions incorporate similar ideas about stress. The two main ideas are that stress can be negative and secondly stress results from a transaction between the person and the environment (Schuler, 1982). Job stress is based along the same idea, the interaction between the person and the work environment may create stress. The environment has the greatest influence on the stress an individual may experience, which may manifest in either physiological or psychological stress, or possibly both. It is also crucial to understand that any number of environmental factors may result in an experience of stress felt by an individual. Stress is thus a broad concept that could be understood in various ways as explored above. The Transactional Model, common in the stress literature will be discussed in detail below. The reason being is that the Transactional Model discusses the person environment interaction which as demonstrated is one of the fundamental concepts to stress.

Lazarus (1993) goes on to draw a distinction between three kinds of stress states: harm, threat and challenge. These are brought about through environmental as well as individual antecedents. Harm refers to psychological damage that has already been done, implying something that is continuous (Monat & Lazarus, 1991). Threat refers to the anticipation of harm, indicating that this harm has not occurred as yet, however it is anticipated due to present cues and can be prevented (Monat & Lazarus, 1991), while challenge refers to demands that may be difficult to overcome however we feel comfortable overcoming these challenges as we can employ resources and coping strategies to deal with the challenges. These three concepts broadly define the components of a stressful event. The person-environment interaction is important as it sets the context in which the three above stress states may manifest. The Transactional Model developed by Lazarus is a common model used in the field of stress, which incorporates the above discussed ideas of person-environment fit interaction into the Transactional Model.

The Transactional Model by Lazarus has a fundamental proposition which is that the interaction of the person and the environment creates the stress felt by the individual (Perrewe & Zellars, 1999). This can be seen Figure 1 below which depicts the Transactional Model. The model shows that causes include person as well as environmental variables. The Transactional Model thus defines a stressor as any potential threat in the environment; the importance here is that it is only potentially harmful, until one sees this stressor as a threat. This particular cognitive evaluation is the conjunction between the particular environment and the particular kind of persons reactions as well as the effect (Perrewe & Zellars, 1999).

Appraisal is a key concept within this model, referring to the cognitive evaluation of the potential stressor, determining if it may be a threat and its capacity to harm, if it is appraised as a threat, the individual also cognitively evaluates the capabilities and resources they may possess to overcome this threat (Monat & Lazarus, 1991). The model looks at two types of appraisal, primary appraisal and secondary appraisal as shown in Figure 1. Primary appraisal is "concerned with the motivational relevance of what is happening, that is, whether something is germane to our well-being is involved" (Lazarus & Folkman, 1987: 145). Hence Primary appraisal is concerned with evaluation of the event as being a harmful, a challenge or a threat.

Secondary appraisal is more evaluative judgements required to assess if any action can be taken to improve the person-environmental relationship, if so, which coping mechanisms will work (Lazarus & Folkman, 1987). Challenge and threat appraisal has been shown to influence psychological, physiological and behavioural outcomes (Blascovich, Mendes, Hunter, Lickel, & Kowai-Bell, 2001; Schneider, 2004; Tomaka et al., 1993; Tomaka et al., 1997 cited in Schneider, 2007). Research used two items for each type of appraisal, placing them in ratios to determine stress evaluation, researchers used a mental arithmetic task, instructed participants to subtract aloud, by sevens, from a four-digit number. Participants rated how threatening they thought the task was going to be (primary) and their ability to cope with the task (secondary) (Schneider, 2007). According to the results of this study, challenged participants have a salubrious cardiovascular response and decreased vascular resistance, in terms of task performance; challenged participants performed more subtractions and made fewer errors then the threatened

participants (Tomaka et al., 1993 cited in Schneider, 2007). It is evident from the study that the type of appraisal has an influence on psychological, physiological and behavioural outcomes. This ties in with the postulation made by Lazarus and Folkman (1984) and Lazarus (1991,1999) that challenge and threat appraisals would be associated with positive and negative affect differently (Schneider, 2007).

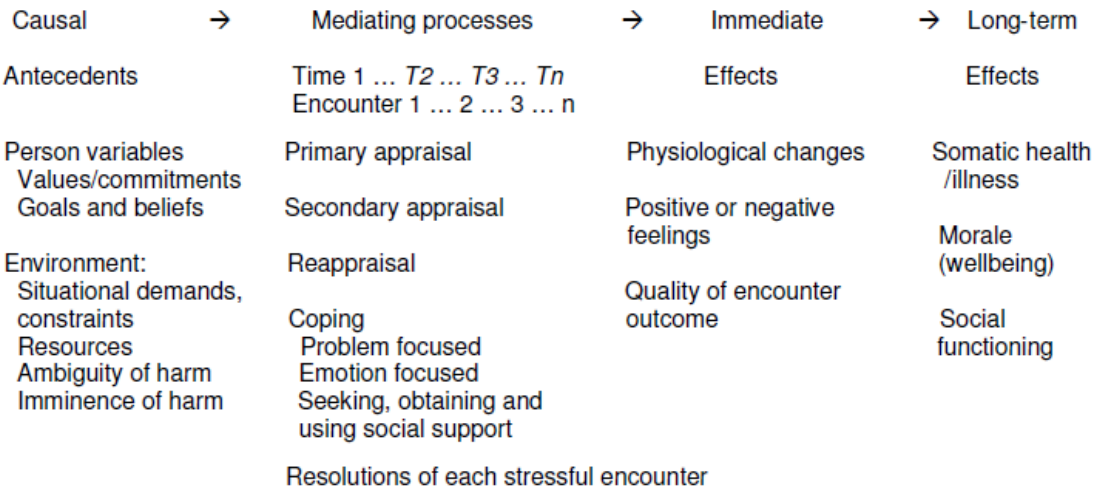

Figure 1: The Transactional Model (adapted from Lazarus, 1999, p197)

The importance of the Transactional Model is that it indicates that the relationships depicted in the model are not of a linear nature, these relationships are reciprocal (Schuler, 1982). The stress process can thus be seen as a dynamic process rather than a static or linear process. This is crucial to the underpinning of the longitudinal nature of the present study, as the examination of stress in relation to emotions is seen as a dynamic process. The nature of the present study helps address the concerns of a cross-sectional study which often view relationships in a linear manner. To do so, the components of stress need to be understood.

Components of stress

The above broad definitions allow us to draw central components of the stress process.

- A stressor- this is an external event or situation that is potentially harmful to a person, or "an event in which external demands, internal demands or both tax the adaptive resources of an individual, social system or tissue system" (Monat & Lazarus, 1991, p.3).

- A strain- this refers to the response to the stressor, which could be both psychological as well physiological strain (Barling, Kelloway and Frone, 2005). These strains can be in the form of behavioural outcomes, cognitive outcomes as well as physiological outcomes (Ivancevich, Konopaske & Matteson, 2005).

- The transaction- which is the intermediary process, in which the interaction between the person and the environment occurs. At this stage appraisal and moderators as well as coping mechanisms play key roles in eliciting the outcomes (Ivancevich, Konopaske & Matteson, 2005).

As noted above, stress occurs because of an interaction between the individual and the environment. This is echoed by the definition of a stressor, which is of an external nature and the transaction which is the interaction between the person and the environment, resulting in an outcome, a strain. The Person-Environment Fit theory discusses how characteristics of both the environment and the person may affect the wellbeing of an individual (Caplan, 1983). This theory forms part of many theories of human stress, which postulates that behaviour is a function of both the person and the environment. The Person-Environment Fit theory specifically looks at the needs-supplies fit which are the needs and values of a person fitted with environmental supplies, while the opportunities and abilities-demands fit, looks at demands of the environment and the abilities of the individual to meet those demands (Caplan, 1983: 36). The latter is of interest as it deals particularly with the environment and thus the abilities of the individual to meet those demands placed by the environment.

Lazarus's Transactional model groups causes of stress into two categories: Individual and environmental. We draw attention closer to a particular kind of stress, job stress. As discusses earlier, Beehr and Newman (1978 cited in Schuler, 1982:6) define job stress as a condition wherein job related factors interact with the worker to change (disrupt or enhance) his/her psychological or physiological condition, such that the person (mind and/or body) is forced to deviate from normal functioning. Job related factors in this specific definition may refer to a range of aspects. When looking at organisational factors or job related factors that may act as stressors, they could be identified broadly as: task demands, role demands, interpersonal demands, organisational structure and organisational leadership (Robbins, Odendaal & Roodt, 2006: 420). Job stressors can be due to various factors, often identified in relation to the particular job. The above identified job stressors are broad examples. Other examples of organisational stressors are organisational politics, organisational culture, downsizing, poor relations, or not receiving feedback, workplace conditions, overworked, job insecurity, little promotion opportunity, workplace politics, which also are influential in terms of the particular type of job (Ivancevich, Konopaske & Matteson, 2005 and Dua, 1994.

The above organisational stressors are also common in the South African context. Coetzee & de Villers (2010) completed a recent study in which they demonstrated that the sources of job stress for the participants in their study were mainly compensation and benefits as well as workload, which was followed by career advancement prospects, lack of management support and job security. Every work environment is significantly and inherently different. As a result, organisational stressors experienced my vary. This is demonstrated by two South African studies, one relating to the police force, the other to nursing staff. Van de Colf & Rothmann (2009) examined occupational stress, sense of coherence, coping and burnout in 818 nurses in South Africa. These authors found that job stressors included staff shortages, salary inadequacy, insufficient personnel to handle workload and poorly motivated employees (Van de Colf & Rothmann , 2009). The study conducted with the police force found that job demands and lack of resources were the main sources of job stress for police officers measured (Rothmann, 2008). It

can thus be said, that job stressors or organisational stressors may comprise of various aspects, which relate directly to the characteristics of the job at hand.

Occupational stress

As discussed above, various factors may act as stressors within an organisation. As a result, the topic of occupational stress has become a common and concerning issue for both employers and employees. These job stressors according to Spector (2002) can be classified as being concerned with the nature of the job, interpersonal relations or the broader organisational context. The nature of the job refers to job tasks, while interpersonal relations refer to the relations with colleagues. The organisational context could include resources, payment and even reward systems (Spector, 2002). Occupational stress has been found to have profound effects on employees in terms of physical ailments, such as headaches and sleeplessness as well as manifesting into long term problems (Spector, 2002). According to Dua (1994) work-related stress is a growing concern because of its implications, as organisational and extra organisational lead to stress through cognitive appraisal which in turn leads to depleted emotional and physical health, not to mention behaviour that may have implications for the organisation. The key to defining a job stressor is that it should produce a threat to the employee, hence the job stressor should be threatening to either psychological or physical wellbeing, or both (Spector, 2002). Job stressors are thus relative to the job being performed and they perceived as a threat by the individual.

As mentioned, occupational stress, a cause of various factors that acts as a threat has various influences on individuals. A study conducted by Dua (1994) to assess job stressors and their effect on physical and emotional health as well as job satisfaction of University staff. Results from the study showed staff experiencing a significant number of stressors as well as a high degree of stress in their workplace. Interestingly results also showed males reported more workload stress then females, who reported more work politics stress, age was also a factor, in that younger staff reported more stress then older staff (Dua, 1994). The researcher also pointed out that a significant amount of evidence was found to show that the stress-illness relationship may be correlated to the personality dimension of negative affectivity, hence people who show

more negative affectivity are more likely to be ill (Dua, 1994: 76). Looking back at the discussion on the Transactional Model, one can see how the personality dimension plays a role as a causal factor, bearing in mind, the transactional model describes is a dynamic process.

The Job Demand-Control Model by Karasek (1979) identifies job stressors as being situated between the job itself, such as the psychological demands as well as the amount of job control one has (Jonge, Bosma, Peter & Siegrest: 2000). Psychological work demands or workload can be classified as a job stressor that is present in the work environment, while job control refers to the "employee's ability to control their own activities and skills usage" (Jonge, Bosma, Peter & Siegrest: 2000, pp 1318). Workload is a common research field within the area of organisational psychology, research includes areas such as the longitudinal study of workload, health and wellbeing among male and female urban bus drivers (Rydstedt, Johansson & Evans, 1998), also assessing the influence of workload on body weight (Overgaard, Gyntelberg & Heitmann, 2004), subjective and objective workloads influence on couples mood (Van Emmerick & Jawahar, 2006). As in recent years the rate of change within organisations has increased, this as a result of the need to remain competitive in a global market (Mcdonald, 2003). Open ended workload, a need to complete a task, rather than work in set working hours has become more common as a result of the necessity to remain competitive, hence work demands have intensified (Mcdonald, 2003). Research on the increasing work demands of employees have shown how intensified work demands may lead to implications for wellbeing of employees. Sparks, Faragher & Cooper (2001) analysed how job insecurity, work hours, control at work and managerial style has an influence on the wellbeing of employees. Work hours may be a source of occupational stress as they are often changing, becoming more flexible and often more intense. The compressed work week is an example of this. Job stressors can thus be identified to comprise of various job characteristics, such as work hours or control at work which may have a profound influence on an employee's wellbeing. Workload as a work stressor is common to any job as it is derived from work demands. Work demands can be classified as being derived from a number of job characteristics, as discussed earlier on in relation to the work environment playing the role of presenting organisational stressors (Van de Colf & Rothmann , 2009; Rothmann, 2008), hence

workload is one of the key variables in this research thesis as it plays a crucial role in influencing employee wellbeing in any organisation.

Workload

Workload could be classified as a stressor produced from the organisational environment. "Workload is not an inherent property, but rather it emerges from the interaction between the requirements of a task, the circumstances under which it is performed, and the skills, behaviours, and perceptions of the operator." (Hart & Staveland, 1988 cited in Farmer & Brownson, 2003). This definition shows us that workload comprises of three components, task demands, effort and performance, which are derived from the environment which interact with each other to create an experienced workload (Farmer & Brownson,2003). Task demands are the task requirements that need to met by an employee, effort is the conscious mental processing of resources towards the task, while performance may act as a measure of workload (Farmer & Brownson,2003). There is no clear universal definition of workload, however it seems aspects of workload fall into three categories, loosely, the amount of work and number of things to do; time and the particular aspect of time one is concerned with; and, the subjective psychological experiences of the human operator (Cain, 2007).

Every employee may have a different perception of their own workload, hence it is a perceived workload by the employee. If this perception is negative, in other words if the workload is perceived to be overwhelming, this can be classified as a stressor, as discussed previously in the transactional model. Coetzer & Rothman (2006) conducted a study of occupational stressors at a South African insurance company amoung 613 employees. The study aimed to identify occupational stressors among the employees of the insurance company as well as assess the relationship between occupational stress, ill health and organisational commitment (Coetzer &

Rothman, 2006). The study found job insecurity and pay and benefits were the most reported sources of stress, in addition to these findings, Coetzer & Rothman (2006) found relatively high scores on physical and psychological ill health, in comparison to international norms. It was found that job characteristics such as overload was the main source of physical ill-health while psychological unwell-being was predicted by work-life balance, overload and job characteristics. From these findings one can see that job characteristics in the form of overload had implications for both physical and mental wellbeing. Thus workload in this study is derived from job characteristics and overload. The concept of overload indicates a step beyond the idea of workload to depict a far more stressful event. Here it is evident workload cannot be tied down to a single aspect of the job, but rather may include various aspects of a job, depending on the type of job. Coetzer & Rothman (2006) showed the outcomes of overload, which manifested in both physical and psychological ill health. It is important to note the outcomes of experienced workload as these specific outcomes may manifest in various ways. This will be discussed in the following studies presented.

A study conducted by Krantz, Berntsson & Lundberg (2005) assessed how paid work, unpaid household tasks, childcare and work–childcare interactions, as well as perceived work stress, are associated with reported symptoms in male and female white-collar employees. This study reported that women showed symptoms of stress that were determined by the interactions of conditions of home and work, while men reported to have symptoms to selective work conditions. This study incorporates aspects of workload, highlighting the importance of resources available in relation to the experienced workload and its influence on employees, which may get carried to the home interface. It is evident that employee's perception of workload may develop out of a various factors, in the study presented the time and resources available to complete the task were the two factors. In understanding the influence of workload, it can be understood that the outcome of experiencing workload may vary for employees.

Quantitative workload refers to "a high amount of work and implies that an individual has too much to do in too little time" (Sonnentag & Bayer, 2005). This definition is much the same as

the definition provided above, however these authors look at how workload may influence psychological detachment from work. Sonnentag & Bayer (2005) discuss day specific workload and chronic workload. Day specific workload refers to "the degree of workload present on the particular day" while chronic workload refers to "the more permanent level of workload that is present every day" (Sonnentag & Bayer, 2005: 396). The difference between the two concepts is that chronic workload is based in a long term scenario that concerns a buildup of work. The overall results show that when confronted with high workload, individuals are less successful at detaching themselves psychologically from work. The study further found that chronic but not day specific time pressure was associated with low psychological detachment which the researchers attributed to employees anticipating the time pressure that will continue during the working days forward rather than the amount of time pressure an employee has faced (Sonnentag & Bayer, 2005). The study conducted by Sonnentag & Bayer (2005) demonstrates a different outcome to the experience of workload, in this particular study, chronic workload which has an influence on the ability of employees to detach from work. The study is relevant in that in makes a link between chronic workloads influence on detachment which has implications for the mood of employees (Sonnentag & Bayer, 2005). The results showed that psychological detachment from work during evening hours was positively related to positive mood and negatively related to fatigue at bedtime (Sonnentag & Bayer, 2005). The crucial aspect of the above finding is that although psychological detachment may work as a mediator, chronic workload indirectly had an influence on the positive mood of employees. Thus drawing on the above discussion and findings, it is evident that experienced chronic workload, according to Sonnentag & Bayer (2005) is associated with low psychological detachment, which in turn has a positive relationship with mood, thus employees will experience a poor mood in this case. Although the above study has not found significant findings for day specific workload, together with chronic workload, the two concepts are crucial to the longitudinal nature of the study.

The need to assess these constructs in a long term design is crucial to gain an understanding of how both day specific and chronic workload may have influence on an employee, which is why the present study is longitudinal in nature to investigate particularly chronic workload, which will incorporate day specific workload. More importantly this study seeks to determine the

outcome of perceived workload on an employee, by looking specifically at what influence perceived workload has on emotions of an individual in the current time frame as well as in a longitudinal time frame, demonstrating the dynamic process involved. As seen above in the study presented by Sonnentag & Bayer (2005) chronic workload had an indirect influence on the positive mood of employees. Thus it is in the present study that the influence of perceived workload, both in the form of day specific as well as chronic workload, has on emotions will be investigated within the longitudinal framework. To do this, we need to understand the role emotions play in this study as an outcome of perceived workload.

Emotions

Interest in emotions within the workplace has increased over the last decade and half, which according to Fisher & Ashkanasy (2000) was sparked with the publishing of the seminal book on emotions by Hoshchild, entitled "The managed heart", which focused the attention of management on the role emotions play at work. Most research on emotions at work has focused in the area of the Affective Event Theory (AET), "which proposes both causes and consequences of momentary mood and emotions at work. The AET model "considers moods and emotions to be a mediating mechanism by which stable features of the work environment (such as job design) impact job attitudes and behavior" (Fisher & Ashkanasy, 2000 p. 124). According to these authors the stable environment features give rise to discrete affect events, which in turn give rise to specific emotions (Fisher & Ashkanasy, 2000). The example the authors provide allows one to follow the direction of thought, the authors explain for example, jobs that are high in scope will frequently lead to events, such as goals being met or positive feedback which leads to the experience of positive emotions such as joy or happiness (Fisher & Ashkanasy, 2000: 124). This discussion tells us that mood and emotion are the mediating variables that indirectly influence job attitudes and behaviour. The AET model is used to explain the role of affect in the workplace (Fisher & Ashkanasy, 2000). This perspective is only one way of looking at the role of emotions within the workplace. To look deeper into the role of emotions at work, we must consider affect.

The term affect is used as an umbrella term encompassing a broad range of feeling states such as mood and emotion, as well as traits, which include negative affectivity and positive affectivity (Bardsade & Gibson, 2007). Negative affectivity (NA) refers to negative emotions that may exist across time and situations, while positive affectivity (PA) refers to positive emotions that may exist over time and situations (Deffenbacher, Richards & Filetti, 2005). NA and PA are categorized under personality traits, as they are considered more stable dimensions of personality. States on the other hand are momentary or transitory emotions experienced by individuals. Looking at traits, "stability distinguishes traits from transient properties of the person such as temporary mood states, second, it is generally believed that traits directly influence behaviour" (Matthews, Deary & Whiteman, 2003: p 3). To understand the concept of traits and states a study was conducted by Deffenbacher, Richards & Filetti (2005) on state-trait theory in terms of angry drivers. The study aimed at understanding the difference in anger of divers with low trait driving anger in comparison to drivers with high trait driving anger. The study found that high trait angry drivers were more likely to experience anger and verbal aggressiveness, which the researchers attributed to the trait anger, a stable personality dimension, allowing individuals to experience anger more frequently and more intense across time. The presented study shows that trait, which could be NA or PA has an influence on behaviour. Although the presented study does not link directly to the direction of the current study, it is worthwhile to understand NA and PA within the context of the current study.

The change in considering emotions in the workplace has allowed discussions which now consider how emotions influence workplace performance. Eight theoretical primary emotions have been identified by research, these being: fear, surprise, sadness, joy, disgust, anger, anticipation and acceptance (Ivancevich, Konopaske & Matteson, 2005). According to these authors, the mildest form of emotion is mood, which is low in intensity but a long lasting state, moods last longer than general emotions and influence day-to-day behaviour (Ivancevich, Konopaske & Matteson, 2005). "Frijda (1993) indicated that "emotions have an object, they are about something . . . one is happy about something, angry at someone, afraid of something" (p. 381). Moods, on the other hand, are only loosely coupled with specific happenings or particular events. Thus, an emotion turns into a mood when the focus on the precipitating event or object is

lost. “Moods are less intense, of longer duration, and less specific than emotion, assuming an overall positive or negative tone rather than a discrete identity” (Zohar, Epstein & Tzischinski, 2003: 1083).

Managers are subject to emotions in the workplace as the nature of their jobs requires the ability to deal with and regulate their own as well as other employee’s emotions. According to Brotheridge and Lee (2008) managers experience various emotions, however also need to display a variety of emotions which often need to be regulated when dealing with staff or customers. Thus emotional regulation is crucial to managerial work, as it often encompasses emotional control, which seems to an essential part to effective leadership (Riggio, 2007 cited in Brotheridge & Lee, 2008). Emotional regulation and the display of positive emotions has shown to have good effects on employees, Bono and Ilies (2006 cited in Brotheridge & Lee, 2008) found that managers who expressed positive emotions were more likely to be rated as charismatic and were more likely to have followers with similar mood states. Thus emotions and particularly mood, has profound influence in the working environment, both for managers and employees. This study due to its longitudinal nature will focus on emotions which will be assessed on a daily bases, it will also look at moods which will be assessed over a longer period in the study.

Workload and Emotions

Mood, the mildest form of emotion, is an emotional state. Various aspects of daily life could be mood altering, bearing in mind that mood, by definition lasts for longer periods of time then emotions (Ivancevich, Konopaske & Matteson, 2005). One of those mood altering aspects may well be workload. High workload (excessive work hours and bringing work home) has been seen to be associated with mood of employees and in turn influence family relations (Burke et al, 1980 cited in Emmerik & Jawahar, 2006). Emmerik & Jawahar (2006) conducted a study, in which they looked at the impact both objective and subjective workload had on the employee’s mood as well as the employee’s spouse’s mood. The study found that as time pressure increased so did negative mood, however there was a positive relationship between hours of work and mood, which the authors attributed to gaining resources i.e. salary, which may explain the

relationship (Emmerik & Jawahar, 2006). These mixed findings show that the relationship between workload and emotion and mood is not coherent within the literature, thus the need for the present study to explore and address the incoherent findings.

Ilies, Schwind, Wagner, DeRue, Ilgen & Johnson (2007) looked at the effects of daily workload and affect on the home, these researchers conducted this research in a longitudinal design, which complemented their need to address both the within and between individual fluctuations. Ilies et al (2007) theorized that workload, particularly subjective perceptions had an influence on affect, which then in turn influenced work-family conflict and affect at home. The findings of this research showed that daily workload was a predictor of affective states and work-family conflict; they also found that both subjective and objective workload had an influence on affect states and work-family conflict (Ilies et al, 2007: 1376). Another important finding of this research is the spillover of affect between work and home domains, such they affect states persisted into the other domain (Ilies et al, 2007: 1376). Although not a vast amount of research has been conducted in the field of workload as a stressor having an influence on emotion, the above research shows there may be an association between perceived workload and emotions and mood. Research in the field has also mainly focused on the relationship in a cross sectional way, looking specifically at how workload at a current point in time may influence emotions at that same point in time. The research conducted by Ilies et al (2007) is an attempt at a longitudinal study which looks at both between and within individuals to assess how workload may influence affect. This research thus aims to look at the assumed association in a longitudinal way. Considering how this assumed relationship may foster over time is crucial when acknowledging the process to be dynamic in nature, hence this research thesis thus aims to explore the potential association further.

Research Questions

Below are the two research questions that were investigated in this study:

Research Question One:

The first research question to be investigated in this study is, does the current perception of workload predict the current emotional states when examined in the context of longitudinal study?

Research Question Two:

The second research question to be investigated in this study is whether current workload predict future emotional states, assessing if a lag of workload continues to effect emotions once workload has decreased across time periods?

Methodology

Chapter 2:

The following chapter will aim to provide the reader with an understanding of the method by which study was conducted. This chapter will describe in detail the design of the study, the sample method that was followed, the protocol and procedure followed as well as the data analysis and ethical considerations taken on by the research.

Research Design

In order to examine the state changes in emotion and how they fluctuate with workload changes, a longitudinal, quantitative design was utilised where the key variables, emotions and workload in relation to time, were measured several times over a period of three weeks. An initial pre-test was conducted in order to gain demographic information as well as viable contact information for each participant. Measures for the key variables were then taken on a daily basis, on an average of three days a week.

Sample

The sample was acquired through the method of convenience sampling, where the researcher approached each participant either in person or telephonically. The researcher explained the details to each participant, ensuring the participant understood the extent of the research as well as the commitment needed by the participant. A total of 77 participants agreed to take part in the study. The initial sample size collected was at least 77 participants. Of these 16 completed only the initial assessment which included a biographical questionnaire, while a further 12 did complete some of the longitudinal components but not the initial assessment. The remaining 49 completed both the initial assessment as well as some of the longitudinal assessments.

Sample Inclusion Criteria

Researchers chose the participants on a few specified characteristics. These characteristics included being full time or at least part time workers, participants needed to have excess to the internet as well as a functioning e-mail address, which was crucial to the study as the study was conducted online. Each participant also needed to be committed to the study, as the study was lengthy and detailed. No particular organisation or job description was required of the participants, and participants were thus drawn on the above criteria.

Procedure

The current study formed part of a larger study which included three other researchers, thus four researchers were part of the broad study, which was designed so that each researcher built their individual study into the broad study. The four researchers came to an agreement on procedure and protocol to be followed in the study, which allowed each researcher to collect the sample by approaching each participant as described above. Each researcher approached an individual as a potential candidate for the study, giving detailed explanations to the individual about how exactly the study would be conducted. Most explanations took place in person or telephonically.

Each individual was given an information sheet which assisted in relaying information about the study. The most crucial information the individuals needed to know was the study was going to be conducted online; beginning with an initial online survey which once filled out, the researcher had the right to any data produced. The completion of the initial online survey would also act as confirmation of consent on behalf of a participant. Details of the researcher was handed out, either personally or via e-mail, this was to ensure contact if at any point problems arose during the study.

All email addresses were collected, over a week long period, which allowed researchers the opportunity to ensure all the email addresses provided were functional. Each email address was randomly allocated a code which formed the link between the various data collection procedures; this data was then entered into an online survey programme which was used for the duration of the study. Each participant was then required to log onto the link provided to them via email,

which allowed the participant to complete the initial survey. Biographical information was collected in the initial survey. As several researchers were involved in the study, different variables and instruments were used in addition to the variables presented in the present researchers study. This took place from the 13th of July to the 19th of July. From then on, three questionnaires were distributed electronically through the survey engine. Each individual's code was included in the data capture process to link questionnaires from the same respondent.

The questionnaire comprised of the Affect grid and workload questions. The survey engine distributed the questionnaires in the form of an e-mail which had a link, allowing the participant to click on the link, which directed them to the questionnaire. These questionnaires were administered as daily evaluations, in the morning, afternoon and late afternoon. The questionnaires were administered via the web survey to all participants over the three week period. From the 20th of July to the 24 of July participants received questionnaires on Monday, Wednesday and Friday. In the last week of July, 27th to the 31st questionnaires were administered on the Tuesday and Thursday. In the first week of August questionnaires were administered on Monday, Wednesday and Friday again.

Due to unforeseen circumstances on the survey engine, a failure to produce the link for surveys in the first week of surveying resulted in a loss of data for Monday the 20th. As a result, participants were requested to then complete the survey on Tuesday the 21st of July, to compensate for the loss of data on the Monday. In addition, some participants found the link to the surveys were problematic, which needed to be resent. To ensure the surveying system was running well, researchers were in contact with participants via email, to request feedback at least once a week from the participants.

Once collection of all the data was complete, all the data was retrieved from the survey engine, where an independent individual removed all email addresses and only a code for each participant provided identification when analysis of the data occurred. Feedback was provided in the form of a blog, which participants received a link to. Below is the schedule for the procedure outlined above

		WEEK 1 20th July- 24 Tuly			WEEK 2 27th July- 31st July			WEEK 3 3rd Aug- 7th Aug		
Time 1		**Time 2 a.m.**	**Time 3 Early pm**	**Time 4 Late p.m.**	**Time 5 a.m.**	**Time 6 Early p.m**	**Time 7 Late p.m.**	**Time 8 a.m.**	**Time 9 Early p.m**	**Time 4 Late p.m.**
Biographical questionnaire	**Mon**	Q 1	Q 2	Q 3				Q1	Q2	Q3
	Tues				Q1	Q2	Q3			
	Wed	Q 1	Q 2	Q 3				Q1	Q2	Q3
	Thurs				Q1	Q2	Q3			
	Fri	Q 1	Q 2	Q 3				Q1	Q2	Q3

Q1= Questionnaire 1 (Appendix E-Morning) + Workload Questionnaire

Q2= Questionnaire 2 (Appendix E-Afternoon) + Workload Questionnaire

Q3= Questionnaire 3 (Appendix E-Late Afternoon) + Workload Questionnaire

Instruments:

Biographical Questionnaire:

A Biographic questionnaire was be used to obtain demographic information on the sample. This included sex, age, race, home language, marital status, number of dependents, education level as well as the type of occupation.

Workload

"Workload is not an inherent property, but rather it emerges from the interaction between the requirements of a task, the circumstances under which it is performed, and the skills, behaviours, and perceptions of the operator." (Hart & Staveland, 1988 cited in Farmer & Brownson, 2003).

This definition of workload breaks down the various components to the construct which are broad and encompassing. As a result, this construct was measured by the three questionnaires for the different times of day. Both selection and open ended questions which assessed how the individual perceives their workload and if they perceive they have enough time to complete all their work were used. Questions included, did you accomplish an adequate amount of work in the last hour? How busy are you now? How busy do you anticipate you will be during the day? And what are the chances you will complete an adequate amount of work in the next hour?

Emotions:

'Emotion state is a state characterized by physiological arousal and changes in facial expressions, gestures, posture, and subjective feelings" (Ivancevich, Konopaske & Matteson, 2005), hence emotions in this study was measured by the Affect grid, developed by Russell, Weiss and Mendelsohn (1989). The Affect Grid is a single item scale, recording judgments about single instances of affect, the main dimensions of the grid is to assess pleasure-displeasure and arousal-sleepiness which are independent of each other, that is although they may happen to be correlated positively or negatively in specific circumstances, they are conceptually different (Russell, Weiss and Mendelsohn, 1989: 493).The Affect Grid has shown strong evidence of convergent validity with other measures of pleasure and arousal, as well as showed strong evidence of discriminant validity between the dimensions of pleasure and arousal (Russell, Weiss and Mendelsohn, 1989: 499). The following questions were asked of participants, who were required to use the Affect Grid to display their current emotions as well as give detailed information to the open ended questions. Questions include how are you feeling emotionally? Are you displaying this emotion to others? Has anything happened in the last 24 hours that may have affected how you are feeling? Has anything happened since the last time you completed a questionnaire that may have affected your emotion?

Analysis:

Descriptive Statistics

Frequency tables were used in this study to describe the following demographic variables: Gender, Race, Home Language, Marital Status, Education and Type of Education. In addition to this, summary statistics were conducted in order to measure the mean, standard deviation and range of the variable age as well as the number of children of participants. These techniques were conducted for descriptive purposes, so the researcher may be able to describe the sample adequately, as well as helping to gain a better understanding of the sample.

Mixed Linear Model

Due to the longitudinal nature of the study, the relationship between workload and emotions could not be simply examined by means of correlations. To accommodate the longitudinal design, the study used a mixed linear model. Mixed linear models are commonly used in a repeated measures design, where the same subject is measured on multiple occasions. As the study had repeated measures of the same individual, each measure for each individual is statistically assumed to be correlated. These covariance structures are explicitly modelled by the analysis in order to recognize both the within and between subject variation in a longitudinal study (Regassa, 2008); hence covariance structures were used to accommodate the time based nature of the data. In order to further investigate the potential causal and/or predictive nature of the relationships the study used time lagged variables which examined the present perception of workload in relation to future emotional states. This allowed an analysis of the future predictiveness of the workload variable.

This analysis required some preparatory work with the data as not all subjects completed all of the questionnaires. There were two distinct categories of missing values. In the first week due to some problems with the email systems a number of administrations were missed by nearly all of the participants. This resulted in only 2 administrations being completed on both the Tuesday

and the Friday of the first week. The second group involved a more traditional subject mortality with some subjects dropping out after a few surveys were completed. To accommodate this dropout two strategies were used

Where data from the initial assessment (e.g. demographics) were not required for the analysis individuals who did not complete that assessment but did complete the longitudinal phase were included. For the remaining analyses only the 49 subjects who completed both analyses were included. In the case of attrition those who did not complete a substantial portion of the longitudinal phase were excluded. The few remaining missing values were then imputed by means of Markov Chain Monte Carlo imputation as implemented in the MI procedure in the SAS system. This provided a complete dataset for the remainder of the analyses.

Finally in the predictive analyses (using the lagged variables) the relatively incomplete scheduling of the first week made this data difficult to use. As such only the data from the second week and third weeks were included in the analysis. The initial value for the lagged data was taken from the last observation of week two. 43 of the subjects who completed the longitudinal phase of data collection had sufficient data to complete using the imputation procedure.

Ethical Considerations:

Each participant was approached about participation in the study, in which they had voluntary participation. They were informed; both verbally and by the consent form about the study and granted their consent on filling out the first biographical survey. Anonymity cannot be granted however, confidentiality was ensured by removing all identifying information from the analysis dataset. An independent individual removed all email addresses from the data set; leaving behind the code each participant has been assigned. The biographical information as well as data collected from participants was only be seen by the researcher and supervisor. Each participant

was informed, through the consent form that they were able to withdraw their consent at any time during the research process, each participant received a link in the emails which they could click on to withdraw from the study without giving a reason. Feedback was given through a blog posted on a blogspot, which each participant received a link to.

Results

Chapter 3:

This chapter aims to present the results obtained from the study. It will begin by discussing the summary statistics analysed. It will then go on to look at the statistical technique used to test the proposed research questions, discussing the obtained results. The results in this chapter will be presented in the form of tables which will be followed by discussion.

The following section will deal mainly with demographic results obtained from the sample.

Characteristics of sample

Table 1: Mean Age of Sample

Mean	Std Dev	Minimum	Maximum	Range	N
27.22	7.4	21.0	62.0	41.0	61

The sample comprised of 61 participants who were derived from the 77 initial participants who agreed to take part in the study. From these 77 participants, only 16 completed the initial assessment, while 12 completed some of the longitudinal assessment without the initial assessment. The 49 remaining participants completed both the initial assessment as well as the longitudinal assessment. As a result, the 61 participants are comprised of the 12 participants who completed the initial assessment as well as some of the longitudinal assessment and the remaining 49 participants.

As demonstrated in Table 1, the mean age of the sample was 27 years of age with a standard deviation of 7.4. The age of the individuals ranged from 21 to 62 years of age, while the sample size was 61 individuals.

Table 2: Gender of Sample

Gender	Percent	Frequency
Female	43.33	26
Male	56.67	34

The sample contained 43.33% of females and 56.67% males. This gender distribution is considered representative.

Table 3: Race of Sample

Race Group	Percentage	Frequency
Asian	35.71	20
Black	14.29	8
Coloured	5.36	3
White	44.64	25

The majority of the sample was White (44.64%) and Asian (35.71%). It needs to be noted that the Asian figure includes both Indian as well as Chinese participants. The rest of the sample comprised of Black (14.29%) and Coloured (5.36%) individuals.

Table 4: Home Language

Language	Percentage	Frequency
English	76.68	46
Afrikaans	3.34	2
Zulu	3.34	2
Sotho	1.67	1

Xhosa	3.34	2
Sepedi	1.67	1
Chinese	3.33	2
Cantonese	1.67	1
Mandarin	3.33	2

The majority of the sample were English speaking (76.68%) at home, while the rest of the sample varied with Afrikaans at 3.34%, Zulu at 3,34%, Sotho at 1.67%, Sotho at 1.67%, Xhosa at 3.34%, Sepedi at 1.67%, Chinese at 3.33%, Cantonese at 1.67% and Mandarin at 3.33 %.

Table 5: Marital Status

Marital Status	**Percentage**	**Frequency**
Living Alone	4.08	2
Single	85.71	48
Married	8.16	4
Widowed	2.04	1

The sample showed a majority of individuals as single (85.71%), while only 8.16% are married. Only 4.08% of the sample lived alone while 2.04% of the sample is widowed.

Table 6: Number of Children per Age Group

Children	Mean	Std Dev	Min	Max	Range	N
Children 0-5	0.09	0.36	0	2.00	2.00	44
Children 6-11	0.13	0.45	0	2.00	2.00	23
Children 12-18	0.20	0.50	0	2.00	2.00	24

Table 7: Education

Education	Percentage	Frequency	Cumulative Frequency
Degree	63.33	38	38
Diploma	18.33	11	49
Matric	18.33	11	60

The above table demonstrates that the majority of individuals (63.33%) had a Degree, while 18.33 % had acquired a Diploma. 18.33% of individuals had a Matric.

The first half of this chapter has presented results obtained mainly through demographic data from the study. From the above we gain an understanding of the individual's characteristics that took part in the current study. The second half of this chapter will now continue to look at the proposed research questions in relation to the results found. Each research question will be dealt with separately in connection with the results obtained.

Research Question One:

The first research question to be investigated in this study is, does the current perception of workload predict the current emotional states when examined in the context of longitudinal study?.

The first emotion to be analysed was the arousal emotion as set by the Affect Grid, the following presents the results obtained about arousal within the context of the study:

Table 8.1: Descriptive summary of Study variables for the Imputed Dataset:

Variable	N	Mean	Std Dev
EMot1_Lag1	645	3.972	2.134
EMot2_Lag1	645	6.004	1.931
WorkL_Lag1	645	2.392	1.280
EMot1	645	3.910	2.111
EMot2	645	6.043	1.924
WorkL	645	2.395	1.288

EMot 1= Arousal EMot 2= Pleasure WorkL= Workload

Table 8.2: The analysis of the relationship between emotion (Arousal) and workload in the context of time.

Effect	DF	Estimate (Std Err)	F Value	Pr > F
Time	2,599		12.29	<.0001
Workload	1,599	0.078 (0.0628)	1.54	0.2157

Table 8.2.1: Mean Arousal by Time

Time	Estimate	Standard Error
Morning	3.53	0.193
Lunch	3.81	0.193
Afternoon	4.40	0.193

Table 8.2.2: Post hoc comparisons of time differences.

Time	Time	DF	t Value	Pr > |t|
Morning	Lunch	599	-1.56	0.1195
Morning	Afternoon	599	-4.86	<.0001
Lunch	Afternoon	599	-3.29	0.0011

The results indicate that while the level of arousal varies across the time of day there is insufficient evidence to indicate a relationship between workload and arousal ($F = 1.54$, $P = 0.2157$; $\alpha = 0.05$). The mean scores for the time variable suggest that on average the later the time of day the more aroused the subjects became (Morning= 5.53, Lunch= 3.81, Afternoon=

4.40) , although the difference between morning and lunchtime was not statistically significant (t= -1.56, P= 0.1195; α = 0.05).

The second emotion assessed within the study was pleasure, as per the Affect Grid. The following gives the results obtained on the emotion arousal:

Table 8.2: The analysis of the relationship between emotion (Pleasure) and workload in the context of time.

Effect	Num DF	Estimate (Std Err)	F Value	Pr > F
Time	2,599		0.84	0.4303
Workload	1,599	0.273 (0.057)	22.77	<.0001

Table 8.2.1: Mean Pleasure by time

Time	Estimate	Standard Error
Morning	6.16	0.178
Lunch	5.96	0.178
Afternoon	6.00	0.178

The results show that workload is positively related to pleasantness (F= 22.77, P= <.0001; α= 0.005). The results also show that pleasure remains relatively stable throughout the day (Morning= 6.16, Lunch= 5.96, Afternoon= 6.00). The above results show that time has no significance to pleasure (F= 0.84, P =0.4303; α = 0.005).

Research Question Two:

The second research question to be investigated in this study is whether current workload predicts future emotional states, assessing if a lag of workload continues to effect emotions once workload has decreased across time periods? To do so the researcher conducted a Mixed Linear Model analysis due to the time factor proposed in the research question.

Table 9: Lagged Effects for Arousal, Pleasure and Workload.

Effect	**Estimate**	**Standard Error**	**DF**	**t Value**	**Pr > |t|**
Lagged Arousal on Arousal	0.09648	0.03911	599	2.47	0.0139
Lagged Tone on Tone	0.1317	0.03857	599	3.42	0.0007
Lagged Workload on Workload	0.007201	0.03991	599	0.18	0.8569
Lagged Arousal on Workload	0.03228	0.02463	599	1.31	0.1905
Lagged Workload on Arousal	-0.08268	0.06346	599	-1.30	0.1931
Lagged Tone on Workload	-0.02129	0.02631	599	-0.81	0.4188
Lagged Workload on Tone	0.008074	0.05895	599	0.14	0.8911

When the variables are regression against their own lagged values the results show a significant relationship for the two emotion variables, but not for the workload variable. The estimated workload effect is very small relative to the variance of workload (1.29) suggesting that for the subjects in the study there is little relationship between the workload in one period and the workload preceding it. There are however significant relationships for both of the emotion variables indicating that these are correlated in time. There is also no significant relationship across lags between workload and either of the emotion variables. This may well be a consequence of the lack of relationship between the workload states over time even though at an instantaneous level workload is related to emotional tone.

Discussion

Chapter 4:

This chapter aims to bring to the reader an in-depth discussion of the results that were obtained in the study in conjunction with the literature review presented. This chapter will begin with looking at the characteristics of the sample, which will be discussed. The chapter will then move on to looking at the two research questions proposed, discussing the findings of the study in relation to the research questions as well as the literature presented. The chapter will look at theoretical implications as well as the limitations of the study to conclude.

Research Findings

Characteristics of the sample

The characteristics of the sample will be discussed, this in order to understand the nature of the sample. This is crucial to the discussion and the understanding of the study, as the nature of the sample might provide the researcher with an indication of the inherent characteristics, which together with the main findings of the study may help the researcher to understand and explain the findings better.

Mean Age of Sample

The age of participants is an important part of the discussion of any study, as it may provide the researcher with additional explanations to the findings of the study. The age range of the sample was 21 to 62 years of age. The mean age was 27.22 while the standard deviation was 7.4. The mean age of the sample is fairly young at around 27 years of age. This indicates that most of the sample is just beginning at the middle age category. This finding is particularly useful in conjunction with the study conducted by Dua (1994), who reported that workload stress was more prevalent among the younger staff then older staff, which as Dua (1994) pointed out was found to have a significant impact on the negative affectivity of individuals. This it is important

to consider the age of the sample as the age range of the workforce may offer an explanation to some of the results obtained in the study.

Gender of the Sample

The study showed that 43.33% of the sample were female, while 56.67 of the sample were male. The sample was thus well balanced in terms of gender, hence it can be said that gender was well represented within the sample. It is important to consider the gender of the sample as gender often plays a crucial role in studies. Dua (1994) reported that males reported more workload stress then women, while women reported more work politics stress. This is an important finding in terms of the current study, as gender may have had an influence on the broader findings of the key variables of the study.

Race of Sample

The race of the sample is of particular importance in the South African context. The influence of race needs to be considered within the findings as race may have provide explanations for the findings of the study. The majority of the sample was made up of Asian (35.71%) and White (44.64%) participants, while the rest of the sample comprised of Black (14.29%) and Coloured (5.36%) participants. In relation to the key variables of workload and emotions, it is assumed that race should not play a crucial role in any significant findings.

Home Language of Sample

The home language of participants was also determined, the majority of participants were English speaking (76.68%), while the rest of the sample formed a mixture of languages. It is crucial to know the home language of participants as in the context of South Africa this may speak to the results of the study and offer some alternative explanations to findings. The study was conducted in the medium of English, thus putting those participants who are not first language English speaking at a disadvantage. This may have had implications for the findings of the study.

Marital Status of Sample

The results of the study showed that 85.71% of the sample were single, while 8.16% were married, 4.08% were living alone and 2.04% were widowed. This type of information is important to consider, particularly in the case of experienced emotions. The type of workload pressure an individual may experience at work may be influenced by conflict at home, which may compound the emotions experienced at work. Krantz, Berntsson & Lundberg (2005) conducted a study on how paid work, unpaid household tasks, childcare and work-childcare interactions as well as perceived work stress impact on white collar workers. The study found that woman reported stress symptoms as a result of the interaction between conditions at work and home, while men reported symptoms as a result of work conditions. Work life balance comes into play in this context; hence in the present study it is crucial to consider the marital status of participants as it may be influential in the explanation to the results obtained.

In relation to the marital status of participants, comes the number of children per age group for participants. The results from the study showed most participants had a maximum of two children. This links to the above discussion on work life balance and its direct influence on employee's perceived workload which in turn may have an emotional response influence. Thus children take the above discussion a step further in adding to the home conditions.

Education of Sample

The education level of the sample showed that 59.52% of participants had obtained a degree, while 23.81% had a matric, 14.29% had a diploma and 2.38% had less than a degree. The education level of employees is an important factor to consider within a study as it can be linked to the type of job title that an employee might hold. The results showed that employees held various kinds of job titles. From the job titles of employees one can deduce the type of stress

environment employees may experience. White collar workers, in managerial positions often experience high levels of stress, due to the roles they fulfill within an organisation. Thus it can be said the education may play hand in hand with job title of participants, which may have an influence on the results found in the current study in relation to emotions experienced as well as workload influences.

The above section of this discussion went into brief description of the demographic findings of the sample as well as possible reasons for why the above demographic variables may offer explanations to the findings of the study. The following section will now look at the two proposed research questions of the current study, assessing the findings in conjunction with the literature.

Research Question One:

The first research question that was investigated in this study was, does the current perception of workload predict the current emotional states when examined in the context of longitudinal study?. "Workload is not an inherent property, but rather it emerges from the interaction between the requirements of a task, the circumstances under which it is performed, and the skills, behaviours, and perceptions of the operator." (Hart & Staveland, 1988 cited in Farmer & Brownson, 2003). This definition allows us to see that workload comprises of three components, mainly task demands, effort and performance, which are derived from the environment which interact with each other to create an experienced workload (Farmer & Brownson, 2003). The definition above indicates a static relationship, where one component has a direct effect on the other. The first research question was aimed at building a foundation and understanding of the study in order to examine the more in-depth dynamic relationship in the context of time.

The results of the study demonstrated that current workload states had no relation to workload states preceding it however did have an influence on emotional tone at an instantaneous level. Many studies have demonstrated this particular finding, this instantaneous relationship between workload and emotion. Mcdonald (2003) discusses the influence of workload on fatigue, stress

and arousal. Mcdonald (2003) found that as the stress scores of individuals increased with workload increases, arousal levels tended to decrease. This relationship is not dynamic in nature, thus there was a need to establish a basis for the understanding of the next research question which addresses the dynamic nature of the relationship as inclusive of time. The study found that both emotional states were correlated in time, which will be discussed further in the next question.

The results of the study demonstrated that for the emotion arousal, lunch or afternoon periods were significant in terms of participants feeling more aroused. In relation to workload, no significant findings were found. The pattern of arousal also indicated that participants felt most aroused towards the end of the day. The second emotion, pleasure had no significant relationship to the time of day, the results did however indicate a significant relation between pleasure and workload thus as workload decreased, and individuals experienced more pleasure.

Ilies, Schwind, Wagner, DeRue, Ilgen & Johnson (2007) conducted a similar study to the present study, in which they looked at the effects of daily workload and affect on the home, these researchers also conducted their research in a longitudinal design. The findings of this research showed that daily workload was a predictor of affective states and work-family conflict. The findings of the current study supports the findings by Ilies, Schwind, Wagner, DeRue, Ilgen & Johnson (2007) as the current study found a significance between workload and pleasure. The current study however did not find significance in the relationship between arousal and workload. In an attempt to understand why the current study had somewhat mixed results, we can assess the methodology of the study. The workload instrument was compiled by the researcher, comprising of both selection and open ended questions. Thus the possibility of the workload scale not measuring the experienced workload accurately enough may have had an influence on the results of the current study.

In looking at the methodology of the current study, it is noted that participants were not drawn from the same organisation. Participants were drawn from various organisations, participants in the study conducted by Ilies, Schwind, Wagner, DeRue, Ilgen & Johnson (2007) were drawn

from a single organisation, and hence workload experienced by these employees may have been of a similar nature in comparison to participants from the current study who may have been experiencing various levels of workload.

In keeping with the above finding, the marital status of employees also needs to be looked at. The sample consisted of 85.71% single participants. Krantz, Berntsson & Lundberg (2005) in relation to marital status found that employees who had a greater interaction between work and the home interface were more likely to be stressed in terms of work life balance. The current study's finding on participants workload not having an influence on arousal but having an influence on pleasure may be a result of employees having a less challenging work family interface interaction, which has thus has no influence on the experienced emotion of arousal. Although arousal as a whole was not significant in relation to workload, the time of day was influential. In particular, participants were relatively more aroused in later periods of the day. In addition, the relation to workload and pleasantness being significant may be looked at in conjunction with the feelings of arousal. The emotions pleasure and arousal, although measured in this study as separate dimensions, they are noted to correlate positively (Russell, Weiss and Mendelsohn, 1989).

The current study, as discussed, identified that the time of day played significance to the arousal felt by participants. At the same time the emotion pleasure was not significantly influenced by the time of day. It needs to be understood as to why the findings of the current research indicate that participants were more aroused at lunch and the pattern of arousal increased towards the end of the day. Research in circadian rhythms has dominated in the understanding of the influence of shift work on an employee alertness. Circadian rhythms were found to be linked to time of day, Kleitman (1963 cited in Carrier & Monk, 2000) found strong evidence between the circadian body temperature and time of day effects on performance with a maximum at midday and minima early in the morning and late at night. In the mid-1980's researchers attempted to understand time of day variations in performance of tasks (Carrier & Monk, 2000). Research at

the time looked at the type of task in relation to circadian rhythm of body temperature, one such study found as memory workload increased, the relationship between performance and body temperature broke down (Carrier & Monk, 2000). Thus the type of task at hand influenced the trend over the day. Looking at the results of the current study, participants were significantly aroused in the afternoon, while the pattern increased towards the end of the day. This finding fits with the early findings by Kleitman (1963 cited in Carrier & Monk, 2000) which showed performance peaks at midday. What is interesting is that the current finding shows that the arousal pattern increases as the day continues, while Kleitman (1963 cited in Carrier & Monk, 2000) found performance decreased towards the end of the day. In another study by Emmerik & Jawahar (2006) in which they looked at the impact both objective and subjective workload had on the employee's mood as well as the employee's spouse's mood, the study showed that as time pressure increased so did negative mood but also there was a positive relationship between hours of work and mood. This is to say that as the day progressed towards an end, employees' moods became more positive. The present study's finding on increased arousal as the day progressed confirms the finding by Emmerik & Jawahar (2006). To explore the reasons for this, Emmerik & Jawahar (2006) attributed this finding to gaining resources i.e. salary. This attribution may be well fitted to the finding, as participants may feel more aroused towards the completion of the day with the knowledge that they will be gaining some resource from the work put in, this resource mainly in the form of a salary.

To look further into the findings of the current study, a study conducted by Egloff, Tausch, Kohlmann and Krohne (1995) gives a somewhat recent perspective on the relationship between time of day, day of week and positive mood. The study aimed to assess the above proposed relationship, by measuring participant's moods for seven consecutive days. The results of the study showed that maximum positive affect was reached in the afternoon period, while pleasantness positive affect increased from morning to evening. The current study supports the findings by Egloff, Tausch, Kohlmann and Krohne (1995) in that the afternoon is when participants were more aroused, however the current study does not support the findings on pleasantness as reported by Egloff, Tausch, Kohlmann and Krohne (1995). The current study found a positive relationship between workload and pleasentness although pleasentness remained relatively stable throughout the day. To account for the contradiction in the findings of both

studies we can look at the measures used. The pleasantness dimension measured by the PANAS scale was used by Egloff, Tausch, Kohlmann and Krohne (1995) while in the current study, the Affect grid was used to measure pleasantness. This difference in method to determine the measure could possibly account for the different findings in the current study.

In looking at the above finding on the pleasantness dimension, it may be useful to look at the age group of the participants. The findings on age and its influence on affect has shown that the elderly have often been found to score lower on negative affect than younger individuals (Thomsan, Mehlse, Viidik, Sommerland & Zachariae, 2005). As reported earlier, the age range of the sample was 21 to 62 years of age while the mean age was 27.22. These figures demonstrate that the sample was a fairly young sample, which may help to understand the reason for finding no significant pleasantness experienced by participants in relation to time. Dua (1994) reported in a study conducted on job stressors and their effect on physical and emotional health as well as job satisfaction that younger staff reported more stress than older staff which was found to have a significant impact on the negative affectivity of individuals. Thomsan et al (2005) also looked at age and gender in relation to negative affectivity, these researchers found and confirmed previous research, which showed the elderly scored lower on negative affectivity, but also that defensiveness and life events mediated experienced negative affect (Thomsan et al, 2005). Participants in the current study showed no significant pleasantness throughout the study, which taken from the findings of Dua (1994) and Thomsan et al (2005) may be related to the age of participants. The current study did not go so far as to identifying mediators within the context of the study, which will be taken into consideration within the limitations and recommendations of the study.

Research Question Two:

The second research question that was investigated in this study is whether current workload predict future emotional states, assessing if a lag of workload continues to effect emotions once workload has decreased across time periods?

Much of the above discussion is dominated by the instantaneous relationship between workload and emotion in a longitudinal framework. The second research question investigated in this study looked at the ability of current workload to predict future emotional states. The results showed that although workload has an influence on emotions in an instantaneous form, the workload experienced in one period does not correlate with workload preceding it in another period, thus no predictive significance was found in terms of emotion.

The Transactional Model by Lazarus is built on the fundamentals on the interaction of the person with the environment, which may lead to consequences (Perrewe & Zellars, 1999). This interaction is what was explored in the research question above, by understanding that the relationships demonstrated by the Transactional Model are not of a linear fashion, but rather reciporocal (Schuler, 1982). As a result it was crucial to assess the predictability of workload on future states of emotion. The findings of this research however does not confirm the relationship presented by the Transactional Model, which depicts environmental factors result in an immediate cause which in this case would be negative or positive feelings, which are mediated by various factors, including time and encounter. These then lead to long term effects. The findings of the current research show us that on an instantaneous level, it is confirmed as the model predicts, that workload will have an influence on emotion. It does not however confirm that workload in one time frame will predict emotional states in another time frame.

Ilies, Schwind, Wagner, DeRue, Ilgen & Johnson (2007) conducted a similar study to the current study in terms of looking at the effects of daily workload and affect on the home, these researchers also conducted this research in a longitudinal design. The design of these researchers study was longitudinal in nature, focused mainly on work-family conflict. These researchers found that daily workload is an important predictor of affective states as well as work to family conflict (Ilies, Schwind, Wagner, DeRue, Ilgen & Johnson, 2007). As discussed above the current research did not find significant evidence to determine if current workload predicted future emotional states and came into contradiction with the above study's findings. To understand why the current study may have these results, we can look at the methodology. The study conducted by Ilies, Schwind, Wagner, DeRue, Ilgen & Johnson (2007) had a sample of 150 participants, a fairly large sample in comparison to the sample size of the current research.

As a result, sample size effect may help to explain the results found in the current study. In keeping with the methodology, it must be noted that the first week of analysis, most participants missed analysis as problems with the email systems caused participants difficulty in accessing the link. As a result, much data was lost in the days. This may also have contributed to the findings of this research in that the data may have not been substantial enough for prediction.

In addition to the findings of workload lag, both arousal and pleasure were found to be correlated in time. Thus it can be predicted that current arousal or pleasant state will be strongly related to emotional states in future time periods. The research conducted by Ilies, Schwind, Wagner, DeRue, Ilgen & Johnson (2007) looked mainly at positive and negative work affect spilling over into family life by influencing family affect. The results of the current study supported the researchers findings in that work affect scores predicted home affect scores across days (Ilies, Schwind, Wagner, DeRue, Ilgen & Johnson, 2007). The current study found similar results as discussed above, emotions arousal and pleasure were significantly correlated across time, thus demonstrating that it is possible to predict future affect states from the current experienced affect states. The current research did not specifically look at spill over to the home, but rather looked at a predictive nature of the relationship.

This predictive nature of emotions, arousal and pleasantness, of employees is an important finding, important when we look into the necessity for positive emotions within an organisation. Staw, Sutton and Pelled (1994) looked at the link between positive emotion and favourable outcomes in the workplace. The study was conducted between winter of 1972 and fall of 1974 with a sample of 272 employees from three organisations. The overall results of this study showed that employees who were more positive on the job experienced more positive outcomes, which included favourable supervisor evaluations, greater pay 18 months later and more social support (Staw, Sutton and Pelled, 1994).

This research, although not implicitly directed to the current research, does have implications for the current research. If employers are able to predict emotional states in future time frames it might be able to inform the type of job outcomes experienced by the employees, such as the

above mentioned, greater pay, social support and favourable evaluations which in turn may have an influence on motivation and job satisfaction experienced by employees. This kind of relationship can be drawn back to the Transactional Model proposed above, in which the dynamic relationship of variables such as the above relate to each other in both short and long term. As discussed, a cause may lead to an immediate effect, the cause being the arousal or pleasantness experienced by an employee which as the results of the current study show, can be predicted in a later time frame. This cause may have an immediate effect, which may be the experienced arousal itself in the next time frame, which in turn has a long term effect, as demonstrated by the findings of Staw, Sutton and Pelled (1994).

Theoretical Implications:

This section of the discussion chapter aims to discuss the theoretical implications of the research findings obtained in this study. It will focus on looking at the theories presented in the literature in relation to the support or lack there off in terms of the findings of the current research.

This research thesis aimed to look at the instantaneous relationship between perceptions of workload on emotions in the context of a longitudinal study, in doing so this research has not identified with one particular theory but looked at a range of literature investigations and understandings relating to the specified topic.

Literature on stress in general is all encompassing of the topic. It is a well explored and developed topic that has broadened greatly into many different views, one of which has been the idea of occupational stress. Occupational stress has long been defined in various ways, in particular Spector (2002) classifies occupational stress as being concerned with the nature of the job, interpersonal relations or the broader organisational context. This definition is broad and leaves room for much understanding, which much research has done. The exploration of the concept as well as consequences of occupational stress has been vast. The present research in a broad sense can be said to add to this broad field of occupational stress.

In adding to the field of occupational stress research, this research has focused on workload as occupational stressors. Much research has been conducted on the concept and consequences of workload on employees. Workload is seen to have far reaching implications for employees; this current research has however made the distinction between the time frame in which experienced workload may be influential to the employee.

In addition to the above, the current research has focused on the role of emotions within the workload context, over a period of time. This encompassing relationship is crucial to the increasingly developing understanding of emotions within the workplace. It is crucial in terms of the design of the study, in that most research is formulated from a single measure of time, looking at variable relationships in a static manner. The current research has attempted, by way of design to improve on the above by incorporating the time factor into design, influencing the dynamic understanding of the relationship. It has thus shown, that workload had little significant

predictive value of emotional states in time periods to come, but that emotions arousal and pleasure had significant predictive value over time. This finding has theoretical implications in that it broadens the understanding of the relationship emotions may play in the work environment. These findings also add to the value of the understanding of how workload may influence an employee. This research helps to enhance the understanding of literature around the topic, but limitations to the research itself may have inhibited different developments within the research. It is worthwhile to look at those limitations.

Limitations of the Study

There are a few limitations of the current study that may have had an influence on the results of the study.

The sample size obtained in this study was considered to be relatively small, although the design of the study may have countered the impact, it is possible that the small sample may increase the likelihood of sampling error. Participants also opted to not partake in the study once the assessments begun, which had a direct influence on the sample size. As a result, the small sample size has implications on the ability to generalize findings, as the sample may not be adequately representative.

The study itself was conducted on a local scale, in terms of geographical nature, only participants from the South African region were sampled. This limitation speaks directly to the above mentioned ability to generalize the findings of the study.

The sample was collected via researchers who identified participants who would be willing and committed. This may have worked as a strength in that participants may have been more willing to participate, however the limitation to this study is that in the case of this type of sampling method is that it was highly time and resource consuming. The time limitation on collecting a sample put strain on the ability to adequately collect a feasible sample size.

The questions that were used in order to obtain the measures needed may also have been influential in the type of results obtained. It must be noted that no pre-test was run in order to determine the effectiveness of the measures. This may have been influential to the results obtained, if measures were more refined.

A final limitation in the study is that the study was conducted online, which made access convenient however at the same time excluded participants who did not have the resources to participate. This also speaks to the generalisibilty of the study. Problems were encountered in the first week of data collection, which caused implications for the usage of the particular data of

first week of collection, this complication may have had direct implications on the results obtained within the study.

Conclusion

The work environment plays a crucial role in the wellbeing of employees, this work environment comprises of various factors that may enhance or inhibit the individual's ability to perform and develop. One of these inhibiting factors is the concept of stress, a long standing concept that has been seen to have a great influence on an employees work life. Occupational stress a work form of stress has been seen to be influential in the wellbeing of employees. In relation to occupational stress comes the concept of workload, broadly a factor that looks at the physical and mental ability of employees to manage their work. Workload proven through research has varying influences on employees, most often negative influences. These influences range from lack of job satisfaction, to burnout to loss of motivation. In addition to the influence of workload, research has taken keen interest in the emotions experienced by employees in the workplace. Research on mood, emotion and emotional intelligence has broadened the understanding we have of the work environment in relation to the employee.

This study has thus aimed to explore the instantaneous relationship between perceptions of workload on emotions, in the context of a longitudinal study. To do so the study focused on two main research questions, does the current perception of workload predict the current emotional states when examined in the context of longitudinal study? and does current workload predict future emotional states, assessing if a lag of workload continues to effect emotions once workload has decreased across time periods?

It has been shown that instantaneously workload and emotions are related, however this study took the relationship to a predictive by incorporating a longitudinal design to the study. The study found an instantaneous relationship between workload and pleasure; however workload and arousal had no significance. In looking at the predictability of workload to predict future emotional states, there was no significance found. The lag of emotions did however indicate predictability for both arousal as well as pleasure.

The findings of this research have been discussed to attempt to gain an understanding of possible reasons to why the particular results were found. It has been shown that workload influencing

emotions at an instantaneous level is expected. This static relationship has been explored within the literature. The second finding shows no predictability of workload in relation to arousal, which as discussed may be caused for various reasons, in addition, the predictability of both arousal and pleasure is important in understanding the influence emotions have in relation to the work experience.

This research has added to the understanding of the role emotions play in the longitudinal sense within an organisation. It is applicable to organisations who which to gain a better understanding of work experiences and the influence they may have on employees.

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Appendix 1: Participant Consent Form

Psychology

School of Human & Community Development

University of the Witwatersrand

Private Bag 3, WITS, 2050

Tel: (011) 717 4500 Fax: (011) 717 4559

Dear Sir/Madam

My name is Zaheerah Fakir, and I would like to invite you to participate in a research study I am conducting for the purpose of obtaining a Masters degree at the University of Witwatersrand. My research focuses in the area of perceived workload in its relation to emotions at work. I would like to invite you to participate in my research.

While emotions within organisations tend to be taken for granted, understanding the processes behind certain emotions may have positive implications for the organisation. Research on emotions has been increasing recently, with more and more theorists realizing the importance of the role emotion within the organisation. Understanding these emotions may explain many individual and organisational outcomes. It will provide us with a better insight into the processes behind the emotions that employees are required to display in accordance with their job role. Many factors may influence the emotions in the workplace. Perceived workload is seen to influence emotions of employees in various ways. The aim of this study is thus to examine the relationship between perceptions of workload on emotions in the context of a longitudinal study.

Participation in this research will require you to have immediate access to email. A number of questionnaires will be sent through to each participant at specified times. Responses will need to be as immediate as possible because the aim is to measure the emotion being felt at the moment. Each questionnaire will take no longer than five minutes to complete. The study will be conducted over a period of three weeks, at various intervals. Participation in this study is completely voluntary. No one will be advantaged or disadvantaged in any way should they choose to complete the questionnaire or not. No identifying information such as the name, ID number or place of work is required, hence confidentiality is guaranteed. This research is not intended to investigate any specific individuals or organisations, but rather to establish general

pattern perceived workload has on emotions at work. In addition, the completed questionnaires will only be seen by me and my supervisor, and responses will be kept confidential.

If you fulfil the criteria for participation in this study and are willing to participate please complete the following questionnaire. Completion of the questionnaire will be regarded as consent to participate in the study. Participants will be required to select a reference number that will not be known by me, from a box of random numbers. Reference numbers will need to be stated on questionnaires. All identification will be through reference numbers to ensure confidentiality. Feedback on the study will be made available for any participant that requests it, in the form of a one page summary.

Thank you for taking the time to read this letter.

Should you have any queries, please do not hesitate to contact either myself, or my supervisor, Mike Greyling

Yours Sincerely,

Zaheerah Fakir

Industrial Psychology Masters Student
Department

072 453 2150

Mr Mike Greyling

Supervisor: Industrial Psych

011 717-4520

Appendix 2: Biographical Questionnaire

Psychology

School of Human & Community Development

University of the Witwatersrand

Private Bag 3, WITS, 2050

Tel: (011) 717 4500 Fax: (011) 717 4559

1.What is your gender?

Male	Female

2. What is your race?

Black	Coloured	Asian	Indian	White	Other

3. What is your age? _____

4. What language do you speak?

English	Afrikaans	IsiZulu	Sesotho	Sepedi	Sestwana	IsiXhosa	SeSwati	Tshivenda	Xitsonga

5. What is your job title?_____

6. What is your current employment status?

Full time	Part time

7. What is your marital status?

Married	Single	Divorced	Relationship

8. Do you have children?

Yes	No

If yes, how many?_____

9. What is your highest level of education?

☐ Grade 10- Grade 11 ☐ Matric ☐ Diploma ☐ Degree

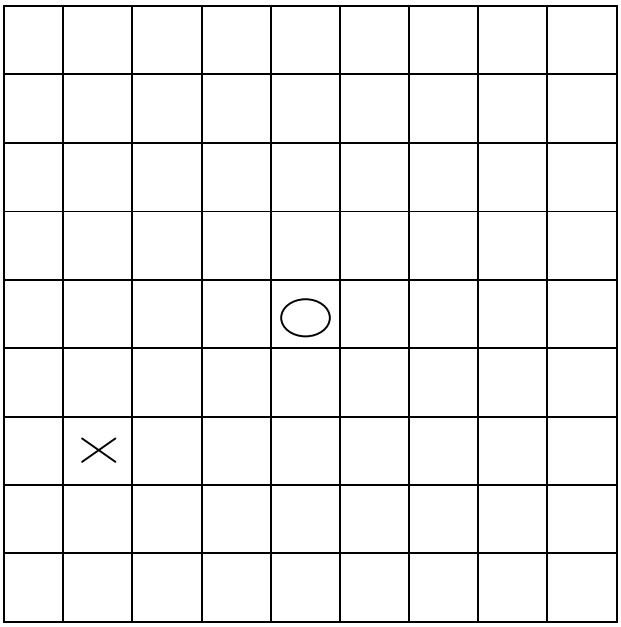
Other (specify):

_____

Appendix 3: Questionnaire 1: Affect Grid

Extremely high arousal

Extremely unpleasant emotion



Extremely pleasant emotion

Extreme sleepiness

Instructions

(All participants will be thoroughly briefed on the instructions and details of the Affect Grid, in person, prior to the distribution of questionnaires). Participants will be required to rate and mark their emotion in the grid that best describes their feelings as it occurs. The pleasure score is the block selected horizontally, ranging 1 – 9 from left to right. The arousal score is the block selected vertically, ranging 1-9 from the bottom to the top. The centre of the grid, marked by a circle, represents a neutral feeling. The score for the example provided in the grid would be 2.3 – displaying high unpleasant emotions (2) and sleepiness (3).

Appendix 4: Questionnaire 1: Perceived Workload Questionnaire

1) Did you accomplish an adequate amount of work in the last hour? Yes/ No

If not, please indicate on the Affect grid how this may impact on your emotions

2) If you did not accomplish an adequate amount of work, what are the consequences?

_____

3) How busy are you now?

□ Not Busy □ Fairly Busy □ Busy □ Extremely Busy □ Overloaded

4) How busy do you anticipate you will be during the day?

□ Not Busy □ Fairly Busy □ Busy □ Extremely Busy □ Overloaded

5) What are the chances you will complete an adequate amount of work in the next hour?

□ Easy □ Challenging □ Extremely Challenging □ Impossible

Appendix 5: Questionnaire 2: Emotions -Morning

Please fill in the following questionnaire and return responses as soon as possible.

1) Are you working now?

Yes/ No

2) How many hours sleep did you get last night?

< 8 hours 6-8 hours 4-6 hours < 6 hours

3) How are you feeling emotionally?
Using the Affect Grid, please mark relevant grid.

4) Has anything happened in the last 24 hours that may have affected how you are feeling?

Yes/No

5) If yes, please specify briefly

_____

_____

Questionnaire 2 -Afternoon

Please fill in the following questionnaire and return responses as soon as possible.

6) How are you feeling emotionally?

Using the Affect Grid, please mark relevant emotion.

7) Are you displaying this emotion to others? Yes/No

If not, please specify the relevant emotion you are exhibiting.

8) Has anything happened since the last time you completed a questionnaire that may have affected your emotion?

Yes/ No

If yes, please specify:

_____

9) How tired are you?

☐ extremely ☐ fairly ☐ not tired ☐ energetic

10) Please describe briefly what you were doing just before you completed the questionnaire?

Questionnaire 2-Late Afternoon

Please fill in the following questionnaire and return responses as soon as possible.

11) Are you working now?

Yes/ No

12) How tired are you?

□ extremely □ fairly □ not tired □ energetic

13) Has anything happened since the last time you completed a questionnaire that may have affected your emotion?

Yes/ No

If yes, please specify:

_____

14) How are you feeling emotionally?

Using the Affect Grid, please mark relevant emotion.

15) Are you displaying this emotion to others? Yes/No

If not, please specify the relevant emotion you are exhibiting