National College of Ireland

MSc Learning Technologies

2009/2010

Raymond Short

Student ID 08870781

Email raymondshort324@yahoo.co.uk

Can an elearning educational programme reduce stress and increase employee engagement?

Dissertation

National College of Ireland

The college for a learning society

I hereby certify that this material, which I now submit for assessment of the programme of study leading to the award of Master of Science in Learning Technologies is entirely my own work and has not been taken from the work of others save and to the extent that such work has been citied and acknowledged within the text of my work.

Signed: Raymond Short

Date: 26/07/2010

Student Number: 08870781

Table of Contents

Abstract 4

1. 0 Introduction to the Study 5

1.1. Introduction to the literature review 13

2.0 The literature review 15

2.1. Psychology relating to eustress and distress 16

2.2 Stress related disease 21

2.3 Work distress and burnout 24

2.4 Employee engagement 28

2.5 Occupational interventions for distress 31

2.6 Employee Assistance Programme 37

2.7 Employer's Liability 40

2.8 Elearning Strategy 44

2.9 Summary of the Literature Review 56

3.0 Hypothesis/Research Questions 61

4.0 Method 62

4.1 Participants 62

4.2 Apparatus 62

4.3 Design 62

4.4 Procedure 63

5.0 Results 64

6.0 Discussion 66

References 71

Appendix A: the consent form 78

Appendix B: The recruitment poster 79

Appendix C: The web site showing the navigational options 80

Appendix D: The questionnaire 81

Appendix E: The tracking site 89

Abstract

This study was undertaken to discover if an elearning stress prevention educational programme can improve the learner's ability to responses and cope with distress at work, and increase their work engagement. Elearning has the potential to be a less costly intervention than classroom interventions. Elearning can reach a wider audience and can be available on demand. The study measured the relationship between distress and lack of employee engagement at work using a repeated measures pre and post intervention questionnaire. The participants (N= 15) were eight females and seven males who responded to a poster advertisement placed in a number of workplace locations. The participants agreed to the study and indicated that they had read the consent form by email. The participants were sent a web link to complete the on-line pre-intervention questionnaire (30 questions) which measured their level of distress, using Depression Anxiety Stress Scales - DASS with only the stress questions (18) and the Gallup Q12 for engagement to measure their level of engagement. A five point likert scale was used for measurement. On completion of the questionnaire the participants were directed to use the elearning educational programme on the web, and were asked to interact with the programme at their own pace for a four week period. After this period the participants then completed the same questionnaire as the post intervention stage. Five female and two male participants completed the study out of the fifteen participants who started. The data was analysed using dependent t-Test to find if a significant change in the stress and engagement measures occurred. The results showed a significant change in lower stress levels and no significant change in employee engagement. The study had two major limitations in that the participant selection was by convenient sampling and the participants were not from a homogenous group. The number of participants completing the study (48%) was too small to make any generalisations. Further

studies are suggested including a blended elearning approach, a bigger sample size and to target a working population with high stress levels.

1.0 Introduction to the Study

The current economic environment gives plenty of opportunities for people to experience excessive distress at work. The intensification of work, the threat of job loss, reduced income, and the consequential threat to workers ability to finance a normal life style can cause excessive distress in the individual. Occupational health psychologist Einar Baldursson predicts that more people will lose control of their job in the future. The permanent jobs, as we know them, will disappear over time. The concept of the "job" as shaped in the 20th Century will diminish. The concept of privatisation and outsourcing will demand more fluidity from the workers. Permanent jobs are too rigid and inflexible for the project based management styles which are developing. The main characteristic of a project is that it is time bound and temporary. The organisation will buy in the resources they need for the time they need them (Rasmussen, 2008). According to general psychological principles this way of working is not in tune with the needs of the human being and will cause distress if action is not taken to offset distress in the workplace. People need security, predictability and a sense of belonging to feel at ease in their environment. In addition, this uncertainty can cause strains in the workers personal relationships and their workplace relationships. When people cannot cope with threats to their fundamental needs, distress can progress into physical and mental illness. In this new fluid environment, the employee's well being is not recognised as important or useful. This is in contradiction to the known fact that employee well being has a major influence on workplace performance. The financial cost of this can be ignored in the short term when presenting a black and white balance sheet or earnings per share report. The costs in time and money in treating the causes of constant

distress is estimated to be very large for the employers and society in general (The Business Case for Stress Management, 2009). Therefore, if people could learn how to cope and reduce distress before it gets out of hand, it would have beneficial effects for the employers, the employees and society in general. This research study is focused on an investigation to see if an elearning educational product could help mentally stable people cope better and manage distress in their lives. This is seen as a preventative action. The hypothesis is if people learn about how distress manifests itself, and are shown fully researched techniques to reduce the effects of distress in their life, it would make managing and coping less distressful with benefits both for the organisation and the employee. This hypothesis is derived from modern psychology theories such as cognitive behaviour therapy, evolutionary psychology and personality development psychology.

A definition from the Oxford Dictionary of Psychology for stress is:

" Stress is the psychological and physical strain or tension generated by physical, emotional, social, economic or occupational circumstances, events, or experiences that are difficult to manage or endure" (Coleman, 2003, p. 711). The words stress and distress are generally used in the literature to mean the same thing.

This study is undertaken to get a fuller perspective of distress in the workplace and to establish if modern elearning technology can possibly provide an economical, flexible and continuous way of teaching people the fundamental causes of stress, and how they can change their behaviour and thought patterns to control and reduce stress reactions in their lives. Because the workplace is such an important place for human development, it is one area where the individual can feel in control or out of control. People spend more than eight hours a day immersed in workplace activity. Work provides status and finances for personal life style. It is also a place for achievement and development. Work, and the quality of the

work, impinges on the workers psychology and the extent to which life can be meaningful and enjoyable. The workplace is where Maslow's hierarch of needs is mostly realised. He categorises these six areas as important; physiological, safety, love, belonging, esteem, and self-actualising needs. According to Holbeche and Springer (2003) "people's perceptions of meaning and value in the workplace are clearly related to their levels of engagement at work and, ultimately, their performance and commitment". They argue that employees actively seek meaning through their work and, unless organisations undertake to provide tangible recognition of this, the employees are likely to withdraw active participation and become passive players (Holbeche & Springer, 2003). According to research findings, it is said that many employees find a greater search for meaning and fulfilment in their lives at work than in other sources of accomplishment. This is why employers take great care in the area of employment selection because it is important to match the employee's personal goals with the requirements for the job. (Kular, Gatenby, Rees, Soane, & Truss, 2008).

Richard Lazarus theorised a psychological view in which distress is "a particular relationship between the person and the environment which is appraised by the person as taxing or exceeding his or her resources to endure, or a threat to his or her wellbeing" (Lazarus, 1999 .p 231). In addition personality and its influence on behaviour mediate the distress response because what is seen a threat to one person may be a challenge to another. The identification of events as distressful is a very individualistic and emotive experience. The psychologist Erick Erickson has proposed a life stage model in which personality is shaped by eight major life transition stages. There are a scale which is bipolar in these categories; Trust or Mistrust, Autonomy or Shame and Doubt, Industry or Inferiority, Identity or Role Confusion, Intimacy or Isolation, Generativity or Stagnation, and Ego Integrity or Despair. These stages shape the persons personality and emotional development, and influences how they respond to stressors. Successful transitions are associated with

developing confidence and emotional control, although normally these transitions are not always ideal or fully understood by the individual. Successful life stage transitions can develop emotional intelligence and confidence; on the other hand difficult transitions can lead to emotional ineptitude and feelings of insecurity (Erikson, 1963). The cognitive behavioural model of learning gives an indication that people can learn to change their attitude and responses to stressors in their lives. Distress alters the brain chemistry which in turn alters the person's perspective of life events inducing a more exaggerated and negative or irrational view of the stressor (Institute, 2004). These Psychological principles are used in the field of cognitive behaviour therapy (CBT) which is about training and learning. The techniques and strategies used in CBT are usually taught by an experienced health professional. Cognitive behaviour therapy may be taught ether face to face or with groups. There is cost and time benefits in learning through CBT within a group setting because of group interaction allows for observational learning. Research has shown group discussion has greater effectiveness in helping an individual to develop a different and clearer perspective of their own distress triggers, thus enhancing the process of cognitive restructuring and integration. Observational or social learning can occur in a group setting when people hear and see how others react to stressors. The types of actions and skills taught in a CBT programme can comprise the following elements; the recognition of negative thinking and the person's emotional and behavioural reaction to stressors, looking at unhelpful thinking through the use of problem solving principles to test the usefulness of thoughts, the use of alternative more constructive, and realistic thinking. The study seeks to find out if this skills training can be usefully delivered via an elearning media.

When employees become disillusioned with work, it can be a symptom of work distress which leads to active withdrawal and passive engagement with work activities. The modern workplace has evolved into an ever changing, demanding and uncertain place for

people to inhabit. The demand for a greater skill range and greater performance requires greater effort on the part of employees. Hockey (2000) says that people adapt to the demands of work in three ways;

> "Making work effort without distress, being engaged or working harder and deriving satisfaction from the demands, being distressed without making any effort or being disengaged with their work. Making effort with distress or working harder but with fatigue and anxiety" (Hockey, 2006, p. 34).

He also suggests that high engagement is associated with low stress levels. Lack of engagement and distress can lead to a condition known as burnout. This area has been researched extensively because of its increasing occurrence in the last decade. The term burnout is used to describe a workers reaction to the constant demands which are distressing. This condition is common in jobs which involve constant interactions with people in groups. The typical features of "burnout" is characterised by emotional fatigue, depression, personal withdrawal, and reduced personal accomplishment in their work i.e. lack of engagement. Having to accommodate the many differing conflicting opinions and communication styles of colleagues can be mentally fatiguing and lead to burnout (Maslach, 1982).

There are numerous reports published recently showing the detrimental effects of distress on the individual. But there is limited uptake by employees and employers to seek preventive training in this area before it leads to problems or illness. Adapting to change and coping with the intensification of work can lead to episodes of distress. Distress is also moderated by the quantity of difficulties workers are facing from stressors in their personal life as well. Financial troubles and relationship conflicts may lessen their ability to handle pressure from work place difficulty. This is applicable in the area of relationship conflicts. According to Fiona Cambell, "how well the person manages work related stress will depend on a number of factors, the main ones being:

> "The amount to which the person feel endangered by the stressor.
> The behaviour the person can change to decrease the effect of the stressor.
> The previous experience the person has had in managing stressor. The training a person received to reduce stressors" (Campbell, 2006, p. 27).

There is good research evidence that distressed people have increased absenteeism rates, poor work performance, and lower engagement and change jobs more frequently. Distress can cause physical changes, emotional changes and behavioural changes in the employee. The emergence of stress in the work place is an indication of poor working procedures with in the organisation. Management should constantly use the results of staff surveys which indicate high stress levels as a chance for work place improvement, which can result in improved organisational performance and decision making. The evaluation of occupational stress should involve a process of:

- Identifying and assessing the actual and potential risks from a health and safety point of view.
- Put into action organisational structures to remove or reduce these risks.
- Training employees to comprehend their responses to stressful situations.
- Train management to recognise and intervene when stressful situations arise.

(Government, 2003)

Female employees can be subjected to distress when pregnant. This is why most modern societies recognise the need for pre and post natal leave. Studies on monkeys and rodents conducted under carefully controlled conditions are an important indicator of how stressful conditions can affect the physical development and social behavior in their offspring. This can have implications for human behavior also. Primate studies indicate that pre natal stress for offspring in the womb lowers birth weight, retards attention and motor maturity, retards learning and impairs emotion control in the offspring. If the mother endures stressful conditions while pregnant this condition is related to increased vulnerability for the

offspring, because distress in embryos can alter normal brain development. This is similar to what is known as the fetal alcohol syndrome in children of alcoholic mothers. In general this type of research is done because it would be unethical to subject humans to such research. Animal research can be generalised in most cases to a human populations (Schneider, 2003).

Women in management positions experience psychosocial and organisational factors different from men. These factors can be social factors which are part of the cultural ethos of an organization. The most prevailing factors identified include; sexual harassment, discrimination, work and family inconsistency, tokenism, and low pay. Since women make up an increasing number in the work force population in general, and can be over eighty percent in some work areas in particular, women's sources of distress can be different from their male counterparts. It is reported that male stress comes about more through direct competition with other males in an organizational setting. Also it has been reported in many studies that women are treated more frequently for depression and anxiety than their male counterparts (Lyons, 2002).

Human resource departments are becoming increasingly concerned with the effects allied with the ever intensification of work, and the pressures to increase individual performance and return on investment. Some trade unionists have spoken out against intensification of work as a major problem in the workplace, as organisations continue to compete against each other and more is required of the workers. Pressure for increased performance often cancels out the benefits of technical improvements in the work place process. Computer systems which reduce cognitive load and the easing of work strain for the worker can result in management requiring increased work performance from workers. This is usually done through job shedding and redundancies. There is observed evidence that work is becoming more intensive with longer hours being worked and shorter project deadlines, leaving less time for revival and reflection on the part of the worker. There is also little

evidence that having a trade union presence alleviates these pressures or improves the workers well being in the long term. So it can be left up to the worker who feels distressed to undertake actions which can help minimise distress (Boxall, Purcell, & Wright, 2007). Hence the focus of this study is to find out if elearning educational programmes can be a cost effective way of helping employees cope with this new work environment and can be available for them to access when this is required before any permanent damage is done. There are many definitions of elearning, but one leading academic in the area, Marc Rosenberg limits elearning to the internet. He is quoted a saying

"The internet technologies should deliver a broad array of solutions that enhance knowledge and worker performance. It is based upon three fundamental criteria; a good network infrastructure is a foundation, delivering content to the end-user via a computer using standard internet technology and focusing on the broadest view of learning which encompasses performance improvement" (Rosenberg, 2006, p. 37).

Delivery of cost effective distress prevention training to a general workforce at all levels can also improve employee performance resulting in economic gains for the organisation. Elearning by its very nature fulfills a lot of the prerequisite criteria for this task; ease of access, just in time learning and the ability for repetition which is fundamental to learning.

It is well established that employees who have a high level of engagement with work activity have a more positive experience of work, and this creates more satisfaction in their lives. Engaged employees have been found to outperform their disengaged counterparts (Gallup, 2006). However, recent research in industrial countries shows that there are more disengaged employees than there are engaged employees in most large organisations. The Gallup research organisation has found that higher work place engagement is a good predictor higher profitability in businesses that are traded on the stock exchange (Gallup,

2006). Studies also suggests that employee engagement is related to employee's emotional experiences, well being and security, an experience generated from within the organisation for which they work (Kular, Gatenby, Rees, Soane, & Truss, 2008). Stressed or distressed workers in the workplace are one of the important elements senior managers have to come to terms with when they want to improve the bottom line. It is the workers who have to achieve this for them. The smart organisations will prioritise distress alleviating programmes for their employees.

A quote from the Minister for Labour Affairs, Dara Calleary TD, on Tuesday 5th May 2009 said; "Workers who are experiencing long term excessive stress in the workplace will be less productive and more likely to be absent from work than those who are not experiencing stress in the workplace" He spoke at the 'Work Positive' seminar organised by the Health and Safety Authority. This shows that people are becoming aware of the importance of managing stress in the workplace.

1.1 Introduction to the literature review

This review of the literature relating to distress in the workplace is to understand how distress manifests itself as ill health in the form of physical and mental illness in employees, and to see what the experts in this area have to say on the topic. Employee distress results in considerable costs to the employers, the individuals who become ill and society in general. The literature relating to training interventions for the relief of distress or to improve coping strategies was researched. It is important to identify if training for distress reduction can improve the performance of employees working in challenging positions. It is important to look for clear return on investment for such training programmes. The review searched for supporting evidence for return on investment among major successful organisations. Traditionally, training has been mostly classroom based, which has its limitations. The cost of

organising classroom training is substantial and the number of people that can be trained in a given time is limited. Also, the fixed nature of time and place may not suit all people. This review looks to see if an elearning approach could be used to overcome the limitations of classroom training. The value of training can be evaluated using the Kirkpatrick four level model which are; reaction to the training material, learning from the training, behaviour change in the learner as a result of the learning, and financial results / ROI that can be established as a result of the training (Kirkpatric, 1998). The review sought to find evidence to support a clear return on investment for current stress prevention training. The areas of behaviour change for the individual is important, and financial return to the organization in the form of higher productivity arising from implementing stress management training as a learning strategy was looked at. Without clear financial return on investment for introducing distress prevention programmes for employees, the organisation will not be in a position to champion these programmes. This literature review is segmented into the following areas to clarify the diverse nature of what is covered in distress and work place research:

Psychology relating to eustress and distress

Stress related disease

Work stress and burnout

Employee engagement

Occupational interventions

Employee assistance programmes

Employers' liability

Elearning strategy

2.0 The literature review

This literature review gathered a wide range of research material to support and guide the research methodology used to investigate if elearning and modern technology in learning can be used for knowledge transfer and behaviour change, and also be cost effective in teaching people in the workforce to develop behaviours which reduce distress and burnout. Evidence for the effects on company profits due to employee absenteeism and employee lack of engagement was considered. When employees are stressed it is common to have several reactions that reduce effective decision making. The internal mental appraisal caused by fear, anxiety and uncertainty, which happens at a semiconscious and subconscious level, limits the attention span of individuals and the mental repertoire for decision making. It also deteriorates judgment and logical thinking. Neo-cortex becomes less active and the limbic system becomes more active, workers become more reactive and less logical. Workers can descend more readily into negative self evaluations as uncontrolled stress affects self esteem and self confidence. Stress will cause less objective thinking and will narrow the focus which will lead to short term thinking. Constant stress can cause workers to be come ill. Research into the effects of training interventions which can effect and reduce the negative consequences of stress such as absenteeism and lack of engagement were evaluated. The following is a quote that captures this essence:

"If many employees, or even key employees, are stressed, the overall health of the organisation and its performance is bound to suffer. The senior management are more likely to support interventions if issues such as expected outcomes, resource requirements, and the cost effectiveness of interventions can be clearly identified. Interventions are unlikely to be implemented successfully without the long term commitment of senior management within an organisation." (Jordan, Gurr, & Tinline, 2003, p. 32).

Therefore it is appropriate to investigate if an elearning programme can be a part of the stress prevention solution with in the organisations learning and development strategies to increase performance. Finally, a quote in Rosenberg (2006. p 30) gives insight about improving employee performance through e-Learning:

"One challenge was to let go of the conventional binder and classroom approach and to design training in two-minute repetitions, instead of a four-hour event requiring a mental shift. We never expected participant rates to be so high and sustained. The culture has visably shifted, and it sets us up to deliver more e-Learning going forward". J.R Clark, H-E-B Grocery. H-E-G grosiery has been in existance for over a hundred years and has three hundred and ten stores in Texas, and is one of America's largest private companies.

2.1 Psychology relating to eustress and distress

The fundamental causes and consequences of distress have been well researched and documented since the seminal work published by Hans Selye in 1946. He outlines the mechanism by which illness comes about as a consequence of distress. He used animal experiments to explore the effects of distress on the body (Selye, 1946). There is confusion over the term stress, which can be divided into three parts; eustress stress and distress. Eustress is a term described by endocrinologist Hans Selye as stress that is healthy, or gives one a feeling of positive expectation, excitement and other positive emotions which results in personal growth and achievement. Eustress is experienced in the process of exploring for potential gains, adventure and looking for achievement (Selye, 1946). Distress on the other hand is associated with feelings of possible failure, of not having the resources or skills to meet the challenge presented, or being trapped or lost rather than accomplishment. The evolutionary psychologist David Buss theorised that the stress, anxiety mechanisms evolved

in the brain and was useful in helping our ancestors survive. He proposes that; "In a hundreds events, one death is more costly than responding to ninety nine false alarms (Buss, 2004, p. 402). According to Richard Lazarus, an influential psychologist in the area of developing and understanding the human distress response, hypothesised that the way people cope with distress is directly connected to their physical health, social connections, and their psychological development. The fundamental principle of Richard Lazarus is that coping behaviour can alter the level of threats associated with the stressors. Coping is successful when stress is recognised, controlled and reduced by the person's emotional intelligence. When coping strategies are not effective, distress can accumulate and can become a source of anxiety and fear which can lead to physiological and psychological problems. Subjective distress impaired social functioning, interpersonal communications and cognitive appraisal (Lazarus, 1999). Another psychological theory that has been described by Abraham Maslow is the hierarchy of human needs. These needs are instinctive to human behaviour and span the range of consciousness from unconscious to subconscious to fully conscious. The seven levels of human needs are;

(1) Physiologic needs:

Physiological needs are the need for food, drink, temperature regulation, elimination, rest, activity and sex. These needs are regulated by the bodies homeostasis balance. This motivates the individual into behaviours that achieve success in meeting these needs.

(2) Safety needs:

People need protection from potential dangerous objects or situations, such as other humans, floods, and droughts. These threats, both physical and psychological, give rise to anxiety, fears or concern about survival. People will strive to achieve safety places in their lives.

(3) Love and Belonging:

This is the need for receiving and giving love, affection, trust, acceptance, affiliation, of being part of a group, and belonging in the family. People put in great effort to create environments where these needs love and belonging needs will be met through association with others.

(4) Esteem needs:

Self esteem and self respect, a sense of competence and accomplishment, and a sense of one's place in the world. People continue to scan their environment for reinforcement that supports esteem needs. This arises from being given recognition or praise from others.

(5) Cognitive needs:

Knowing and understanding, curiosity, exploration, need for meaning and predictability. People need to understand the match between their internal and external reality.

(6) Aesthetic needs:

Being able to recognise and value beauty, nature, symmetry, balance, order, form, and structure in the world. Pleasure and satisfaction is derived from understanding the structure and order in the world.

(7) Self actualisation:

Realising one's full potential, self contentment and having ones true place in the world. This is not easily realised but people move towards this as they progress through life.

According to Maslow, all humans have an innate desire to fulfil these physical and psychological needs in the order suggested. People are motivated into activity to create an

environment that best fulfils these needs or avoid situations which threaten or frustrate them in meeting these needs. Although at the top of the hierarchy, the aesthetic and self actualisation needs are more difficult to achieve. The human spirit has a fundamental comprehension of these concepts and a need to fulfil these desires. Therefore, these steps are a primary motivation for life. These steps are related to distress in people when people are frustrated or denied the resources or opportunity to progress through these levels or stages in life. In modern western technological societies most of these needs are met via the workplace. The workplace is an important environment that gives people a place of association, a stream of finance to support a given a life style, a place for goal achievement, recognition, and a sense of security for the future. Loss or threats in any of these levels can produce a psychological reaction of distress. The increasing use of new technology and the increasing demand for efficiency improvements, place additional pressures on people in the workforce, which can frustrate or threaten the achievement of these needs, and results in distress. The speed at which technological change is occurring in both work and social life is having a harmful effect on workers. This places new challenges on some people. The use of new technologies such as information technologies, data base information systems, mobile communications, computer systems, and networks have been seen as the way to remove inefficiency problems in the workplace. But there are numerous studies showing that a number of computerisation projects do not fulfil the original specified functionality. This places undue cognitive pressure on the workers who use these systems because human limitations are not adequately taken into account when planning and executing these technological projects. In fact, the principles of cognitive ergonomics are not applied when considering the population that would use these technologies. These systems failures place increased demands on human mental process i.e. cognitive overload and the need for workers to use a work a rounds, which increase rather than decrease distress. In a number of studies

of the human interaction with computer systems the real human interaction with the system has been over looked in the design and development phases. The result of this is that many stress related problems have been identified such as a high error rate when using these systems and memory problems remembering functionality (Arnetz, 1997). This can result in sleep less nights, physiological distress and psychosomatic complaints such as back injury, migraines and joint pains for the worker. Other factors that predispose the worker to be sensitive to stressors are job complexity, low work autonomy, lack of social support with in the organisation, unrealistic demands for results, perceived reward inequity, and relative job uncertainty (Stansfeld & Candy, 2006). There are observed distress triggers in the work place which can be mapped to levels in Maslow's hierarchy of needs and human motivation. Lazarus's appraisal hypothesis shows how cognitive perception is a factor in the responses of workers to different stressors. A worker will use cognitive process to diminish the distress response associated with stressors through rational appraisal. This ability is associated with emotional intelligence.

Daniel Goleman describes five categories of emotional intelligence which can be developed through learning, these are;

> "Knowing and evaluating ones emotions, having self-awareness, recognising feelings as they happen. Managing one's emotions as they arise which is the ability to handle feelings so they generate positive responses. Recognising emotions in others or having empathy, social awareness and managing conflict, also being able to handle relationship problems and responding to others appropriately" (Goleman, 1998, p. 30).

This processing of evaluating and applying emotional responses goes on at a semi conscious level. Therefore, the inability to identify and regulate emotions has negative consequences in the workplace. This leads to impairment in decision making, inaccurate communications and

reduces response selection. In general, human behaviour is learned, and peoples coping skills to stressors are developed over the life cycle of the individual. The word skill is defined as: "The performance of a task at a high level of competence. These include motor skills, cognitive skills, and emotional skills. These skills can be improved through feedback, and through the deliberate use of strategies, and through the learning process. Skills can become automatic through the process of habituation (Hayes, 2003, p. 265).

The review shows that the distress reaction is an innate emotional response which is designed to cause unpleasantness, and motivate the organism to take corrective action. This section would suggest that training people to develop coping strategies to deal with distress would be a positive initiative both for employees and the performance driven organisation. The consequences of distress over a life time have been shown to produce ill health in the individuals and detract from individual performance in the work place.

2.2 Stress related disease

The reasons for doing this literature review are to establish the true cost to the individual in terms of ill health and lack of well being posed by constant episodes of work related distress. A study of working conditions in fifteen industrialised countries found that twenty eight percent of workers suffered from work related stress, and twenty percent reported work related exhaustion. This level of distress and exhaustion has harmful economic results for those countries and the people (Rasmussen, 2008). This may give evidence for the financial benefits of introducing distress prevention programmes for the employer and the individual employees. The most understood areas of stress related disease is in the area of coronary heart disease (CHD). In 1956, cardiologists Mayer Friedman and Ray Rosenman

observed that men were more liable to develop heart disease than women. In the fifties, there were very few middle class women in the workforce. Friedman and Rosenman proposed a connection between constant work stress and heart disease which they theorised as being most common with "Type A behaviour". There are many studies that now confirm this theory (Brehm, Kassin, & Fein, 2005). One well publicised study called the Whitehall II study was carried out in 1985 among ten thousand, three hundred and eight participants from twenty civil servant departments in London, England. There were seven episodes to the longitudinal study. These were follow up episodes to see how coronary heart disease CHD would develop in the population as they aged, and if there was any correlations with CHD and the work situation. The conclusion of the study was that accumulation of work distress was a high risk factor in coronary heart disease via the neuro endocrine stress response. The increased incidence of CHD was more evident in employees under fifty and with low work independence and control. This was a study among white collar workers in the civil service administration where job distress would be perceived as low (Chandola, Britton, Brunner, Hemingway, & Malik, 2008). The Whitehall studies show that the lower the social ranking or decision making ability of the individual within the civil service structures, the higher the levels of risk of CHD. It was suggested that this correlated with the evident of lack of control by the lower order individuals. Because of the large population size, homogeneity, and the scientific rigor of the Whitehall study, these results should be considered when organisations confront distress within their organisation. There has also been many studies showing how distress reducers human immune activity. In one such study the immune response was examined in a group of eighty eight men working in a university. Through survey questionnaires, their job distress and insecurity levels were measured. Also, the participants' blood NK cytotoxic activity was determined. This revealed that employees with short term employment contracts had higher job insecurity which resulted in diminished blood NK

activity, while other staff with less insecurity showed normal blood NK activity which indicates normal immune response. In addition, the blood NK cytotoxic activity of the participants was inversely correlated with measures of anxiety, job demand and job uncertainty. High measures of job strain and insecurity can affect the health of workers by reduced blood NK cytotoxic makes the person open to opportunistic infections. This is direct evidence supporting the immune system suppression associated with work distress. There are many studies supporting immune suppression as a result of constant stress. Therefore, distressed people get ill more often that non distressed people and recovery from illness will take longer (Boscolo, 2009). Recent research has shown a mechanism between distress and premature aging in people with prolonged distress. Scientists at UCLA describe how, when the body is under distress, it increases the production of cortisol, adrenalin and nor-adrenalin via the autonomic nervous system. They say that if these hormones remain in the blood stream for long periods, the immune system and cell regeneration is impaired. Therefore studies have shown that distress affect cell aging through at least three ways, immune system dysfunction, increased oxidation of cells, and the destruction of telomerase structure in cell chromosomes (Epe, 2004). It has been demonstrated that the telomere protects the end of the chromosome from unwinding. This is thought to give stability to the chromosomes and helps protect them from unravelling by closing the ends of the Deoxyribonucleic acid (DNA) strands. This is analogues to the caps at the ends of shoe laces which stops them from fraying. This section covers the latest research in the disease model associated with distress which includes heart disease. The Whitehall II study shows that the lower the occupational rank or subordination the higher the rate of CHD. Therefore, organisational distress management training could be more effective when lower ranking staffs are included in the training. In a recent study by Firdaus Dhabhar PhD of Stanford University and associated professor of psychiatry and behavioural science show that short periods of stress actually increase the

immune system response of people. This is different from prolonged stress, which has a negative impact on the immune system. This study was done on the time taken for patients' recovery rate after surgery (Dhabhar, 2009). So good stress short term stress increases the body's ability to recover from injury and bad stress long term stress delays the body's ability to recover and repair itself. Distress and its physical manifestation cause an increased corrosive or oxidation of the body. This review underpins that general acceptance that stress can affect the body's immune systems and so allow for opportunistic infections. The term "psycho-neuro-immunology" is used to describe the study of how the mind and body communicate via the nervous and immune systems. Stress has been observed to exacerbate underline ill health conditions and reduce the effectiveness of many treatments. Stress causes increased health costs to the individual, the insurer and society.

2.3 Work distress and Burnout

The consequences of constant episodes of distress in the workplace can lead to "burnout syndrome". This condition was first described by Dr. Herbert Freudenberger in mid 1970. Burnout is typically characterised by emotional exhaustion, reduced self awareness, evaluating oneself negatively, and withdrawal from positive work activity. Burnout syndrome is more frequent in certain job categories particularly health care workers, educators, and the emergency staff (Polikandriot, 2009). The most common cause of burnout in the work place is work addiction and perfectionism. People find themselves compelled to do increasingly more work. Studies have shown that if people put in great effort at work, and at the same time feel distress associated with perfection and performance, they can become susceptible to burnout (Rasmussen, 2008). According to Rasmussen (2008) burnout syndrome has a typical course of five stages; ambivalence and doubt, frustration and feeling powerless, giving up

and mental resignation, and finally, cynicism and apathy. Most of these can come about through a progressive irrational interpretation and perception of personal power to change things in the external world. This can be associated with a term known as learned helplessness which was researched by the American psychologist Martin Seligman. There is a bias in what is published and therefore known. This is because research has been directed mostly towards public servants such as the teaching and health care areas (Maslach, 1982). Other professions, such as information technologists' working in a constantly changing work environment have been neglected. Therefore people working in these areas should experience burnout from time to time. But there is not enough published research in the arena of information technology workers. There is a growing demand for research into the effects of advancing technological change and burnout syndrome (Love, 2007). It is suggested that the creative and extremely motivated information technology worker may be susceptible to work fatigue due to the high demand for accuracy and the need for constant creativity, and improvement. There is a high degree of contract work and insecurity as technological change is constant. Therefore, it is necessary for managers to provide support and additional resources when needed. The need to interact with team interpersonal issues places demands for cooperation and collaboration on critical developments which can produce emotional distress, frustration and uncertainty. According to Moore, "IT personnel may become trapped in prolonged situations of high pressure and new learning which places demands leading to burnout" (Moore, 2000, p. 47). The continual need to update skills, the need to adapt to new learning and methods of working, the need to meet constant deadlines and the globalisation of work, can lead into burnout. Psychosocial distress refers to acute or chronic events of a psychological or social origin, which challenges the person, creating a state of biological negative hyper activation via the autonomic nervous system. The environmental conditions for worker distress and burnout can be created by organisational structures, attitudes or

culture within the workplace (Rice, 1999). These conditions can go undetected as workers become habituated to them. There is a need for organisations to confront the costs associated with distress and burnout. EU member states report a burnout rate of twenty nine percent, and with the UK reporting 38 percent in the working population (Kulkam, 2006). There have been many studies into the teaching profession which appears to give greater rise to burnout episodes at many levels of the teaching profession. It has been shown that burnout is reduced with positive social support, and positive mood control, while negative mood control and lower social support is correlated with higher burnout episodes. Furthermore, negative mood regulation, as an internal function of perception, affected burnout more than low social support, as an external variable. This suggests that burnout can be reduced by better negative mood control. Therefore, educational interventional efforts, such as counselling, continuing education, or stress training programs designed to enhance teachers' negative mood episodes, could help teachers to reducing the probability of a burnout episode (Kim, 2009). A large number of studies have been undertaken to identify the causes of stress and burnout in the educational profession. One study identified four components that effect teachers' stress levels. These components include student mischief, lack of respect from students, maintaining discipline, lack of time and resources, not enough time to create good lessons, meeting with parents, poor professional recognition, low salaries, lack of credit for good work and poor relationships and communications with colleagues (Boyle, Borg, Falzon, & Baglioni, 1995). The process of education at all levels places demands that are constantly on the increase. Consequently, education and training is seen as a primary intervention to reduce burnout syndrome. Training can be used in the creation of social supports within the organisational structures through collaborative learning. In addition, the research evidence suggests that the root cause of burnout syndrome comes about through an individual's inability to deal with distressful situations as they transpire. So training in negative mood

control is seen as a means of reducing burnout syndrome in people working in distressful environments. According to the Chartered Institute of Personnel Development (CIPD) they suggested that organizations should conduct regular risk assessment for stress and burnout episodes among their employees using staff surveys. The risk assessment should be conducted using survey questionnaires among employees at all levels under the following headings;

> Work demand. This is being able to cope with the demands of the job
> Work control. This is having an ample say over how work is done
> Work support. This is having enough support from colleagues and superiors
> Work roles. This is one's understanding roles and responsibilities
> Work relationships. This is not being subjected to unacceptable behaviours
> Work change. This is being consulted and informed about any changes.

The CIPD suggests that organisations will have to put in place an action plan to resolve or reduce stress and burnout through additional training for employees (CIPD, 2009). Therefore employers should have a strategy to address any problematic areas. This opinion is supported in a study in Finland. This study researched the potential effect of burnout on chronic distress and illness by using hospital admissions records over a ten year period in the forest industry. The data on burnout using the Maslach Burnout Inventory General Survey, was collected using a questionnaire at baseline in 1996. The participants consisted of forest industry employee's twenty four percent women, sixty two percent manual workers, with no recent history of a disorder in the same burnout category, according to the hospital admission register January 1986 to February 1996 or the registers of prescribed medication January 1994 to February 1996. The results showed that over the following decade an increased risk of future medical treatment due to mental and cardiovascular disorders resulted from burnout syndrome. This longitudinal study demonstrated that burnout predicts future mental health and cardiac ill health in the forestry workers. The results

indicate the value of preventing and alleviating burnout as a way to promote employee well being (Toppinen-Tanner, Ahola, Koskinen, & Väänänen, 2009). The Chartered Institute of Builders undertook a study among managers in the area of construction. They surveyed eight hundred and forty seven participants via their web site and found that eighty four percent claimed they suffered from stress, anxiety, or depression. The main causes were the result of poor planning, poor communication, lack of feedback and bullying from other workers (Campbell, 2006). These studies show that stress is widespread in all industrial sectors and is a factor in poor business performance. Stress sets off a vicious circle of bad business practices which can become contagious and reduce employee performance. Employees may be in the distress and pre burnout stage for many months before they realise it and action is taken. This period results in underperformance and underachievement resulting in financial losses. The opposite to burnout is high employee engagement, where employees are actively involved in their job and are concerned to have a positive impact on organisational performance.

2.4 Employee engagement

Employee engagement is a mutual partnership between the employer and the employee which maximises employee commitment to the organisation. Employee engagement can be defined as a partnership or strategy by which an organisation strives to build a positive relationship between the organisation and its employees, in order to obtain maximum commercial effectiveness. Engagement results in employees' commitment to achieve organisational goals and the organisation reciprocating with respect for the aspirations and concerns of workers. Engagement is seen as the opposite to burnout, so employers that promote engagement programmes for their employees automatically reduce

the probability of distress and burnout events for their employees. There are a number of studies showing the inverse relationship between engagement and burnout syndrome. A study among two thousand and thirty eight teachers from Finland compares these factors of burnout; job demand, lack of engagement, and lack of organizational commitment which leads to burnout and which resulted in ill health, as opposed to engagement which is characterised by adequate job resources, which leads to organisational commitment. The results confirmed that an inverse relationship existed and the robustness of these findings has supported the significance of this (Hakanen, Bakker, & Schaufeli, 2006). A study conducted by Towers Perrin reported "that highly engaged employees also believe they can and do contribute more directly to business results than less engaged employees". In the same report these claims were reported that:

> "84 percent of highly engaged employees believe they can impact the quality of their company's work product.
> 72 percent of highly engaged employees believe they can impact on better customer service.
> 68 percent of highly engaged employees believe they can impact positively on costs". (Rhoads, 2008, p. 4).

Most of the studies on employee engagement are survey based, which does not give direct evidence of what needs to be done to increase employee engagement in an organisation. Although the correlation evidence between employee engagement and increased performance and profitability is strong, there is little evidence as to what training can increase employee engagement. The Towers Perrin (2003) study of engagement identified both emotions and rational thinking as the two main areas in which the individual interprets engagement. Positive emotions are linked to an individual's personal job fulfilment, and the feelings of positive achievement obtained from their work, and from the feeling of belonging to their organisation and identifying with its goals (The 2003 Towere Perrin Talent Report, 2003) Engagement is about each individual in an organisation working

to support corporate goals. Engagement is a behaviour brought about by the environment created within an organisation which sustains it. This can be a positive reciprocal situation for the individual engaged employee and the employer, as engaged employees are happier at work and consequently more productive, and lead healthier lives. Research in this area demonstrates positively that individuals improve their psychological well being when they are working at what they see is meaningful to them. This provides positive emotional experiences for the worker and improves problem solving and decision making. As our working lives extend with growing longevity, people will want a greater sense of wellness at work. The Gallup Organisation has done much research in this area. The Gallop Organisation report "eighty six percent of engaged employees say they very often feel happy at work, as against eleven percent of the disengaged. Forty five percent of the engaged say they get a great deal of their life happiness from work, as against eight percent of the disengaged" (Gallup, 2006, p. 30). In 2006 Gallup analysed data from three hundred and thirty two organisations, representing a total of more than 4.5 million people, and they established a correlation between employee engagement and earnings per share for a given organisation (Gallup, 2006). The challenge for organisations is to drive employee engagement down to the lower levels of employees in an organisation. It is clear from the evidence collected that reducing distress levels in the workplace would have a positive influence on engagement.

The economic case for engagement is advocated by Dr. Val Kinjerski in her book "Rethinking Your Work" which was sponsored by the Chartered Institute of Personnel and Development (CIPD). She came to the following conclusions:

For the organization:

- Engaged employees perform better.

- Engaged employees are more innovative than others.
- Engaged employees are more likely to want to stay with their employer.

For the individual:

- Engaged employees have greater levels of personal well being
- Engaged employees perceive their workload to be more manageable than others

This kind of information reinforces the need to educate workers to look at work as a positive attribute to their well being (Kinjerski, 2010). A study undertaken for the British Association of Counselling and Psychotherapy by Professor John McLeod concluded that "workplace counselling reduces sickness absence by twenty five to fifty percent, and is effective in bringing down stress levels in the workplace by addressing symptoms such as anxiety and depression". It also reports that workplace counselling interventions are highly effective in reducing symptoms of distress and improving well being (VHI, 2010). A number of research studies show that there is a direct link between levels of engagement and organisational success. Human resource departments that show a strong focus on people and their emotional states have demonstrated a significant impact on improvements in productivity, satisfaction and financial performance (Kular, Gatenby, Rees, Soane, & Truss, 2008). So stress prevention training, in whatever form, would also lay foundations for the organisational success. It is the individual employees who decide between doing their best, or just meeting expectations, which will influence an organisations success and profitability.

2.5 Occupational interventions for distress

Because of organisational downsizing to meet the global economic challenges, there has been reduced job security and increased instability in the work place for some employees. An increasingly changing workplace, through globalisation, out sourcing and technological

change, has resulted in the character of work becoming more uncertain. Many workers having to learn new work procedures, complete multiple tasks, have less direct supervision or support, and need to be reemployed more frequently (Kendall, Murphy, O'Neill, & Bursnall, 2000). There are a number of stress management theories that can be applied to training so different methodologies for interventions are used depending on the environment. Interventions in stress management are typically categorised into three approaches these are primary, secondary, or tertiary (Kendall, Murphy, O'Neill, & Bursnall, 2000). See Table 1 for an overview.

Table 1 Overview of Work Stress Interventions

Level	Primary prevention	Secondary prevention	Tertiary prevention
Organization	Improving work content Job re-designs Risk assessments	Improve communications Management training	Vocational rehabilitation Job redeployment
Individual	Time management Interpersonal skills Organisational skills Rehabilitation after sick leave	Peer support Coaching Career planning Counselling	Stress assessment Psychotherapy Classroom stress training.

The above grid is from (Caulfield N. , Chang, Dollard, & Elshaug, 2004)

Hence in this review it is clear that most interventions have been directed mainly at the individual rather than the organisation. This may be because it is difficult to undertake empirical studies at the organisational level because of the multiplicity of confounding variables. Most interventions are under taken because of the importance of occupational stress issues and the human and financial costs that this causes to business, society and the provision of health services. For example, a recent survey among sixteen thousand workers in a number of industrialised countries showed that thirty percent reported work place problems as the primary source of their poor health and the need for sick leave from work (Caulfield N. , Chang, Dollard, & Elshaug, 2004)

There are differences in stress management interventions depending on the theory being used. Stress management training programmes are typically classified in these three areas: primary, secondary, and tertiary approaches, which include organisational or individual interventions. It is difficult to get a clear indication as to which approach gives the best outcome because of the multi variant nature of work place distress and its causes. A review of stress interventions reanalysed fifty three published training studies conducted between 1993 and 2003, in Australia. They concluded that organisational interventions were poorly researched, and it was difficult to find studies to support these interventions. In addition, most of the research was done in the public sector. This may be because corporate bodies may see the results of such research as having commercial sensitivity and therefore do not publish the results. There are many reports that show the enormity of occupational stress issues and the effect this has on human and financial costs that this incurs (Caulfield N. et al. 2004).

It is difficult to identify one type of training that shows long term improvements. The best results appear to come from individual interventions. Individual treatment has a high cost in terms of time and money. Given that stress related workers' compensation claims continues to increase, which increases insurance costs incurred by employers, there must be a point at which the cost of elearning is justifiable. This reinforces the need to research and evaluate work stress interventions to find out which types of training produce the best results. By publishing the findings this can improve the understanding relating to stress management. Other organizations can gain insight into programmes that work and champion the introduction in their organisations (Caulfield N. et al, 2004). A meta analysis was conducted by Richardson and Rothstein to determine the helpfulness of stress management training in an organisational settings. They examined thirty six experimental studies, representing fifty five training intervention types. The type of interventions reviewed were; cognitive, behavioural, relaxation, organisational, and multimodal differing combinations of training.

The analyses on these group combinations show that intervention played a part in reducing distress within the participant groups. They found that cognitive and behavioural modification programmes consistently produced better results over other types of interventions. They also found that the fewer components which were used the better the results (Richardson & Rothstein, 2008). This would be supported by learning theory in general. The training of relaxation interventions to individuals was the most frequent, but organisational interventions were scarce and were poorly reported making conclusions difficult. The variables measured were mainly of psychological measured variables, as opposed to physiological or organisational measures. According to the researchers, measures such as treatment length, stress inventory outcome variable, and occupational type, did not produce significant variations, by intervention type or combination of interventions (Richardson & Rothstein, 2008). The reviews conclusion was that interventions combining cognitive and behavioural modification techniques had the best results over all. It is suggested that the individual has to take a more active role in cognitive behavioural modification which requires active mental participation, where as relaxation and meditation techniques are more passive activities which only work on the autonomic nervous system alone, and therefore have less effects in the long term as people give up the practice. The mata analysis study found a counter intuitive finding in that the more components that were added to a cognitive behavioural intervention, the less effective it becomes in the long term. Simple and more direct cognitive behavioural interventions were found to yield better results in the long run (keep it simple stupid "KISS") (Richardson & Rothstein, 2008). A study by Eisen, Allen, Ballash, and Pescatello (2008) compared a face to face classroom stress management intervention with an elearning based self paced training. Their study found that individuals in the elearning group reported less dramatic reduction in their subjective distress than those in the classroom group. The reduction in distress on the elearning training was

still highly significant. The elearning interventions need not be to the standard of face-to-face interventions, due to the advantages of personal interaction between group members in a classroom setting. When one considers the cost reduction in elearning based self paced training and the number of people who can be trained these limitations would be acceptable as the difference with classroom training was quite small. This shortcoming may be alleviated by encouraging participants to collaborate using blogs, wikis and group messaging software while taking part in an elearning intervention. Nevertheless, web based interventions provide a more cost effective and accessible intervention which can attract a very large audience, and these kinds of elearning programmes can be repeated when necessary. Elearning can train a large number of individuals at the same time, thus impacting the organisation as a whole more consistently. The results suggest that elearning interventions may be a valuable and cost effective way of reaching those workers who do not have access to a face to face programme because of time, location and work issues. But one limitation is the dropout rate compared with face to face training (Eisen, Allen, Ballash, & Pescatello, 2008). In a follow up discussion with the workers who did not complete the elearning intervention provided additional insight into their high dropout rate. Time restrictions, dislike of the computer format, and technical glitches were cited by thirty two percent of the participants who gave their opinion on the learning. It would seem that the increased flexibility afforded by the computer format actually may have made it more difficult for participants to allocate time to complete the lessons, compared to individuals in the classroom groups who know they have to set aside particular times for their class time. Henderson (2003) wrote that the efficacy of computer lead learning depends upon having individuals who must be more responsible for their own learning, than would be the case in a face-to-face environment (Henderson, 2003). In addition Diaz and Cartnal (1999) found that individuals with a more independent learning style gravitate toward computer lead learning, while those with a more dependent learning

style prefer classroom learning this can be related to internal versus external locus of control individuals (Diaz & Cartnal, 1999). Therefore, it is important to integrate collaborative learning options to form a group dynamic similar to classroom training for some individuals. In another study by Shimazu, Kawakami, Irimajiri, Sakamoto, and Amano,(2005) the main purpose was to determine the effect of a web based psycho education programme of employees reaction to self awareness, problem solving behaviour, distress responses and job satisfaction. This study was clinical trials using data collected from a normal population in the workplace. The programme had a retention rate of ninety eight percent which was an excellent result. The main findings following that elearning training intervention, for one month, was: increased self efficacy, and increased job satisfaction. There was no increase in problem solving or distress response. Given the technology at that time, the material presented was text and graphic based, therefore, this retention rate was a remarkable achievement (Shimazu, et al., 2005). Today's multimedia technology could have more impact in this area of elearning in stress management programmes. Their conclusions were that this study provided evidence that web based psychological education is a good tool for individual self paced learning on self efficacy and job satisfaction, and that programmes which use collaborative cues and encourage group participation would improve the situation. In another intervention undertaken by The Centre for Mental Health Research at The Australian National University in Canberra they produced a web site called MoodGYM, http://moodgym.anu.edu.au. In the first six month period of operation there were over 80,000 hits and seventeen thousand separate logon sessions. They reported that twenty percent of the sessions lasted for more than sixteen minutes. The students had the opportunity to complete an initial depression and anxiety inventory. The students who completed the inventory on the web site showed symptoms of depression and anxiety which exceeded those in the normal student body within the university. They reported that for the students who interacted with

the elearning material, both anxiety and depression scores decreased significantly as the students completed the lesson modules. To quote their conclusions, "web sites are a practical and promising means of delivering cognitive behavioural interventions for preventing depression and anxiety to the general population" (Christensen, Griffiths, & Korten, 2002, p. 22). Another study showed that when participants self assessed their own stress levels using "Personal Stress Assessment Inventory by Herbert Kindler," (PSAI) the participants who showed an above normal stress level were more motivated to complete the training (Kindler & Schoor, 1991). Possibly this would be a good method for motivating people to use an elearning stress prevention product delivered via the web when people need to be motivated to interact with web learning. The potential to reach a large audience at low costs in the area of stress management or prevention training is a key driver in this study. Over the last decade large organisations have increasingly used occupational psychologists to intervene when individual employees show problems with absenteeism, alcoholism, drug abuse, or family issues that may affect job performance. These are reactive actions to individual problems. This is not the same as preventative proactive interventions as would apply in distress prevention programmes available through the organisation's elearning management system.

2.6 Employee Assistance Programmes.

Employee Assistance Programmes (EAP) is a work based programme or resource designed to benefit both employers and employees. EAP are providers of employee interventions to businesses large and small to address personal productivity issues by helping employees identify and resolve personal issues that affect their work performance. This is done by identifying programmes that would suit the individual employee to come to terms with and remove or reduce the problematic issue. This is part of a strategy to identify

problems and programmes to resolve workplace issues. The EAP activity improves employee and workplace effectiveness through remedial actions. It has become a useful tool for maintaining and improving worker health and productivity. These programmes can help retain valued employees, and in easing the return to work after long term illnesses or injuries. This type of Illness absence can be more common in the older worker or senior executive. In most cases, the employee has been referred to the EAP service by a line manager, human resource department or the occupational health office. This usually follows a performance problem. There is then an assessment and treatment plan which the employee must agree with.

EAP programmes have been shown to improve work place performance by the following:

- By decreasing absenteeism rates in the organisation.
- By reduced accidents and workers compensation claims.
- By enabling better employee retention and reduction in labour disputes.
- By reduction in medical insurance costs for employers.

(Office of Disability Employment Policy U.S. Department of Labour, 2000).

Some working environments are pushing some employees to their limits of endurance and competence. Therefore organisations have sound business reasons for having EAP's, the return on investment (ROI) generated by EAP's funds these activities.

Organisations generally take on Employee Assistance Programmes in order to maintain a productive working environment by reducing absenteeism and increasing employee supports for a period. The main purpose of an EAP is to retain the mental health of employees in order to contribute to the growth and well being of the organisation. EAP's programmes are like having health insurance cover. It provides for employee treatment programmes in the case of mental illness, stress related illness such as drug and alcohol

addictions. It includes family related stress, marital problems, bereavement counselling and therapy (VHI, 2010). These programmes have proven effective for the ongoing cohesion and the sustaining of staff commitment to the companies. This type of commitment to well being is seen by other employees as a positive company attribute and this can increase general employee commitment to the organisation.

The objective of an EAP programme is to diminish the amount of time employees are absent from the work place due to illness, and to ensure that when they return they have the physical and mental competence to do so (Top 10 reasons why your company needs an Employee Assistance Program). These programmes help people respond better to work stressors or personal stressors, which can manifest themselves in the workplace. One example of an employer's commitment to employees well being is the UCD Human Resources Acmhainní Daonna UCD. They have a statement of their recognition for EAP programmes in their organisation. The following is their policy statement:

"University College Dublin values all employees and is committed to assisting its employees maintain a high level of well being, and achieve both organisational and personal goals. As part of this commitment, the University recognises the need to provide adequate support for employees experiencing personal or work related difficulties. The provision of an Employee Assistance Programme (EAP) will facilitate the early intervention and referral of employees whose work performance is affected by personal difficulties" (Employee Assistance Programme Policy, 2009). EPA programmes are mostly provided by an external organisational psychologist who facilitates a face to face stress coaching programme for individuals with clinically identified stress problems. They can also be referred for treatment by a general practitioner or through occupational health nurse or work place manager. The focus of the face to face coaching sessions is to seek to give the employee sufficient coping skills and behavioural strategies to allow the worker to be reintegrated back into the

workplace where normal work performance is resumed. Unfortunately people have to become sick or distressed before they are referred to an EAP programme. Prevention programmes such as classroom training is in the most case is too costly to cover everyone in a workforce. Therefore, if preventative programmes were developed using the latest technology, this could have a preventative function in the reduction of people needing EPA programmes. EAP programmes are also used to fulfil the employers' responsibility to insure a safe working place for the worker. Most large companies subscribe to an EAP programme as part of their human resource policy. In general EAP programmes are focused at treating illness when it occurs rather than advocating preventative measures for the whole working population in an organisation.

2.7 Employer's Liability

The substantial cost to organisations of distress and depression in the workplace was the reason of a major awareness campaign undertaken by the Mental Health Association of Ireland (MHAI). This campaign was announced at the start of World Mental Health Day 2002. It goal was to raise awareness of the dangers of distress in the work place. According to Brian Howard, chief executive of the MHAI, "stress and depression are major sources of disability, not only in the workplace but also in the home. The impact of the loss of productivity and employee disability is huge". A recent publication in 2000 by the Society of Actuaries in Ireland found that stress related disability is a major cause in disability claims over the last four years. Mr. David Herney and Mr. Ivor O'Shea senior members of S.A.I. reported the top causes of disability claims were coronary hearth disease, back or muscular skeletal disease, and mental illness. (Workplace stress 'a major source of illness', 2000). Even in the last decade distress at work was seen as an economic drain on society. Stress has

been described as the "20th Century Epidemic" by the World Health Organisation. The statistics show that four out of five people are affected by stress disorder and one in ten people will become clinically ill because of it over their life time. It is estimated that this costs the Irish economy ten percent of its gross national product because of loss of production and increased insurance claims (Ryan, 2005). The Irish Health and Safety Authority define stress as arising; "when the demands of the job and the working environment on a person exceeds their capacity to meet them". This definition is open to differing interpretations and as a consequence, forms the basis of litigation in stress related illness claims. A personal injury claim is an allegation that the employer has failed in his duty of care to the worker in the work place. The employer must take reasonable steps to protect all employees from injury and to protect them from reasonably foreseeable risks arising from their employment. If an employee suffers an injury or progressive illness as a result of the employer's negligence, and if the employer should have been expected to foresee or be informed of the risks that could arise, then the employer is vulnerable to litigation. This places responsibility on employers to be watchful of the signs and behaviours of mental distress in their employees, and to keep themselves informed and up to date with the latest human resource practice in handling workplace distress. The legal difficulty for the employer is that they should be fully informed of the psychiatric investigation, and employee assistive programmes undertaken by the Human Resources or Personnel Departments when situations arise. They should pay attention to sick notes when marked depression or anxiety and they should have a policy to minimise the risk of litigation due to stress related injury. These situations cannot be ignored as ignorance is no defence in legal terms. The solution in some cases may require less responsibility or a move to a less well pay position, which could be unpleasant for an ambitious employee impatient to improve his or her earning prospects. The employee may well be willing to risk his or her mental health by over working and risking burnout to prove

his value to the organisation or because of financial commitments in his personal live style. (Morgan, 2005). Introducing distress prevention programmes will reduce the risk of illness claims due to work related distress, as the organisation will have taking proactive and affirmative action to reduce distress in the workplace and to educate the worker to alleviate the effects of increased work place demands. A reference from the bar review supports the view that psychological injury in the workplace will be measured in the same context as physical injury in the workplace when claims for personal injury is taken to the Irish courts (Dunne, 2000). A decision reported in 2008 which brought to the fore employer's liability for distress caused by workplace bullying was the case of *Quigley v Complex Tooling and Moulding*. Mr. Quigley. Mr. Quigley received a sum in excess of Seventy five thousand euro for psychiatric injury suffered by him as a result of his employer's neglect in breaching of the employers duty to prevent workplace bullying by other workers. As reported in the judgment Mr. Quigley claimed that he was subjected to a campaign of harassment, bullying, humiliation and victimisation. He gave evidence of having been subjected to unnecessary inspection and unfair and unreasonable treatment by management. Mr. Quigley claimed that, despite bringing this to the attention of the company and complaints about this behaviour, the company failed, refused or neglected to take any reasonable steps to prevent or stop it (Harassment, Bullying and stress, 2006). In *McGrath v Trintech* case the employee was employed in the role of Senior Project Manager in April 2000. With in the first two and a half years with the company the defendant had recurring periods of ill health and required medication each time. There were particular occurrences in autumn of 2001. It was reported this arose after a difficult assignment in Korea, in April, 2001. Following this Mr. McGrath claimed damages for personal injuries, which he alleged he suffered as a result of occupational distress due to the difficulties of the assignment. The legal argument was that Mr. McGraths employer was in breach of its duty of care under to the Safety, Health and

Welfare at Work Act. The judge found against Mr. McGrath, but asserted she had no difficulty with the argument that the Safety, Health & Welfare at Work Act covers mental health and psychological injuries (High Court of Ireland Decisions, 2004). In the McGrath case the defence stated that stress was part of corporate culture and applied to all its senior employees. Stressful conditions were not imposed intentionally on Mr. McGrath or directly through failure of the system of management in the company. If stress is seen as part of corporate culture or an inherent part of the jobs, the employer is not obliged to protect their employees from working in a stressful environment. The employee in this case has the responsibility to take action to control his stress or remove himself from his job. In conclusion from the literature discovered an employer's liability in the case of workplace bullying, harassment and distress for injury claims can be justified when an employer was conscious or ought to have been informed that the workplace was causing distress or that the employee was being victimised by other employees. This evidence suggests that employers should take stress prevention programmes seriously, as bad publicity along with legal costs could damage the organisation. Another case which was reported in the Irish Times on 28th of April 1999 was the Quinn v Servier Laboratories (Ireland) Ltd. In this case Mr. Quinn claimed for work related distress injuries. A settlement was made for a sum in the region of £200,000.00. The claimant was employed as a salesman who had two nervous breakdowns in 1994 as claimed due to work pressures and increasing sales targets. There is a well established case law showing that employers can be liable for distress resulting in mental injury. If it is accepted that there are clear issues of neglect, evidence of overwork, and if complaints by the employee have not been responded to, then the employer is vulnerable to liability claims. It is possible that if an employer provides a stress reduction programme for all the employees and has a stress management policy in place, then the employer would be reducing employees' probability of a successful legal challenge for distress related injury.

Stress management training provided through elearning could be a possible solution to litigation claims.

2.8 Elearning Strategy

The difficulties facing Irish employees now are well known: decreasing resources, increasing pressures to perform, cognitive overload, and increasing uncertainty. Organisations need mentally sound individuals throughout the organisation to cope effectively with business demands and recovery plans. Mentally sound employees have better communication skills, better decision making capacity and have a clearer perspective of the future. People under stress fail on all these three parameters (Jones, Yoon, & Kim, 2009). Also, employee engagement is the level of commitment and involvement an employee has towards their organisation and its values. An engaged employee is conscious of business goals, and works with colleagues to improve performance for the benefit of the organisation, themselves and others. Stressed employees do not have the resources to commit to organisational engagement. For example, Aon Consulting reported in a recent research study of 1,800 workers that employee commitment is declining in every industry, age group, income groups and job classification. The Gallup organization reported evidence of declining employee engagement also. In a major survey they found only twenty percent of employees considered they are actively engaged in their work, which is a positive emotional state towards their work activity. Studies have shown that stress has a negative influence on engagement (Nowack, 2009). People need information, knowledge, and skills to do a good job, but they need more than just content; they also need interactive support, communication, and engagement which require a positive emotional attachment to work and the organisation. These needs have little to do with training, but more to do with personal development and

growth programmes. They have a lot to do with learning for performance improvement and positive behaviour at work. In these recessionary times it is important for organisations to plan their way out of recession using a constructive strategy that motivates people and set the goals for recovery. Organisational knowledge, learning and performance needs to be improved if organisations wish to succeed. Also, the employee's emotions attached to disappointment, change, uncertainty, and negative organisational subliminal suggestions need to be addressed. If the workforce can be motivated to engage with the process of reconstruction and resilience, then the company is likely to succeed (Welling, Bernthal, & Phelps, 2009). Behaviour change requires a long term strategy of learning within an organisation. There is a new term called the "smart enterprise" (Rosenberg, 2006). The smart enterprise is conceptualised as constantly learning and re-learning to adapt and succeed in the face of challenge. This are some pertinent quotations; "E-learning is not e-training, it is too important to be limited solely to instructional solutions" (Rosenberg, 2006, p. 8). Employees in the smart organisation need to be continual re-education to meet the changing business environment. Alvin Toffler the writer and futurist known for his work discussing the digital revolution is quoted in Rosenberg as saying, "The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn". According to Nancy Austin, co-author of A Passion for Excellence: "The Leadership Difference" she said that the "The problem is not how to get new thoughts into your mind, but how to get the old ones out" (Rosenberg, 2006) This could be said of cognitive behaviour therapy also as it normally focuses on removing older less useful thinking and replacing it with more adaptable thought patterns.

The smart organisation uses new technologies to communicate and distribute new knowledge around the organisation. This type of organisation focuses on helping people to

increase individual performance. Elearning advocates make several significant claims about the benefits of elearning;

- Elearning saves time without reducing learning benefits;
- It reduces travel costs;
- It minimizes time away from work;
- It can meet the needs of dispersed employees;
- It provides consistent course delivery;
- It allows for repetition, reflection and reengagement with the learning material. (Rosen, 2009)

Within the elearning for hard skills and meeting government regulation, elearning should also be used to give people emotional support and create a climate of community within the organisation. Marc Rosnenberg calls this a culture of openness which encourages knowledge sharing and the free flow of useful information through the organisation. According to him "when people seek security in the information they hoard or are fearful and anxious that sharing diminishes their usefulness to the organisation, the organisation can't grow" (Rosenberg, 2006). This type of behaviour is typical of distressed people.

"The context of business learning is changing due to the no time to spare pace of today's work environment. Event based or just in case learning is no longer adequate; new employees need knowledge, data and tools integrated into the workflow so that it is available at the moment of need" said Gloaia Gety (Rosenberg, 2006, p. 205)

With this type of pressure, it is inevitable that a percentage of people will fall victim to the effects of distress. Rosen assesses elearning and expands it to encompass webs 2.0 architecture. Rosen calls it elearning 2.0. According to Rosen elearning should have the following characteristics:

Provide just in time training

Learning Objects should be a resource, not a onetime event.

Run smoothly on any configured device PC to Iphone to Ipad.

Incorporate best of breed web design and instructional design.

Be a repetitive resource when the learner wants to access it (Rosen, 2009).

So content and interface design should make it easy for the user to commit to the continuous learning (Rosen, 2009). Elearning seems to resolve the learning problems for some learners, but the downside is drop out rates are higher than for face to face or classroom learning. This is a serious downside of elearning implementations. Some people need social interaction and prescribed attendance schedules, or they lose interest when they are placed in an environment which lack socialising activity and a compulsion to attend a class at particular times. According to Vicky Phillips, founder of Geteducated.com, a consulting agency for distance educators, states that "the online student dropout rate is around 35% and the average attrition rate for college freshman at U.S. universities is around 20%. These higher drop out rates are usually associated with the differences in the learners' psychology" (The Virtual Classroom Vs The Real One). This can be associated with a psychological term called "locus of control". Internal locus of control people as opposed to external locus of control people can maintain the drive to work their way through courses without being lost or cut off to the point that they stop working on the lessons or seek help from others. On the other hand people who have an external locus of control generally need some direction, they prefer the use of blogs, wikis and forums. Also collaborative cues and activities can improve retention rates for these people. If organisations use a bit of compulsion by having employees complete a test when employees complete training, it can overcome the problem of drop outs. An example of a long term strategy is Motorola's commitment to corporate learning. Motorola

created the Motorola University as a training platform for the whole organisation's top management in 1981. One of the main learning functions was the development and dissemination of the emergent Six Sigma process as a new business management strategy. Motorola's motivation was for a quantifiable improvement in the quality of its products and performance of its operations by re-education and harmonising organisational thinking. Faced with increasing competition this has become an example of unlearning and relearning in a larger organisation. The impact of Six Sigma on Motorola business performance has been impressive and well documented. The Six Sigma methodology has been successfully adopted by many other large organisations. It has accounted for Motorola's continuing profitability over the last decade. This is an example of goal directed strategy of continual re-education of employees, through the media of elearning as advocated by Mark Rosenberg. According to Motorola the Six Sigma programmes are a methodology for planning for success, a way of measuring and managing for success and a way of improving communications for success, at all levels of an organization (Motorola University, 2008). The Six Sigma programme has been delivered via elearning from CD rom to the latest internet technology. Motorola has learned the importance of continual development of employee skills, respect for people and giving them the resources to do a good job. In recent times they have included well being programmes into the employee training strategy for the organisation. There are reports and many other articles showing how other major U.S. corporations are improving productivity and reducing costs by implementing wellness programmes for their employees through education. This gives substance for the recognition of the importance wellness programmes have in both developing a highly motivated workforce and retaining quality employees. This has motivated Motorola and other large corporations to implement a company wide long term strategy for wellness for employees (Health Promotion at Motorola). Learning the skills to cope appropriately with job stress can

be as important as learning the skills that a Six Sigma programme can endow in a company's financial performance.

Elearning opens the opportunity for the corporate elearning strategies to include personal development programmes, in order to prepare their employees to retain the mental stability to succeed in maximising profits and market share. Given the economic downturn, many companies have down sized the workforce by up to thirty percent from staffing levels over the last two years. Companies have also reduced senior management salaries by 10 percent and have implemented a salary freeze into the medium term (3 years). Bonus payments will be more diligently scrutinised into the years to come. All these are threats to people's needs as described by Maslow's hierarchy of needs. It is with this background of deprivation that an elearning strategy for staff engagement and stress reduction would be opportune. For any elearning programme to work, the company's senior managers must engage in active staff encouragement to participate in these programmes. There must be a clear business case established for the possible return on investment for such training. Elearning products can be a solution to the problems of disengagement, distress, and the reconstructing of organisational commitment. Engagement is characterised by a positive, fulfilling, and affective motivational state. It is a state of eustress and of work related well being that includes dedication, absorption and focus on confronting work challenges. There are different views of work engagement. Most psychologists agree that engaged employees have high levels of energy and identify strongly with their work, but at the same time have a good work life balance. A measurement instrument to measure engagement is the Utrecht Work Engagement Scale, a self report instrument that has been validated in many countries across the world. Research on engagement has investigated how engagement differs from related concepts such as work obsession, and has focused on the most important predictors of work engagement (Rasmussen, 2008). These studies have revealed that engagement is a clear

concept which is a good predictor of a good work environment, where profit can be generated. Engaged workers have more optimism, self efficacy, self esteem and self awareness, which translates into effective decision making and communication resulting in less conflict. Studies have shown that work engagement is predictive of job performance and business success (Bakke, Schaufel, Leiter, & Taris, 2008). The Confederation of British Industry (CBI) produced the following: "Employee absence and turnover have been identified as causing significant costs to business. Absence continues to cost British business over £10 billion a year. Labour turnover has increased to 17.9% in 2000. The average cost of absence per employee for the survey year was £434" (The Business Case for Stress Management, 2009). Employees who lack physical and mental fitness are more likely to be ill more often and recover more slowly than employees who are physically and mentally fit. Organisations have to find new ways of doing business at every level, in order to derive a more adaptive business model. The concept of job security, as it has been, is now redundant. Job security into the future will rely on employees and organisations adapting faster to market shifts. Employees and organisations will have to up skill and adapt constantly. People need to be more intuitive and communicate better to be able to adapt quickly to the needs of the market place (Adams, 2007). Training is not enough elearning is about helping people to perform to the best of their ability within the smart organisation (Rosenberg, 2006). At this level of elearning, behaviour change is required. Positive behaviour means less indecision, more co-operation and more trust in the team, in order to find the correct solutions that will last the test of time. The way to do this is through using positive psychology at work. While reconstructing the organisation, we need to think of the employee's emotional reaction to these changes. The return on investment includes the increase in employee engagement. Research shows that this is fundamental to organisational success. The long term bottom line figure is the reduction seen in absenteeism and legal claims associated with employee

sickness and injury. A conservative view of the published data indicates that twenty two percent of group health insurance costs are stress related and that psychosocial stress has been estimated to be responsible for thirty three percent of worker compensation. It has been reported that, "Job distress comes with a substantial cost, costing American businesses more than $300 billion a year. That is according to reports from the American Psychological Association" (The business case for stress management). GlaxoSmithKline developed a long term strategy to offer employees stress reduction programmes using stress reduction class room interventions. They developed a programme called "Team Resilience"; which they deployed on a phased basis in the organisation. According to them this resulted in sixty percent decline in work related health problems in employees, and a twenty nine percent decline in days lost because of mental health issues related to work distress. Within five years, the company realised stress education made a measurable positive difference to the bottom line. This is an example of good learning strategy taking the long term view. GlaxoSmithKline now use elearning strategies to continue this progress as part of employee training. By linking the learning strategy to business strategy, this strengthens the senior management's acceptance that there is a return on investment for the organization. It is essential to link learning goals to business goals to ensure the success of the entire learning programme, and to have continuing support from management. (Pervenanze, 2004). People can learn to adapt and change their emotional responses to stressors if given the opportunity. Another study published data on the outcome of a stress prevention programme called "Learn Young, Learn Fair" developed by the university of Maastricht. This programme was designed teach fifth and sixth grade children about the causes of stress, coping strategies to apply when stressed, anxiety and depression symptoms that might occur when they are distressed. This involved fifty two schools and 1467 children. They tuck part in a clustered randomized controlled trial. Data was collected in the October 2002, May of 2003, and the October of

2004. A positive effect was found for an increase in emotion intelligence through coping and increased distress awareness in the children and adolescence. The conclusion was that the school based intervention "Learn Young, Learn Fair" helped the children cope better and understand distress symptoms and their causes. This programme indicated that educational interventions have a place in distress reduction (Kraag, Van Breukelen, & Kok, 2009).

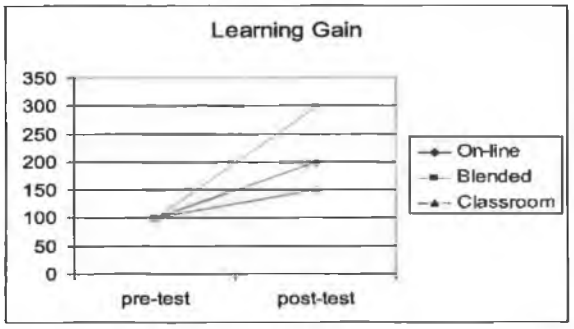
In a case study using meta analysis on nineteen international studies. The results of the analysis concluded that in general when worker participation is high and where there is clear communication between workers and management and with a learning approach to distress, there was a considerable absence of reported distress at the work place. The study also found evidence of an increase in productivity in the work place. This would suggest that a learning approach to distress and engagement would boost company performance (Karasek, 2004). A second practical example is Scottish Power which employs 9,000 people in the UK. They introduced a stress management strategy for the following reasons:

- To comply with the Health and Safety at Work Act 1974 and the management of Health and Safety at Work Regulations 1999.
- To reduce absence rate among workers.
- To introduce best practice in employee well being.
- The prolong benefits of the intervention with cultural change.

Scottish Power was looking for productivity improvements that would continued in to the longer term profitability of the company. They report that from the beginning of application stress prevention programme there has been an eleven percent decline in sickness absence among the work force. Over the three years of implementation of the initiative which was originally outsourced. Scottish Power now has internal personnel who have been trained in the areas of health and safety a long with occupational psychologists to develop and maintain a continuing program of education. This is part of their long term strategy to

maintain low distress levels within the organisation. They say in their report that all line managers and supervisors have been trained to spot distress symptoms in the organisation and the staff. These managers can act to rectify problems before they get out of hand. There understanding of the sources of stress and its management has been raised within the whole organisation. Line managers have been made aware of the behaviours which identify distress symptoms in workers and also take actions to prevent distress occurring within their team.

This shows that a long term strategy of intervention in stress management training can have considerable commercial advantages. In their results they have shown that elearning was better than classroom training and blended learning was better than both classroom alone and elearning alone. They have published this graph to indicate how successful the three types of training compare with each other



(ScottishPower, 2007)

In the case of Scottish Power their strategy spanned five years and progressed from traditional classroom training to blended elearning. It was important to include line managers who play a vital role in managing and recognising distress in the employees with whom they have daily contact. They say that line managers who have been trained to recognise the signs and symptoms of early stage distress, can take action to correct it. This shows that an elearning programme can have a place in stress management in making people who do not get stressed understand stress in others. Elearning interventions need to be tested to see if using the new technologies of multimedia can produce and provide a method of reducing organisational stress.

The University of Durahm commissioned a staff survey in November 2007 which covered many areas from staff engagement to how staff felt about their jobs and the structures they worked under. One area that was identified was a high level of distress associated with their work experience. As a consequence the university commissioned two eLearning programmes on stress management from an eLearning provider. One helped the staff to learn the psychological concepts of stress and it origans and systems in the body. Then to look at ways the staff can reduce distress by using a variety of remedial tools. The other product looked at how the managers of departments could manage to reduce distress levels within the work place by reorganising their methods of management to minimise distress. This included training on how to spot signs of distress in their staff and what steps to do to minimise it. These training or information packages were available to all staff via access to by a web ling to the Human Resource website and via the Occupational Health and Safety Office. There was an active campaign by the HR Department to get all staff to complete these programmes. (Stress Management E-learning Courses for Staff, 2008). In such programmes the learners learning style and cognitive traits have to be taken into consideration when designing the actual learning material. The learner can use audio and visual channels for information processing. Some people are more comfortable with text and others more comfortable with audio. Just as in a classroom setting, the trainer uses both channels to impart and encourage learning. The cognitive style of the learner can effect whether the learner will use web based learning. The more self directed or independent learner will use the web and the less self directed learner will like having to attend a classroom at a fixed time. So web based training has to be designed with this in mind. (Grafa, Liub, Kinshuka, & Chenc, 2009). One of the drawbacks in elearning programmes is learner retention. The conclusions from a typical case study into elearning outcomes were as follows;

This company who had more than 5,000 staff who were located in a number of states in America undertook a fourteen month procedure of collecting data to evaluate an eLearning training course effectiveness. The research showed that only twenty one percent of the staff who enrolled in the online educational programme completed the programme. They found that the failure of staff to complete the programme was not due to the training material itself, but there lack of free time in the work place and in their personal life was the main factor. People in today's environment have many distractions that demand their attention and time. Other factors sited in the study were low moral and high staff turnover (Long, Dubois, & Faley, 2009). The internet is changing the means by which people learn, work, and access knowledge. People are turning to the web for their learning needs due to the flexible delivery system and the convenience it offers. A methodical review of survey data reporting of British health care professionals' use of on line learning programmes showed there was a high level of learning conversion on the part of the learner. The courses were all stand alone training material for professional development for health care workers. There were five primary themes of factors which emerged as the key to information trance fare and these were; appropriate peer communication or a credible information source, interface flexibility and navigation, the course design and presentation pace, and the motivational content. This demonstrates that on-line learning is dependent upon the learners experience when interacting with the material. Elearning programmes need to be cognisant of the following areas when designing training material; presentation and course design, navigation must be easy to use (simple), allow for help menu support, have effective means of communication if queries arise for the student when using the material, and incorporate the ability for collaboration among students (Carroll, Booth, Papaioannou, Sutton, & Wong, 2009). Management support and encouragement can increase retention; in the case of stress prevention, human resource departments could provide motivation and incentives for employees to complete this type of

training. Elearning can enhance the competency of employees in up skilling, and aid knowledge management and information flow within the organisation, thereby boosting productivity, innovation and the spread of best practice. Elearning has been shown to be a good investment that gives a good return on investment (THINQ's, 2009). While the range of training available is primarily about new procedures, regulations and management techniques, there is also the need to communicate organisational cultural values and motivational information to keep the employees engaged and focused on long term organisational success (Armstrong, 2006). Helping organisations to become less stressed facilitates for better decision making, communications and content work force. This review was designed to investigate if an elearning educational stress prevention programme has the potential to improve organisational performance. The review would support the study hypotheses.

2.9 Summary of the Literature Review.

There has been considerable research into the effects of distress on human beings. In the last decade, the area of positive psychology has come into existence. Positive psychology is not about curing people, but rather educating normal people to have an optimal and a happier life experience. It focuses on activities to keep people mentally sound and to help them become happier in themselves and reach optimal personal growth. When we combine mental health issues with social factors, then behavioural health interventions interact so as to intensify their effects on positive behaviour and wellbeing on all the community. Distressed people can gradually decline into much behaviour which can aggravate severe social problems such as drug abuse, family violence, and abuses of women and children. These are additional factors which cause health problems such as heart disease, depression, and anxiety.

These conditions are more common within social an economically depressed conditions. These arise from high job uncertainty, low income, high unemployment, limited education opportunities for people, distressful work and family conditions, to name a few. These conditions produce distress in the individuals which may emerge in unhealthy lifestyles. People need to be taught mental skills to overcome these problems and have a happier life experience over their life cycle. Because of the extent of damage, poor mental health can cause both physical and emotional. People need help to learn how to de-stress themselves. New learning strategies have to be investigated to see if they can counteract the negative threats to sound mental health and employee wellbeing, which current social and economic forces bring about. From the review there is promising support for the hypothesis that an elearning stress prevention programme can be one element in this retraining or re-education of the mind. This review gives examples of how research methodologies have been used in the past, and how these methodologies can be adapted for use in answering this research question. The literature review has shown the following:

Psychology relating to eustress and distress

This section shows the difference between eustress, stress and distress, and is underpinned by psychological theories and medical research. It has provided a clearer understanding as to what distress is and how a cognitive behaviour approach to learning can be used to reduce it.

Stress related disease

There is ample evidence showing the connection between long term distress and physical and mental illness. The costs in treating illness due to stress are not easily quantified in corporate balance sheets. Every country has difficulty meeting ever increasing health system costs. A preventative approach would be to educate people in how to reduce stress in their lives.

Work stress

This section shows how work is a very important part of human development.

It also shows how distress comes about through inadequate resources and training.

Trying to manage the intensification of work, job insecurity, and neglect of employee well being gives rise to threatening situations for the employee which increases distress for the worker.

Burnout

Burnout syndrome is part of the phenomena which comes about through long term exposure to distress. It is a particular problem within certain professions and job categories.

Educating people to have a more realistic expectation can avoid the drift into this condition.

Employee engagement

Employee engagement shows how engaged employees are more productive and happier in their work. Helping employees to be engaged can significantly improve the company's profitability. It also has the effect of reducing absenteeism and sickness among the employees. Successful organisations foster a strategy which encourages and promotes employee engagement.

Occupational interventions

Has shown how interventions targeted at the individual have better outcomes and that training in stress management can have long term positive effects. Stress management has to be a constant undertaking as part of the educational culture of the smart organisation.

Employee Assistance programmes

EAP programmes have become a positive intervention in maintaining the health and well being for employees in the workplace. Unfortunately, it only becomes available when the employee has developed problems. It is a reactive approach. The saying that a stitch in time saves nine is true when it comes to the costs and time involved in treating problematic employees. So preventative medicine is known to be a less costly option, and more preventative action should be taken in the area of distress at work.

Employers Liability

Shows how employers have a legal obligation to look after their employee's health and wellbeing in the workplace. This includes both physical and mental wellbeing. There is an increasing tendency to litigation in the area of stress related disease, and the monetary awards are increasing, as society becomes more accustomed to seeing the employer as having responsibilities to provide a safe workplace for their employees. Employers should implement stress prevention programmes as part of employee education programmes. There are sound commercial reasons for this.

Elearning Strategy

Has shown how elearning strategies have to take a long term view of work performance. It also shows how elearning, in both soft and hard skills, increases workers performance in the workplace by education programmes, which prepare the worker to meet the demands of constant change and work intensification. Elearning and blended elearning is becoming more capable of delivering a broad range of performance supportive educational programmes in the smart enterprise.

The review has also guided the research method, the measurement instruments and the approach taken to test the study hypothesis. The study reproduces and extends the procedures used to investigate the benefits of classroom training in stress prevention, but translated it in to an elearning environment (Shimazu, Kawakami, Irimajiri, Sakamoto, & Amano, 2005). There is evidence from the review that investment in training has substantial return on investment through greater productivity, and better decision making in the organisations who take the long term strategy in relation to staff well being The review has revealed that drop outs and retention rates in elearning training courses are a worry, particularly for organisations who are extremely fixed on return on investment for their organisation in the short term. While many of the issues related to dropout attrition have been widely analysed, what has not been fully researched are the reasons for leaving the training in the very early stages of an online learning programme. Simpson (2004), reports "that the experience of the UK Open University is that thirty five percent or more of elearners withdraw before submitting their first assignment". This reinforces that the learner's initial interaction with elearning material has a major influence on their decision to continue or not with the educational programme (Tyler-Smith, 2006). Understanding learner motivation and designing retention cues may alleviate this problem. According to new knowledge about how the brain functions is supported by Fred Travis neuroscientist. The following is a quote from a video explanation of brain functioning.

> "We need a healthy, integrated brain that can evaluate where we are, decide where we want to be, and then decide on the steps to get there." —Fred Travis, Ph.D., neuroscientist, director of the MUM Centre for Brain, Consciousness, and Cognition" (Travis, 2009)

The unstressed brain can do thinking more effectively than the stressed brain.

This supports the hypothesis that learning can be a preventative function in a well constructed learning programme to reduce the effects of stressors in life.

3.0 Hypothesis and Research Question

The research question is:

"Can an elearning educational programme reduce stress and increase employee engagement?"

This gives rise to the two hypotheses which are tested in this study. The first is that an elearning educational programme, designed to give information and techniques about eustress, stress and distress, will produce a better understanding of how to reduce and control distress in the learner's life, and consequently lower stress levels in the learner. This should be reflected in a pre and post questionnaire for stress (DASS questionnaire).

The null Hypothesis stress level is: μstress pre test = μstress post test

This is the correlation effect which is being measured as there are uncontrolled for variables in the study. The learned material may motivate the learner to take other actions in the area of stress prevention or management which will also affect the outcome.

The second hypothesis is that there is an inverse relationship between distress and employee engagement. This hypothesis will be tested with a pre and post test using employee engagement questionnaire. The test used will be the Gallup Q12 questionnaire.

The null hypothesis for engagement is: μ engagement pre test = μ engagement post test

Both of these questionnaires have high validity and confidence for what they measure. Both measurement instruments have been tested for reliability and validity in repeated studies in a variety of environments and have yielded consistent scores.

4.0 Method

4.1 Participants

There were seven male and eight female participants from a disperse work environment. They were self-selecting from a poster displayed at number of work locations in Ireland. The poster explained the purpose for the study and invited people to contact the researcher via email. There were no particular selection criteria.

4.2 Apparatus

The measurement instruments in the study were an online questionnaire which combined an employee engagement (Gallup 12) Gallup Organization's Q-12 Survey and the stress questions from (DASS) Depression, Anxiety, and Stress Scale. There was a five point likert scale for each question in the questionnaire. The questions for depression and anxiety were removed from the questionnaire, and only the questions relating to stress were used. There were 12 employee engagement questions and 18 stress questions used in the questionnaire. The online elearning material was located at www.stress-prevention-clinic.net/study. This was the elearning educational intervention. Visitor activity was monitored and tracked using StatCounter at http://www.statcounter.com/ see appendix E. The elearning material was located at www.stress-prevention-clinic.net/study see appendix C

4.3 Design

The study was a repeated measures design. The participants completed a questionnaire which combined questions on engagement and stress levels pre the learning intervention. The same set of questions were completed post the learning intervention. The independent variable or intervention was the elearning material on the web site. The dependent variable was the post intervention questionnaires. There was a four week intervention time for participants to engage with the learning material before the same

questionnaire was repeated. It was up to the participants to interact with the learning material at their own pace and frequency. No motivational interventions were used.

A paired sample *t*-Tests was applied to the participant pre and post test score to identify if any significant differences occurred to disprove the null hypothesis.

The null Hypothesis1 was: μstress pre test (group) = μstress post test (group)

The null Hypothesis2 was μengagement pre test (group) = μengagement post test (group)

4.4 Procedure

When the participants responded to the advertising poster (see appendix B) by emailing their request to take part in the study, the participants were then sent a consent form via email (see appendix A). After the participants had read the consent form and given their permission via email, they were then emailed a web link for the online survey (appendix D). They then completed the 30 relevant questions. The online survey captured the email address of the participant and his IP address. When they completed the questionnaire, an email was then sent to the researcher, with the email address of the participant and the data in the questionnaire. The participant was then sent the web address of the study website (appendix C). The participants generated their own four digit access code to enter the elearning site. Each time the participants accessed the elearning site, an email was sent to the researcher identifying the participant by the access code. This allowed for a form of anonymity and allowed the researcher to track how many times over the four weeks the participants accessed the web site. The tracking of IP addresses proved to be unreliable. There was another website called StatCounter.com which also tracks the general participant activity with the learning programme. Because the web site was flash it was not possible to track individual lessons only the amount of megabytes loaded. When the four week period was completed,

the participants repeated the same questionnaire. This was done by sending the participants an invitation from the survey site to complete the same questionnaire. The data was analysed using SPSS dependent sample *t*-Test to analyse the pre and post stress and engagement scores. This was done in order to identify whether a significant difference occurred, to enable an acceptance or rejection of the null hypothesis.

5.0 Results

A paired-samples t-test was conducted to compare stress levels and employee engagement in one group of participants' pre and post their interaction for a month, with an elearning product designed to inform and give techniques to reduce stress levels. The results of the data analysis are shown in Table 1. The t (6) represents the data of seven participants who completed both the pre and post questionnaires.

Table1. Show the mean and standard Deviation pre and post intervention analysis results.

Measured	Pre	Post		
Stress Level Mean	63.17	51.33	$t(6) = 4.34$	$p = .005$
Stress Level SD	10.41	8.77		
Employee Engagement Mean	32.86	35.00	$t(6) = -0.300$	$p = .776$
Employee Engagement SD	7.00	5.23		

In the stress results, there was a significant difference in the scores. The mean and standard deviation for the pre test scores was (M=63.17, SD=10.41) and post intervention (M=51.33, SD=8.77) conditions; this resulted in a $t(6) = 4.34$, $p = 0.005$. These results suggest the intervention of the educational material had an effect on reducing stress levels.

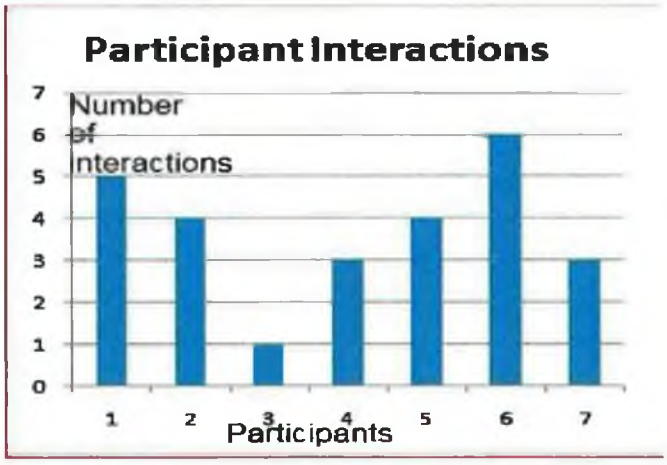
Similarly, a paired-samples *t*-test was conducted to compare levels of engagement for the pre intervention conditions. There was no significant difference in the scores as indicated by the p value $p > .05$. In the engagement results, there was no significant difference in the

scores. The mean scores and standard deviation were (M=32.86, SD=7.00) and post intervention (M=35.00, SD=5.23) resulting in a t (6)= -0.300, p = 0.776. These results suggest that intervention had no effect on changing engagement levels.

Analysis of Participants and Course usage.

Number of participants	Dropouts	Completions
15	8 (53%)	7 (46%)
7 male and 8 female	5 males and 3 females	2 males and 5 females

This shows that more than half of the participants did not complete the study and their data was discarded from the t-Test analysis. Five females (33%) and two males (13%) completed the study.



This graph shows how many times each participant who completed the study interacted with the learning material over the four weeks.

This bar graph shows the number of times a participant logged in to the course material over the period of four weeks. The average time spent per visit was 27 minutes.

6.0 Discussion

Implications for the intervention.

Because of the nature of work and the many interactions with people which are needed to achieve work place goals, the work place can be a stressful place full of ambiguity and uncertainty. The work place is also becoming more intensive and uncertain which is not in tune with human needs. This research study investigated whether an elearning educational product could help mentally stable people cope better and manage distress in the work place. Equally, it looked to see whether employee engagement would improve if distress levels were reduced. The hypothesis was that if people learn about how distress manifests itself, and are shown fully researched techniques to reduce the effects of distress in their lives via an online elearning educational programme, it would result in lower scores for stress, and higher scores for engagement after the intervention period. Organisations need people to be motivated to choose to exert more effort, and to persist in doing so until the organisational goals are attained. Therefore, low stress levels and high engagement need to be continuously developed and maintained through education. If ways of doing this can be delivered through elearning then performance improvements would follow. The study copied a previous study which showed significant improvement in stress reduction after a month long intervention in a class room environment. Classes were taken once a week for four hours. This study extended the method and design to incorporate web technology and to use an elearning environment. The study found a significant lowering in stress levels among the seven participants who completed the study. This supports the study first hypotheses, although all participants showed improvement in lowering their distress scores in the analysis this is not totally conclusive because of the low number of participants whose data could be analysed. There appeared to be no effect on employee engagement in the study. Perhaps there are other more long term mechanisms needed to increase employee engagement such as trust and security.

This indicates that there may be additional organisational factors needed to promote employee engagement. The study gives some indication that a repeat study, with the current limitations addressed, would have some merit.

Limitations of the Study

There were many uncontrolled variables in this study. Therefore a larger sample from a more homogeneous population could even out these extraneous effects. The intention was that if the participants actively interacted with the elearning material presented to them, it may initiate other activity to learn about how to reduce stress in their lives such as reading books on the subject or talking with colleagues about stressful issues. This is also possible in a classroom training environment where group relations are formed. The problem which is systemic in the elearning arena is high dropout rates for students. Reports have shown that institutions that use elearning material have dropout rates ranging from twenty to fifty percent for students when using distance learning. It is suggested that dropout rates are often only ten to twenty percent when classroom or face to face learning is used. This study showed that participant dropout rate was high at 56 percent of participants. There may be some information in the ratio of males to females who dropped out in this study. It is known that elearning activity is problematic in keeping people motivated to complete learning which is time consuming, and requires a number of interactions with the material. In the current work place environment people have less discretionary time to use for personal exploration and education. Having completed the study, there were a number of areas identified which could be improved upon in the future. There was a major problem in the method of participant recruitment, as this was by convenient sampling with no selection criteria, and participants were from a diverse group. In all cases participants were unknown to each other and because of this there was no

opportunity to use a collaborative learning approach which might have increased participant interaction and retention rates. Also, participants indicated their preference to remain anonymous as the stress issue was seen as a very personal issue for them. The results could have been more significant if the participants were selected from a larger sample size and then grouped by high, medium and low levels of stress from the pre intervention questionnaire. It has been shown in other studies that participants who know they have high levels of stress before their participation in a study are more motivated to complete the programme. Also, people using online educational programmes need a high level of self direction and motivation to persist and complete the learning. If the study was replicated with more participants and a better method of selection, then the results may have more significance and could be generalised to other populations. One additional scale, the Self-Directed Learning Readiness Scale (SDLR), could be used to see if this scale could predict the participants who will not complete the study. There were also technical issues for participants. If the participants did not have enough bandwidth, the video material would not run smoothly this may cause irritation. This could have been a de-motivational factor in some cases. Also, some of the participants did not have flash player 9 on the workstation or were restricted in what they could view on the workplace network one particular example was "YouTube". This was blocked by the company firewall. These problems could be overcome if the programme were supported by the employer organisation or human resource department. It is suggested that a blended learning approach could be taken in the future if an employer could sponsor the programme.

The Conclusions.

There is a key difference in employee development programmes as opposed to training programmes. Training has a more specific skills based outcome and direct

application in the work place. Stress management, emotional intelligence and regulation are more suited to an employee development programme which needs to be a continuous process of development over time and part of a long term strategy of improvement. Because this type of learning requires repeated intervention as people progress from beginners to mastery levels, therefore, an organisational learning management system is a natural place where this type of learning should reside. The organisation has to be constantly educated to the dangers of work place distress because there are always stressors inherent within the organisational culture. Because of the large waste of resources which distressed and disengaged workers represent for a large organisation, it is important to find educational methods which can remedy distress and lack of engagement in the workplace. This would be similar to society's educational response to smoking over the last number of decades. This study and literature review shows how important it is for the smart organisation to discover ways to help people reduce stress levels in the workplace. This could have major implications for the health of a nation and the losses in profitability of organisations as a result of absenteeism, lack of engagement and poor decision making with the consequential commercial risks. As the tools at the organisation are constantly improving through the use of technology these should improve the whole infrastructure for deploying and using learning technologies. The effect of this learning material is to get people talking about distress in the work place and to diminish the feelings of isolation and self deprecation that distress causes in the individual. Some times people equate distress with inferiority and incompetence. This would happen if people were not thought how to use a computer or understand the management structure in an organisation. Once people understand that there stress reaction was learned behaviour then they realise it can be unlearned and controlled. Research is needed to find ways current web and new emerging technologies can be used as one element in the quest for the stress less working environments. There are tangible returns on investment for organisations that

encompass stress prevention in their elearning strategy. Employee engagement can only come about when distress levels are minimised. The study results give some indication that eLearning has the potential to deliver stress prevention programmes that will effect behaviour change for the betterment of the organisation and its culture of long term success. Most large organisations already have the infrastructure in place for the business of doing business and communicating with customers and suppliers. So it would be easy to use this infrastructure to communicate through well designed elearning products cultural and human resource management information targeted at organisational improvement.

References

Adams, J. (2007). *The business case for stress mamagement and health protection programma in the work place.* Retrieved January 25, 2010, from http://www.odsummitindia.org/PDF/BusinessCaseforStressInterventions.pdf

Armstrong, M. (2006). *A Handbook of Human Resource Management Practice (10 ed.).* London: Kogan Page.

Arnetz, B. B. (1997). Technological stress: Psychophysiological aspects of working with modern information technology. *Scandinavian Journal of Work Environment and Health* , 3:97-103.

Bakke, R. A., Schaufel, I. W., Leiter, M. L., & Taris, T. W. (2008). Engagement at work: An emerging concept. *Work and Stress* , 22(3)187-2003.

Boscolo, P. D. (2009). Blood natural killer activity is reduced in men with occupational stress and job insecurity working at a university. *International archive of occupational and environmental health* , 82(6)787-94.

Boxall, P., Purcell, J., & Wright, P. (2007). *The Oxford Handbook of Hunan Resource Management.* Oxford: Oxford University Press.

Boyle, G. J., Borg, M. G., Falzon, J. M., & Baglioni, A. J. (1995). A structured model of the demensions of teacher stress. *British Journal of Educational Psychology* , 65 49-67.

Brehm, S., Kassin, S., & Fein, S. (2005). *Social Psychology 6th ed.* New York: Houghton Mifflin Company.

Campbell, F. (2006). *Occupational Stress in the Construction Industry.* London: The Chartered Institute of Building.

Carroll, C., Booth, A., Papaioannou, D., Sutton, A., & Wong, R. (2009). UK health-care professionals' experience of on-line learning techniques: A systematic review of qualitative data. *Journal of Contyinuing Education in the Health Peofessionals* , 29(4)235-241.

Caulfield, C., Chang, N., Dollard, M. F., & Elshaug, C. (2004). A Review of Occupational Stress Interventions. *International Journal of Stress Management* , 11(2)149-166.

Caulfield, N., Chang, D., Dollard, M. F., & Elshaug, C. (2004). A revied of Occupational Stress Interventions in Australia. *The Inter5national Journal of Stress Management* , 11(2)149-166.

Chandola, T., Britton, A., Brunner, E., Hemingway, H., & Malik, M. (2008). Work stress and coronary heart disease:. *European Heart Journal* , 29(5):640-648.

Christensen, H., Griffiths, M., & Korten, A. (2002). Web based Cognitive Behaviour Therapy: Analysis of Site Usage and Change in Depression and Anxiety Scores. *Journal of Medical Internet Research* , 4(1)e3.

CIPD. (2009). *Stress at work review January 2009.* Retrieved January 20, 2010, from http://www.cipd.co.uk/subjects/health/stress/stress.htm?IsSrchRes=1

Coleman, A. M. (2003). *Oxford dictionary of Psychology.* Oxford: Oxford university press.

Dhabhar, F. (2009, December 1). *Good stress response enhances recovery from surgery, Stanford study shows.* Retrieved January 26, 2010, from insciences.org: http://insciences.org/article.php?article_id=7778

Diaz, D. P., & Cartnal, R. B. (1999). Student learning styles in two classes: online distance learning and equivalent on-campus. *College Teaching* , 47(4), 130-135.

Dunne, M. J. (2000). Employers Liability for Employee Stress. *Bar Review* , 503.

Eisen, K. P., Allen, G. J., Ballash, A., & Pescatello, L. S. (2008). Stress management in the workplace: A comparison of a computer-based and an in-person stress management intervention. *Computers in Human Behaviour* , 486-496.

Employee Assistance Programme Policy. (2009). Retrieved January 24, 2010, from http://www.ucd.ie/equality/filestore/employee_assistance_programme_policy.pdf

Epe, E. E. (2004). Accelerated telomere shortening in response to life stress. *Proceedings of the National Academy of Science* , vol 101 (49).

Erikson, E. H. (1963). *Child and Society (2nd. ed.).* New York: Norton.

Gallup. (2006). *Engagement predicts earnings per share.* New York: Gallup Organisation.

Goleman, D. (1998). *Working with emotional intellegence.* New York: Bantom Books.

Government, N. T. (2003). *Department for employment education and training.* Retrieved 02 20, 2010, from Northern Territory Government: http://www.worksafe.nt.gov.au/corporate/publications/pub0003.pdf

Grafa, S., Liub, T., Kinshuka, & Chenc, N. (2009). Learning styles and cognitive traits – Their relationship and its benefits in web-based educational systems . *Computers in Human Behavior* , 25(6)1280-1289.

Hakanen, J. J., Bakker, A. B., & Schaufeli, W. B. (2006). Burnout and work engagement among Teachers. *Journal of school Psychology* , 43(6)495-513.

Harassment, Bullying and stress. (2006). Retrieved January 26, 2010, from The legal Issues: http://www.accountancyireland.ie/Archive/2006/December-2006/Harassment-Bullying-and-Stress--The-Legal-Issues/

Hayes, N. &. (2003). *A student's Dictionary of Psychology 5 ed.* Oxford: Oxford University Press.

Health Promotion at Motorola. (n.d.). *The Wellness Councils of America.* Retrieved 06 2010, 05, from http://infopoint.welcoa.org/blueprint/publications/pp_motorola.html

Henderson, A. J. (2003). *The E-learning question and answer book: A survival guide for Trainers and Business Managers.* New York: AMACOM.

High Court of Ireland Decisions. (2004). Retrieved January 26, 2010, from McGrath v. Trintech Technologies Ltd: http://www.bailii.org/ie/cases/IEHC/2004/342.html

Hockey, G. R. (2006). Work environments and performance. In N. Chmiel, *Work and organisational psychology a European perspective* (pp. 206-230). Oxford: Blackwell.

Holbeche, L., & Springer, N. (2003). *In Search of meaning in the work place.* Horsham: Roffey Park.

Institute, T. F. (2004). *Resources for Science in Learning.* Retrieved 03 2010, 14, from The human Brain: http://www.fi.edu/learn/brain/stress.html#how

Jones, L. K., Yoon, T., & Kim, J. (2009). *Stress impairs decision-making in rat's.* Washinghton: Department of Psychology and Program in Neurobiology & Behaviour.

Jordan, J., Gurr, E., & Tinline, G. (2003). *Beacons of excellence in stress prevention.* London: Health and Safety Executice.

Karasek, R. (2004). An Analysis of 19 International Case Studies of Stress Prevention. *Bulletin of Science, Technology & Society* , 24(5), 446-456.

Kendall, E., Murphy, P., O'Neill, V., & Bursnall, B. (2000). Occupational stress Factors that contribute to its occurrence and effective management. *Center for Human Services* .

Kim, M. Y. (2009). Relationships among burnout, social support, and negative mood regulation expectancies of elementary school teachers in Korea . *Asia Pecific Education Revied* , 475-482.

Kindler, H. S., & Schoor, D. (1991). Stress-Management Training Programmes: motivating participants using self-diagnostic interventions. *Employee Councelling Today* , 3(1)4-8.

Kinjerski, I. (2010). *Rethinking Your Work.* Canada: Kaizen Publishing.

Kirkpatric, D. L. (1998). *Evaluating Training Programs second editation.* San Francisco : Berritt-Koehle Publications.

Kraag, G., Van Breukelen, G. J., & Kok, G. (2009). "Learn Young, Learn Fair", a Stress Management Program for Fifth and Sixth Graders: Longitudinal Results from an Experimental Study. *Journal of Child Psychology and Psychiatry* , 50(9) 1185-1195.

Kular, S., Gatenby, M., Rees, C., Soane, E., & Truss, K. (2008). *Employee Engagement: A Literature Review.* Retrieved 03 2010, 13, from http://eprints.kingston.ac.uk/4192/1/19wempen.pdf

Kulkam, K. G. (2006). Burnout. *Indian Journal of Occupational and Environmental Medicine* , 10(1).

Lazarus, R. (1999). *Stress and Emotion: A New Synthesis.* London: Free Associated Books.

Long, L., Dubois, C., & Faley, R. (2009). A case Study Analysis of Factors that Influence Attrition Rates in Voluntary Onlinr Programmes. *International Journal on E_Learning* , 8(3)347-359.

Love, P. D. (2007). Coping and psychological adjustment among information technology personnel. *Industrial Mananement & Data Systems* , 107(6)263-557.

Lyons, E. (2002). Psychosocial factors related to job stress and women in management. *Work: A Journal of Prevention, Assessment and Rehabilitation* , 89-93.

Maslach, C. (1982). Burnout in health professionals: A social psychology analysis. *Social psychology of health and illness* , 79-1003.

Moore, J. E. (2000). One road to turnover: an examination of work ehxaustion in technology professionals. *MIS Quarterly* , 24(1)141-168.

Morgan, B. (2005). *Stress in the workplace.* Retrieved January 27, 2010, from http://www.morganmcmanus.com/html/pdf/Stress%20in%20thc%20workplace%20June%202004.pdf

Motorola University. (2008). *Motorola Six Sigma Business Improvement Programmes.* Retrieved 05 2010, 05, from http://www.motorola.com/ststicfiles/Business/_Moto_niversity/_Documents/_Static_iles/Business_Improvement_Campaigns.pdf

Nowack, K. (2009). *Employee Engagement, Job Satisfaction, Retention, and Stress.* Retrieved January 25, 2010, from Envisia Learning: http://abstracts.envisialearning.com/78-abstractFile.pdf

Pervenanze, P. (2004). *Creating Your e-Learning Strategy.* Retrieved January 28, 2010, from LearnSource- Connecting Companies with Quality Learning: http://www.e-learningguru.com/wpapers/create_strategy.pdf

Polikandriot, M. (2009). Burnout syndrom. *Health Science Journal* , 3(4)195-196.

Rasmussen, P. (2008). *When work takes control.* London: Karnac.

Rhoads, G. (2008). *The Spillover Effect.* Retrieved 1 14, 2010, from http://www.allegiance.com/documents/Spillover_Effect_White_Paper___FINAL.pdf

Rice, P. L. (1999). *Stress and Health (3 ed).* New York: Books/Cole.

Richardson, K. M., & Rothstein, H. R. (2008). Effectives of occupational Stress Management Interventiono Programs: A Mete-Analysis. *Journal of Occupational Health Psychology* , 13(1)69-93.

Rosen, A. (2009). *eLearning 2.0.* New York: American Management Associates.

Rosenberg, M. J. (2006). *Beyond E-Learning.* San Francisco: PFeiffer.

Ryan, T. (2005). *Stress Management.* Retrieved January 26, 2010, from Coping with our 20th Century Epidemic: http://www.renewalconsultants.com/Images/Articals/StressManagment.pdf

Schneider, M. L. (2003). *Prenatal Stress and Offspting Development in Nonhuman Primates.* Retrieved 03 04, 2010, from The university of Wisconsin-Madison USA: Schneider, M. L. (2003). Prenatal Stress and Offspring Developmentin Nonhuman Primates. Retrieved from University of Wis www.enfant-encyclopedie.com/Pages/PDF/Schneider-MooreANGxp.pdf

ScottishPower. (2007). *ScottishPower - stress case study.* Retrieved February 2, 2010, from Health and Safity Executive Scotland: http://www.hse.gov.uk/stress/casestudies/scottishpower.htm

Selye, H. (1946). The general adaptation syndrome and the diseases of adaptation. *Journal of Clinical Endocrinology* , 117-230.

Shimazu, A., Kawakami, N., Irimajiri, H., Sakamoto, M., & Amano, S. (2005). Effects of web-based Psychoeducation on Self-Efficacy, Problem Solving Behavior, Stress Response and Job Satisfaction among Workers: A Controlled Clinical Trial. *Journal of Occupational Health* , 47, 405-413.

Stansfeld, S., & Candy, B. (2006). Psychosocial work environment and mental health a mata-analytic review. *Scandinavian Journal of work, Environment and Health* , 32 (6):443-462.

Stress Management E-learning Courses for Staff. (2008). Retrieved January 26, 2010, from http://www.dur.ac.uk/healthandsafety/occupationalhealth/stressmanagement/stress-management-e-learning-courses/

The 2003 Towere Perrin Talent Report. (2003). Retrieved 1 14, 2010, from Working today: Understanding what drives employee engagement: http://www.towersperrin.com/tp/getwebcachedoc?webc=hrs/usa/2003/200309/talent_2003.pdf

The Business Case for Stress Management. (2009). Retrieved January 25, 2010, from 4imprint, Inc.: http://info.4imprint.com/wp-content/uploads/m0709-02-blue-paper-business-case-for-stress.pdf

THINQ's, R. D. (2009). *How E-Learning Can Increase ROI for Training.* Retrieved 03 02, 2010, from www.llmagazine.com/e_learn/resources/pdfs/ROI_training.pdf

Top 10 reasons why your company needs an Employee Assistance Program. (n.d.). Retrieved January 24, 2010, from EPAQotes.com: http://www.eapquotes.com/top-10-reasons-why-you-need-an-Employee-assistance-program.htm

Toppinen-Tanner, S., Ahola, K., Koskinen, A., & Väänänen, A. (2009). Burnout predicts hospitalization for mental and cardiovascular disorders: 10-year prospective results from industrial sector. *Stress and Health* , 25(4)287-296.

Travis, F. (2009). *Developing the Total Brain*. Retrieved January 24, 2010, from A video explination of brain Neurology: http://www.tm.org/benefits-brain#benefit-brain-top

Tyler-Smith, K. (2006). Early Attrition among First Time eLearners: A Review of Factors that Contribute. *Journal of Online Learning* , 50-62.

VHI. (2010). *Erase strife from your working life.* Retrieved Feburary 3, 2010, from IRELAND 2010 HEALTH & WELL-BEING: http://www.vhi.ie/pdf/employers/P6_HWB_.pdf

Welling, R. S., Bernthal, P., & Phelps, M. (2009). *Employee engagementkey to realising competitive advantage.* Retrieved from Development Dimentionsions International, Inc.: http://www.ddiworld.com/pdf/ddi_employeeengagement_mg.pdf

Workplace stress 'a major source of illness'. (2000). Retrieved January 26, 2010, from irishhealth.com: http://www.irishhealth.com/article.html?id=845

Appendix A: the consent form

National College of Ireland
MSc in Learning Technologies
2009/2010
Name : Raymond Short
Email: raymondshort324@gmail.com

"Can an elearning stress prevention programme reduce stress and increase employee engagement?"Purpose:

This research study is to examine if using a stress prevention elearning programme over a period of a month will educate participants to reduce stress levels and increase employee engagement.

Procedures:

Participation in this study will involve completing an online survey questionnaire.

The DASS test. This is a publically available test for signs of distress.

The Gallup Q12. This test has been developed by the Gallup Organisation to test engagement.

This should take no more than two minutes to complete. You will be asked to interact with the learning material at your own pace over the next four weeks. This is to allow your brain to integrate with the learning material and build an understanding of stress/ distress and how it can be controlled.

At the end of the four weeks you will be asked to repeat the survey questionnaire. You will be asked to give as honest answer as you can to the questionnaire to make the results a meaningful measure of your state of mind in both cases. If time allows you may be asked to give your subjective opinion to the usefulness of the elearning product through a focus group or correspondence by email.

Risks and Benefits:

Participants in this study will have no physical or emotional risk in the study. This study may benefit you personally. It is hoped that the results will add to the knowledge about the impact of elearning in the area if stress prevention.

Confidentiality:

All of your responses will be *held in confidences*. Only the researchers involved in this study and those responsible for research oversight will have access to the information you provide. Your responses will not be identifiable to you. They will be coded.

Voluntary Participation:

Participation in this study is completely voluntary. You are free to decline to participate or to end participation at any time for any reason, or to refuse to answer any individual question.

I have read the above information, and have had the opportunity to have any questions about this study answered and I agree to participate in this study.

If you agree to participate please send me an email confirming your participation to

raymondshort324@gmail.com I will send you the online questionnaire web address. When you complete it I will send you the study web address. You can call me at any time on 0863918457 if you need information about the study.

Appendix B: The recruitment poster

I am looking for 20 participants to take part in a study to see if the elearning educational programme will help you prevent stress at work and increase your work engagement.

All you have to do is learn. Look at the learning material at

www.stress-prevention-clinic.net/elearning and decide.

This may help you have a happier life experience. Email me at

raymondshort324@gmail.com

Raymond Short BSc (Hons.) Psychology

Appendix C: The web site showing the navigational options.

Appendix D: The questionnair.

Study to see if elearning can help with stress prevention April / March

Answers marked with a * are required.

1. for elearning MSc Dissertation Start Questionnaire April / May

Thank you for taking part in this survey. You must have received the consent form from me and given your consent via email

before completing this survey.
There are 30 questions which should not take more that a minute or two to answer.
When you complete the questionnaire go to www.stress-prevention-clinic.net/study
enter the last four numbers of your mobile
Example my mobile is 086 3918457 code is 8457 This is to allow for confidentiality

You can email me at any time during the study at "raymondshort324@gmail.com" for information or clarification on any part of

the material. Good luck and keep with the programme. See where it leads you!

1. **Do you know what is expected of you at work?**

- **One is a low score meaning you don't know what is expected of you**
- **Five is a high score meaning you totally know what is expected of you.**

1	2	3	4	5

2. **Do you have the resources you need to do a good job?**

- **One is a low score meaning you don't have the resources**
- **Five is a high score meaning you have enough resources.**

1	2	3	4	5

3.

- **At work, do you have the opportunity to do what you do best every day?**
    - **One is a low score meaning you don't have the opportunity**
    - **Five is a high score meaning you have lots of opportunity**

1	2	3	4	5

4.

- **In the last seven days, have you received recognition or praise for doing good work?**
    - **One is a low score meaning no recognition**
    - **Five is a high score meaning good recognition.**

1 Low	2	3	4	5 High

5.

- **Does your supervisor, or someone at work, seem to care about you as a person?**
    - **One is a low score meaning you don't get care**
    - **Five is a high score means you get care**

1 Low	2	3	4	5 High

6.

- **Is there someone at work who encourages your development?**
    - **One is a low score meaning you don't get encouragement**
    - **Five is a high score means you get a lot of encouragement.**

1 Low	2	3	4	5 High

7.

- **At work, do your opinions seem to count?**
  - **One is a low score meaning your opinion does not count**
  - **Five is a high score means your opinion does count**

○ 1 Low ○ 2 ○ 3 ○ 4 ○ 5 High

8.

- **Does the mission/purpose of your company make you feel your job is important?**

- **One is a low score meaning you don't think your job is important**
- **Five is a high score means you know the importance of your job**

○ 1 Low ○ 2 ○ 3 ○ 4 ○ 5 High

9.

- **Are your associates (fellow employees) committed to doing quality work?**

- **One is a low score meaning no commitment to quality**
- **Five is a high score means total commitment to quality**

○ 1 Low ○ 2 ○ 3 ○ 4 ○ 5 High

10.

- **Do you have a best friend at work?**

- **One is a low score meaning you don't have a best friend**
- **Five is a high score means you have lots of friends**

○ 1 Low ○ 2 ○ 3 ○ 4 ○ 5 High

11.

- **In the last six months, has someone at work talked to you about your progress?**
- **One is a low score meaning no one has talked to you**
- **Five is a high score means yes people have given feed back**

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

12.

- **In the last year, have you had opportunities at work to learn and grow?**
- **One is a low score meaning no opportunity**
- **Five is a high score means lots of opportunities.**

○ 1 Low ○ 2 ○ 3 ○ 4 ○ 5 High

Quit Next

Powered by eSurveysPro.com

Study to see if elearning can help with stress prevention April / March

Answers marked with a * are required.

2. elearning study

13. I find myself getting upset by quite trivial things.

One is a low score meaning not getting upset

Five is a high score meaning very frequently upset

1	2	3	4	5

14. I find it difficult to relax

One is a low score meaning i can relax

Five is a high score meaning very difficult to relax

1	2	3	4	5

15. I tended to over-react to situations

One is a low score meaning you don't over-react

Five is a high score meaning very frequently over-react

1	2	3	4	5

16. I find myself getting upset rather easily

One is a low score meaning you don't getting upset

Five is a high score meaning you get very frequently upset

1	2	3	4	5

17. I feel I am using a lot of nervous energy

One is a low score meaning you do not have nervous energy

Five is a high score meaning very frequently have nervous energy

1 2 3 4 5

18. I find myself getting impatient when I get delayed in any way (eg, lifts, traffic lights, being kept waiting, or queuing for service)

One is a low score meaning you are not impatient

Five is a high score meaning you are very frequently impatient

1 2 3 4 5

19. I feel rather touchy

One is a low score meaning you are not touchy

Five is a high score meaning you are very frequently touchy

1 2 3 4 5

20. I find it hard to wind down

One is a low score meaning you don't find it hard to wind down

Five is a high score meaning you very frequently cannot wind down

1 2 3 4 5

21. I find I get irritable with people

One is a low score meaning you don't get irritable

Five is a high score meaning you very frequently get irritable

1 2 3 4 5

22. I find it hard to calm down after something upset me

One is a low score meaning you calm down easily

Five is a high score meaning you find it difficult to calm down

1 2 3 4 5

23. I found it difficult to tolerate interruptions to what I was doing

One is a low score meaning you tolerate interruptions

Five is a high score meaning you find it difficult to tolerate interruptions

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

24. I was in a state of nervous tension

One is a low score meaning you don't have nervous tension

Five is a high score meaning you frequently have nervous tension

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

25. I found myself getting agitated

One is a low score meaning you don't get agitated

Five is a high score meaning you frequently get agitated

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

26.

I was worried about situations in which I might panic and make a fool of myself

One is a low score meaning you don't worry

Five is a high score meaning you frequently worry

○ 1 ◉ 2 ○ 3 ○ 4 ○ 5

27. I experienced trembling in the hands or eyes or foot agitation

One is a low score meaning no trembling

Five is a high score meaning frequent trembling

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

28. **I have difficulty sleeping.**

One is a low score meaning you have no sleeping difficulties

Five is a high score meaning you have frequent sleeping difficulties

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

29. **I have increased digestive problems such as heartburn, constipation and diarrhea.**

One is a low score meaning you have no problems

Five is a high score meaning you have frequent problems

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

30. **I have difficulty concentrating, making decisions or remembering things.**

One is a low score meaning you don't have these difficulties

Five is a high score meaning you frequently have these difficulties

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

31. Thank you for answering the question.
Just one last question what is your gender?

○ 1 I am male ○ 2 I am female

Quit Back Finished

Appendix E: The tracking site