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Title: Coping With Stress: Dispositional Coping Strategies of Project Managers

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Abstract

This study explores the relationship between project management practices, control appraisals and dispositional coping strategies used by project managers when dealing with stressful situations. Seventy-One project managers from a global sample participated by completing a web-based questionnaire. Results support the hypotheses that project managers apply more Active Coping and Planning strategies when dealing with stressful situations and that the level of maturity of the organisational practices is related to an increased use of Planning coping strategies. Findings and limitations are discussed.

Introduction

The impact of stress on the modern day workforce has been an issue at the forefront of both research and practice. As the pace of work has increased exponentially fuelled by the globalisation of economies and technological advances, an environment conducive to stress has been created. As the rate of productivity increases and financial benefit is delivered to industry, the balance of stress within the workforce must be managed to stave off the cost of attrition and poor productivity associated with burn out as a result of stress overload. The complexity of this balance is furthered by the fact that a stress free environment can create the opposite effect to *burn out*, whereby individuals are under stimulated, resulting in *rust out*. Simply lowering the number of stressful situations does not guarantee a mitigation of the risks.

Beyond the boundaries of the work environment, socioeconomic and demographic changes to the workforce have blurred the lines between work and personal stress. Over the past few decades these changes have included; an increase in the number of women in the workforce, a rising divorce rate and subsequent single parent households, and a rise in the number of working mothers in both full and part-time employment (Perry-Jenkins et al., 2000). Together with these issues economies around the world are booming and employment is at an all time high in many of the industrialised nations making the issue of staff attraction and retention a critical factor. These changes have lead to the emergence of a new challenge for industry and a popular area for research of *work-family balance (Gryzywacz et al., 2002, Chan et al., 2000).* Organisations are no longer able to consider only the stress that is directly associated with work but must now ensure that they are acknowledging, if not yet actively managing, the whole of life issues which their staff are dealing with that may impact their job satisfaction and productivity.

Projects as a way of doing business, has been emerging over the past decade as the preferred model of driving change and developing new business across a multitude of industries. Projects are a dynamic and often fast-paced mode of operation with the constant balance of time, cost and quality, the constant alignment and realignment to organisational strategy as well as managing the benefits delivered throughout and beyond the life of the project. Projects that involve unique endeavours that challenge us to explore new ideas, test old ones and generate solutions are taking the project

manager and their team members into the unknown. Although it is the excitement that draws many project managers to the field, projects are also highly stressful environments. Understanding how project managers cope with stressful situations is the first step to being able to manage the outcomes, both positive and negative.

This paper seeks to explore the relationship between the two fields, stress and coping and project management, looking at how project managers cope with stressful situations. This paper will investigate both the appraisal of control of stressful situations and the dispositional coping strategies used by project managers in stressful situations. The purpose of this study is to provide preliminary indicators of a relationship between project management practices, appraisal of control and coping strategy selection as the basis for further research. The outcomes of stressful situations are beyond the scope of this paper. Future research should target the adaptive outcomes of coping strategy selection.

Models of Stress and Coping

The exploration of stress began in earnest with Selye's work with the study of animals and their reactions to noxious agents. His later research led to the discovery that all toxic substances introduced to an animal body produce the same pattern of response. They all responded with adrenal enlargement, gastrointestinal ulcers, and thymicolymphatic shrinkage. These three factors become the objective indicators of stress and formed the basis of the *General Adaptation Syndrome (GAS) or biologic stress syndrome* as described by Selye in 1936. Selye defines stress as *"the non-specific (that is, common) results of any demand upon the body, be the effect mental or somatic"(Selye, 1993).*

From Seyle's work a number of psychoanalytic ego psychology models were developed. These models defined coping as "realistic and flexible thoughts and acts that solve problems and thereby reduce stress."(Lazarus and Folkman, 1984a, 118) These models generally take the form of a hierarchy with the higher levels containing coping responses thought to be more mature and effective becoming progressively less so as you move down the levels.

In 1966 Lazarus put forward his *transactional theory of coping*, which redefined the platform which would form the foundation of nearly all future studies. Until this time stress had either been defined as a stimulus, i.e. an event was stressful, or a response, i.e. a person reacted to an event in a stressful manner. In Lazarus' view stress was more complex than an either/or definition. Lazarus proposed that coping is an interaction between a person and the environment, primarily, that when an individual approaches a situation a cognitive appraisal process is begun to assess the level of threat and the available coping resources. Lazarus & Folkman (1984b) outline a three-stage cognitive appraisal process:, primary appraisal, secondary appraisal and reappraisal .

Within the Transactional Theory of Coping primary appraisal is the cognitive process of deciding whether you are being threatened or benefited, it answers the question *Am I in trouble or being benefited, now or in the future, and in what way?* Once a situation or event is appraised as threatening or harmful secondary appraisal is engaged, addressing the question *What, if anything, can be done about it?* During

secondary appraisal a person will look to all possible resources available for reducing the threat or harm and assess their suitability and chances of success. Finally re-appraisals occur continuously as the event unfolds. As an individual interacts with their environment, new information and experiences are added to their spectrum of available resources and reappraisal of the situation occurs.

One of the key components of the Transactional Theory of Coping that distinguishes it from its predecessors is the separation of the coping strategies used and the outcomes generated. This separation acknowledges that individuals will often try to cope using a range of strategies when confronted with a stressful situation and that they will not always be successful. Further to this, is that for each individual the same coping strategies may have varying outcomes between people and between situations. This theory has formed the basis of the research reported in this paper.

There have been two general approaches to measuring coping strategies, the first, measuring actual coping strategies employed within real situations, i.e. "what did you do to cope" (situational coping) and the second, seeking out coping styles employed by individuals across multiple situations i.e. "what do you normally do to cope" (dispositional coping).

State or situational coping is defined as being "an individual's responses when confronted with a specific situational stressor" (Fillion et al., 2002 ,19). Folkman and Lazarus' (1984a) transactional theory of coping is based on the premise that each situation is approached anew by an individual and the coping strategies employed are the direct result of the situation specific cognitive appraisal process unique to that moment in time.

The terms "coping style", "trait coping" and "dispositional coping" have been used in various ways to describe a broad range of behaviours. The two most frequently used definitions are, "relatively consistent coping behaviours used by individuals across a wide variety of situations" (Fillion et al., 2002 ,19), (O'Connor and Shimizu, 2002, Anshel, 1996) and as a personality construct with relatively permanent and enduring qualities

> "the search for coping dispositions is a search for consistent ways of coping as used by a given person or persons, in short, a comparatively stable property of the personality that disposes a person to react in one or another way to a stress stimulus" (Lazarus, 1961 , 252).

This paper will explore the dispositional coping strategies of project managers in stressful situations. Specifically, it is hypothesised that (a) project managers use Planning and Active Coping more frequently than other forms of coping with stressful situations, (b) that project managers appraise stressful situations as being within their control and amenable to change, (c) that the project management environment in which project managers work will be positively correlated to the use of Planning and Active Coping.

This research is the first in a series of planned projects. Stage two will explore the situational coping strategies of project managers across both specific work and

personal situations with a view to exploring the consistency of coping strategy selection.

Data for the current research was collected through the use of a web-based questionnaire. There are a number of instruments being employed including a selection of demographic details, project management experience, project management knowledge, project management competency, stressful situation appraisal of control and coping strategy selection and application. The majority of the project management and demographic instruments have been used in previous research by Dr Lynn Crawford (Crawford, 2000, Crawford, 2004). The instruments have been updated to reflect changes in the field of project management since creation.

The measurement of coping, both dispositional and situational has primarily been measured through the use of self report instruments. There are a number of instruments that have been developed and tested with varying degrees of psychometric validity. The most widely used instruments include, the Ways of Coping Questionnaire, developed by Lazarus and Folkman (1984b). The Coping Inventory of Stressful Situations (CISS) developed by Endler and Parker (1994) and the COPE and BRIEF COPE developed by Carver et al (1989).

The BRIEF COPE was selected for several reasons, the first being the internal consistency of the scales. All Cronbach alpha's were over 0.50 and all except the venting, denial and acceptance scales exceeded 0.60 (Carver, 1997) . The desired minimal level as defined by Nunnally and Bernstein (1994) is 0.70 however industry practice allows 0.60 as minimally accepted. Fillion et al. (2002) found that an eight factor model provided strong internal consistency scores ranging from 0.69 to 0.89. The test-re-test produced similar alpha scores. Secondly, the instrument is rapidly implemented, with only 28 items. Finally, the BRIEF COPE is designed, and has been tested to be used as both a dispositional and situational assessment tool.

Method

Participants

Subjects for this study included experienced project managers (*N* = 71) from ten organisations that agreed to participate in the study by providing up to twenty project managers and their managers to complete the survey. The sample included 50 males (70%) and 21 females (30%) the median age bracket was 41-50 years old. The mean number of years of project experience was 9.89 and the mean number of total work experience years was 19.81. The sample was geographically dispersed: 34% from Australia, 14% from New Zealand, 13% from Singapore, 11% from the United Kingdom, 8% from China, 7% from Europe and 7% from the combined group of Malaysia/Thailand/Vietnam, 4% from India and 1% from the United States of America. Due to the small sample size in each region/country no between country analyses has been conducted.

Variable	Mean	Median	*SD*	*N*
Gender	0.30	0.00	0.46	71.00
Age*	2.55	3	0.71	71.00
Yrs Project Exp	9.89	10.00	5.39	71.00

Yrs Work Exp	19.81	20.00	7.71	70.00
PM Knowledge	21.41	21.00	5.03	71.00
PM Complexity	19.08	19.00	3.25	71.00
Yrs Project Exp	9.89	10.00	5.39	71.00
Yrs Work Exp	19.81	20.00	7.71	70.00
PM Maturity	3.03	3.00	1.03	71.00
Appraisal of Control	1.66	1.00	0.96	68.00
Self Distraction	4.41	4.00	1.45	71.00
Active Coping	7.21	7.00	0.89	71.00
Denial	2.44	2.00	0.81	71.00
Substance Use	2.24	2.00	0.64	71.00
Emotional Support	4.42	4.00	1.57	71.00
Instrumental Support	6.06	6.00	1.31	71.00
Behavioral Disengagement	2.42	2.00	0.95	71.00
Venting	4.15	4.00	1.50	71.00
Positive Reframing	5.94	6.00	1.33	71.00
Planning	7.01	8.00	1.24	71.00
Humour	4.11	4.00	1.46	71.00
Acceptance	5.93	6.00	1.30	71.00
Religion	3.56	2.00	2.04	71.00
Self Blame	4.18	4.00	1.54	71.00

Table 1 – Descriptive Statistics (N = 71)

*note: For age the ranges were 1 = *under 30yrs*, 2 = *30 to 40yrs*, 3 = *41 – 50yrs*, 4 = *over 50yrs*

Variable	Frequency	Cumulative %	Individual %
Australia	24	33.80%	34%
China	6	42.25%	8%
Europe	5	49.30%	7%
India	3	53.52%	4%
Malaysia/Thailand/Vietnam	5	60.56%	7%
New Zealand	10	74.65%	14%
Singapore	9	87.32%	13%
UK	8	98.59%	11%
USA	1	100.00%	1%

Table 2 - Geographic Dispersion

Measures
This paper reports on the analysis of a subset of the data captured during this study. The measures used include, the *demographics*, age and gender and country of residence; four items from the project experience questionnaire including, *number of years project experience*, *number of years work experience* and *perceived level of project management maturity of the organisation in which* the subject was employed. The measure of organisational project management maturity was a single item measure based on the five levels of organisational maturity defined by the Software Engineering Institute's Capability Maturity Model Integrated (SEI, 2006) where

    1 = 'Initial, Ad hoc & Chaotic'
    2 = 'Repeatable, PM System and Experience'
    3 = 'Defined, Organisation Wide PM System'
    4 = 'Managed, Stable and Measured Processes'
    5 = 'Optimising, Organisation Focused on Continual Improvement'

Appraisal of Controllability, secondary appraisal in the Transactional Theory of Coping was measured using a single item taken from the study Folkman et al. conducted examining the relationship between cognitive appraisal (primary & secondary), coping processes and short term outcomes with stressful situations (1986) The question asked subjects to rate how they usually felt when considering stressful situations where

    1 = 'you can change or do something about the event'
    2 = 'you have to accept the event'
    3 =' you needed to know more before you can act'
    4 = 'you have to hold yourself back from doing what you want to do'

Coping Strategies were measured using the dispositional format of the Brief COPE measuring how subjects usually try to deal with stressful situations. The Brief COPE is a 28-item assessment that measures 14 coping scales including, Self Distraction, Active Coping, Denial, Substance Use, Emotional Support, Instrumental Support, Behavioural Disengagement, Venting, Positive Reframing, Planning, Humour, Acceptance, Religion and Self Blame. Subjects were asked to rate to what extent they usually used each of the coping strategies listed on a 4-point scale which is

    1 = 'I don't usually do this at all';
    2 = 'I usually do this a little bit';
    3 = 'I usually do this a medium amount' and
    4 = 'I usually do this a lot'.

The Cronbach Alpha score is acceptable for this sample (.6631). Internal reliability was explored for each scale. For the scales, Emotional Support, Instrumental Support, Behavioural Disengagement, Venting, Positive, Reframing, Planning, Humour, Religion and Self Blame high internal consistency scores were found ranging from .6827 to .9166. Cronbach Alpha's for Active Coping, Denial and Substance Use were below .6 but remained above .5, the minimum acceptable level (Carver, 1997). However the scales Self Distraction and Acceptance returned unacceptably low scores of .3360 and .4615. These scores are similar to those found by other researchers (Fillion et al., 2002, Carver, 1997).

	Cronbach Alpha	*Items*	*N*
Overall	.6631	14	71
Self Distraction	.3660	2	71
Active Coping	.5954	2	71
Denial	.5093	2	71
Substance Use	.5745	2	71
Emotional Support	.8386	2	71
Instrumental Support	.7371	2	71
Behavioral Disengagement	.8247	2	71
Venting	.6827	2	71
Positive Reframing	.7255	2	71
Planning	.7540	2	71
Humour	.7017	2	71
Acceptance	.4615	2	71
Religion	.9166	2	71
Self Blame	.7063	2	71

Table 3 - Cronbach Alpha Scores for Coping Strategies

Results

Factor Structure
Although the sample size is relatively small ($N = 71$) a factor analysis was conducted. The 14 scales from the Brief COPE were subjected to a principal component analysis using SPSS Version 11. Inspection of the correlation matrix identified a number of coefficients of 0.3 and above. The Kaiser-Meyer-Oklin value was 0.619, exceeding the recommended value of 0.6 and the Barlett's Test of Sphericity reached statistical significance, supporting the factorability of the correlation matrix.

Principal component analysis revealed five factors with eigenvalues greater than 1 explaining, 20.32 %, 17.03 %, 10.16 %, 9.50 % and 8.12% of the variance respectively. The five factor model explained 65.13% of the overall variance. However, from further inspection of the Scree Plot a clear break was evident after the second factor. A Varimax rotation was performed on the basis of a two-factor model. The rotated solution revealed a simple structure with both factors showing strong loadings and each scale loading substantially on only one factor. Only two scales, Using Instrumental Support and Self-Blame loaded onto both components. The first factor included, Planning, Active Coping, Positive Reframing, Acceptance, Using Instrumental Support, Religion and Self-Blame. The second factor included Using

Instrumental Support, Using Emotional Support, Venting, Humour, Self-Distraction, Behavioural Disengagement, Self-Blame and Substance Use. Denial did not load to either factor. This finding is contrary to most other research using the COPE and Brief COPE instruments, where an 8, 9 or 11 factor model is commonly found (Fillion et al., 2002, Carver, 1997, Carver et al., 1989). However some research studies have found three and four factor models (Livneh et al., 1996, Hudek-Knezevic et al., 1999). Although Carver emphasises that the Brief COPE is not designed to assess the dichotomous coping construction of problem-focused and emotion-focused coping as postulated by Folkman and Lazarus (1984a) the two factors found in this study can broadly be described as such. However it should be noted that previous studies have had larger sample sizes, 978 (Carver et al., 1989), 168 (Carver, 1997) than the current study and this may have influenced the factor analysis.

	Component	
	1	2
Planning	0.793	
Positive Reframing	0.721	
Active Coping	0.708	
Acceptance	0.585	
Instrumental Support	0.544	0.351
Religion	0.319	
Emotional Support		0.747
Venting		0.683
Humour		0.591
Self Distraction		0.547
Behavioural Disengagement		0.523
Self Blame	0.311	0.505
Substance Use		0.382
Denial		

**Table 4 - Factor Analysis Loadings**

Descriptive Statistics

The descriptive statistics for the variables in this study are shown in Table 1. This sample reported a median age range of 41-50 years in age, mean of 9.81 years project experience ($SD = 5.39$) indicating that the subjects within the sample have a moderate amount of project experience. The mean number of year total work experience is 19.81 ($SD = 7.71$).

Subjects reported the median level of perceived project management maturity of their employing organisations as 3, '*Defined, Organisation Wide PM System*'. The distribution of scores is show in Figure 1 below. These results are comparable to those found by Crawford (2000) however the results from the current study show a slight increase in frequency of the higher level score (4 and 5) which point towards an overall improvement in the perceived maturity of employing organisations in recent years.
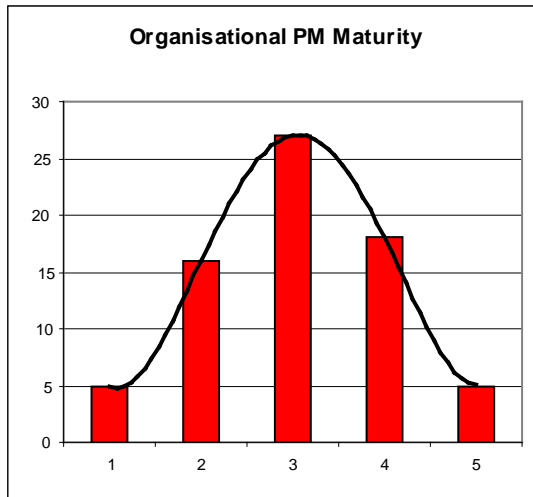
**Figure 1 - Frequency of Organisational
Maturity Scores**

The appraisal of the controllability of stressful situations yielded interesting results, in that the sample reported a very high frequency of 1 = 'you can change or do something about the event and moderately high frequency of 3 =' you needed to know more before you can act'. The sample reported extremely low frequencies for '; 2 = 'you have to accept the event' and 4 = 'you have to hold yourself back from doing what you want to do'. These results provide support for our second hypothesis that project managers will appraise stressful situations as amenable to change and within their control.
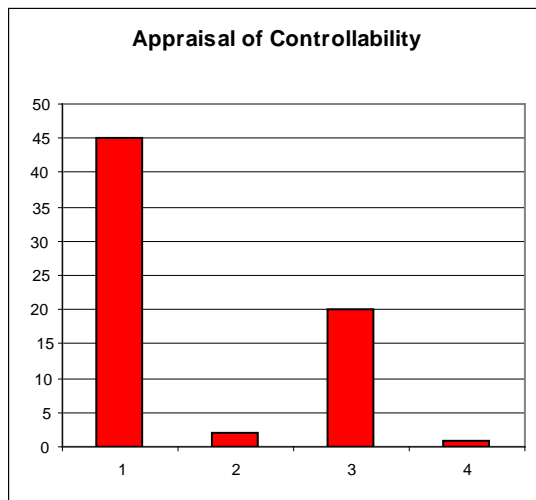
**Figure 2 - Frequency of Appraisal of
Controllability Scores**

The use of coping strategies revealed that the most frequently reported coping strategies were Planning and Active Coping followed closely by Using Instrumental Support and Positive Reframing. The least reported coping strategies included Behavioural Disengagement, Denial, Substance Use and Religion. These results provide preliminary support for our first hypothesis that project managers use more Planning and Active Coping when dealing with stressful situations.

Correlation between Variables

Table 5 depicts the bivariate correlations for the independent and dependent variables in the study. For the independent variables, Gender, PM Knowledge, PM Complexity, PM Maturity, Year of Project Experience, Yrs of Work Experience and Appraisal of Control only three significant correlations were found. The greater the complexity of the projects worked on the greater the project management knowledge demonstrated and as expected, the greater the number of years project experience, the greater the number of years total work experience.

The variable, project management maturity of the organisation was negatively correlated with the appraisal of control score, indicating (the appraisal score of 1 is the highest degree of control) that the greater the perceived project management maturity of the organisation the greater the appraised control of stressful situations. Project management maturity was also significantly and positively correlated with the use of Planning as a coping mechanism, demonstrating preliminary support for the concept that working in a project environment with strong project practices influences the selection of coping strategies which are aligned to the Planning and problem-solving fundamentals of project management practice. This will be explored in future studies. Project management maturity was also significantly and negatively related to Venting, Humour and Self-Blame.

There were only two significant correlations between gender and coping strategy selection. Women were more likely to use both Emotional and Instrumental Support. This is comparable with other studies such as Tamres et al. (2002), and no other gender differences were significant.

There was moderate correlation between the coping scales that were grouped in conceptually meaningful ways. Self Distraction, Humour, Substance Use and Emotional support were positively correlated. Active Coping, Planning, Positive Reframing, Use of Instrumental Support and Acceptance were positively and significantly correlated. Behavioural Disengagement, Venting, Humour, Self-Blame and Seeking both Emotional and Instrumental Support were also positively correlated.

Discussion

In general, the results of the study provide support for the concept that project managers use more Active and Planning coping strategies when dealing with stressful situations and that the use of Planning strategies is related to the level of project management practice that they are exposed to (represented by organisational project management maturity). The findings from this study on the appraisal of control show a tendency for project managers to appraise stressful situations as controllable or requiring more information however there was no correlation between appraisal of control and coping strategy selection which is often found in studies of this nature. This may be due to the scale chosen and should be reviewed before future studies are conducted, to ensure that a continuous scale is applied.

The internal reliability of the Brief COPE and the individual scales within the instrument for this sample indicate that this instrument is suitable for use in samples of project managers and will be applied in future studies. The factor analysis resulted in a two-factor solution which can be broadly described as covering problem-focused

and emotion-focused coping. This finding is contrary to the intention of the instrument, to identify coping strategies as per the 14 scales detailed in this paper, and contradictory to most research using this instrument however the relatively small sample size may have impacted this result. Future studies should aim for samples of >200.

This study has a number of limitations including the small sample size, the construct of the appraisal scale and the fact that dispositional coping covers a broad and varied array of possible stressful situations. Future studies should seek to explore in more detail the control construct and explore situational coping strategy selection. The analysis conducted in this study has looked only at correlations between scales. Future studies should explore the ability of perceived control, project management experience, organisational maturity and individual project management skills to predict coping strategy selection.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Gender																				
2. Knowledge	-0.078	1																		
3. Complexity	0.069	0.351**	1																	
4. Yrs Project Exp	-0.165	0.085	0.170	1																
5. Yrs Work Exp	-0.061	-0.182	0.154	0.408**	1															
6. Maturity	0.133	0.012	0.021	0.008	-0.003	1														
7. APPRAISAL	-0.064	0.075	-0.008	0.038	-0.191	-0.268*	1													
8. Self Distraction	0.009	0.159	-0.032	0.068	-0.076	0.031	-0.087	1												
9. Active Coping	-0.120	-0.004	-0.120	0.044	0.102	0.102	-0.162	-0.134	1											
10. Denial	-0.007	-0.062	-0.140	0.067	0.150	0.002	0.074	-0.045	0.049	1										
11. Substance Use	0.095	-0.079	-0.140	0.165	0.215	-0.162	-0.030	0.307**	0.135	0.154	1									
12. Emotional Support	0.437**	-0.078	0.063	-0.095	-0.171	-0.149	-0.074	0.286*	-0.054	-0.012	0.350**	1								
13. Instrumental Support	0.281*	-0.023	0.012	-0.285*	0.014	-0.044	0.090	-0.042	0.259*	0.098	0.052	0.488**	1							
14. Behavioral Disengagement	-0.029	0.056	0.104	0.034	-0.070	-0.202	0.087	0.153	-0.157	0.166	0.019	0.270*	0.095	1						
15. Venting	0.140	0.067	0.215	-0.021	-0.055	-0.448**	-0.117	0.155	-0.067	0.121	0.080	0.396**	0.221	0.294*	1					
16. Positive Reframing	0.191	-0.180	0.008	0.015	-0.032	0.116	-0.024	-0.099	0.359**	0.037	-0.051	0.223	0.289*	0.030	0.062	1				
17. Planning	-0.033	-0.111	-0.104	0.058	0.168	0.247*	-0.191	-0.123	0.631**	-0.006	0.122	0.041	0.229	-0.090	-0.148	0.478**	1			
18. Humour	0.056	0.243*	0.161	0.072	-0.039	-0.250*	-0.165	0.403**	-0.008	-0.030	0.123	0.315**	-0.041	0.264*	0.331**	0.040	-0.120	1		
19. Acceptance	-0.084	-0.074	-0.201	0.160	-0.004	-0.009	0.040	0.008	0.246*	-0.038	-0.048	0.084	0.103	0.047	0.130	0.369**	0.409**	0.147	1	
20. Religion	0.155	-0.248*	-0.147	-0.110	-0.099	0.224	0.061	-0.127	-0.058	-0.108	-0.050	0.272	0.245*	0.030	0.022	0.154	0.053	-0.060	0.311**	1
21. Self Blame	0.064	-0.142	0.062	-0.061	0.032	-0.328**	0.192	0.132	0.137	0.268	0.157	0.291*	0.342**	0.102	0.364**	0.172	0.029	0.092	0.156	0.089

Table 5 - Correlations between Variables
**Correlation is significant at the 0.01 level (2-tailed)
*Correlation is significant at the 0.05 level (2-tailed)

References

ANSHEL, M. (1996) Coping Styles Among Adolescent Competitive Athletes. *The Journal of Social Psychology,* 136**,** 311-323.

CARVER, C. S. (1997) You Want to Measure Coping But Your Protocol's Too Long: Consider the Brief COPE. *International Journal of Behavioural Medicine,* 4**,** 92-100.

CARVER, C. S., SCHEIER, M. F. & WEINTRAUB, J. K. (1989) Assessing Coping Strategies: A Theoretically Based Approach. *Journal of Personality and Social Psychology,* 56**,** 267-283.

CHAN, K. B., LAI, G., KO, Y. C. & BOEY, K., W. (2000) Work Stress among six professional groups: the Singapore experience. *Social Science & Medicine,* 50**,** 1415-1432.

CRAWFORD, L. (2000) PROJECT MANAGEMENT COMPETENCE: THE VALUE OF STANDARDS. Henley Management College.

CRAWFORD, L. (2004) Senior Management Perceptions of Project Management Competence. *IRNOP V.* Rotterdam, Netherlands.

ENDLER, N. S. & PARKER, J. D. A. (1994) Assessment of Multidimensional Coping: Task, Emotion and Avoidance Strategies. *Psychological Assessment,* 6**,** 50-60.

FILLION, L., KOVACS, A. H., GAGNON, P. & ENDLER, N. S. (2002) Validation of the Shortened COPE for use with Breast Cancer Patients Undergoing Radiation Therapy. *Current Psychology: Developmental, Learning, Personality, Social,* 21**,** 17-34.

FOLKMAN, S., LAZARUS, R. S., DUNKEL-SCHETTER, C., DELONGIS, A. & GRUEN, R. J. (1986) Dynamics of a Stressful Encounter: Cognitive Appraisal, Coping and Encounter Outcomes. *Journal of Personality and Social Psychology,* 50**,** 992-1003.

GRYZYWACZ, J. G., ALMEIDA, D. M. & MCDONALD, D. A. (2002) Work-Family Spillover and Daily Reports of Work and Family Stress in the Adult Labour Force. *Family Relations,* 51**,** 28-36.

HUDEK-KNEZEVIC, J., KARDUM, I. & VUKMIROVIC, Z. (1999) The Structure of Coping Styles: a comparative Study of Croatian Sample. *European Journal of Psychology,* 13**,** 149-161.

LAZARUS, R. S. (1961) *Patterns of Adjustment and Human Effectiveness*, McGraw Hill.

LAZARUS, R. S. & FOLKMAN, S. (1984a) The Concept of Coping. *Stress, Appraisal and Coping.* New York, Springer Publishing Company Inc.

LAZARUS, R. S. & FOLKMAN, S. (1984b) *The Coping Process: An Alternative to Traditional Formulations,* New York, Springer Publishing Company Inc.

LIVNEH, H., LIVNEH, C. L., MARON, S. & KAPLAN, J. (1996) A Multidimensional Approach to the Study of the Structure of Coping with Stress. *The Journal of Psychology,* 130**,** 501-512.

O'CONNOR, D. B. & SHIMIZU, M. (2002) Sense of personal control, stress and coping style: a cross-cultural study. *Stress and Health,* 18**,** 173-183.

PERRY-JENKINS, M., REPETI, R. L. & CROUTER, A. (2000) Work and Family in the 1990s. *Journal of Marriage and the Family,* 62**,** 981-998.

SEI (2006) *Software Engineering Institute CMMI Capability Maturity Model Integrated http://www.sei.cmu.edu/cmmi/ Accessed May 15 2006.*

SELYE, H. (1993) History of the Stress Concept. IN GOLDBERGER, L. & BREZNITZ, S. (Eds.) *Handbook of Stress Theoretical and Clinical Aspects.* New York, The Free Press.

TAMRES, L. K., JANICKI, D. & HELGESON, V. S. (2002) Sex Differences in Coping Behavior: A Meta-Analytic Review and an Examination of Relative Coping. *Personality and Social Psychology Review,* 6**,** 2-30.

Glossary of Terms

Coping
"constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person." (Lazarus and Folkman, 1984b, 141)

Stress
"a relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (Lazarus and Folkman, 1984a, 21)

Primary Appraisal
Primary appraisal is the cognitive process of deciding whether you are being threatened or benefited. It answers the question *Am I in trouble or being benefited, now or in the future, and in what way?*

Secondary Appraisal
Secondary appraisal addresses the question *What if anything can be done about the stressful situation?* During secondary appraisal a person will look to all possible resources available for reducing the threat or harm and assess their suitability and chances of success.

Emotion-Focused Coping
"One large group consists of cognitive processes directed at lessening emotional distress and include strategies such as avoidance, minimization, distancing, selective attention, positive comparisons and wresting positive value from negative events." (Lazarus and Folkman, 1984b, 150)

Problem-Focused Coping
"Problem-focused coping strategies are similar to strategies used for problem solving. As such, problem-focused efforts are often directed at defining the problem, generating alternative solutions, weighing the alternatives in terms of their costs and benefits, choosing among them, and acting. However, problem-focused coping embraces a wider array of problem-oriented strategies than problem solving alone. Problem-solving implies an objective, analytic process that is focused primarily on the environment; *problem-focused coping* also includes strategies that are directed inward." (Lazarus and Folkman, 1984b, 152)

Coping Strategies from the Brief COPE
The following items are taken from the Brief COPE.

Self-distraction
I've been turning to work or other activities to take my mind off things
I've been doing something to think about it less, such as going to movies, watching
TV, reading, daydreaming, sleeping, or shopping

Active coping
I've been concentrating my efforts on doing something about the situation I'm in.
I've been taking action to try to make the situation better

Denial
I've been saying to myself "this isn't real."
I've been refusing to believe that it has happened

Substance use
I've been using alcohol or other drugs to make myself feel better
I've been using alcohol or other drugs to help me get through it.

Use of emotional support
I've been getting emotional support from others.
I've been getting comfort and understanding from someone

Use of instrumental support
I've been getting help and advice from other people.
I've been trying to get advice or help from other people about what to do

Behavioral disengagement
I've been giving up trying to deal with it.
I've been giving up the attempt to cope

Venting
I've been saying things to let my unpleasant feelings escape
I've been expressing my negative feelings.

Positive reframing
I've been trying to see it in a different light, to make it seem more positive
I've been looking for something good in what is happening

Planning
I've been trying to come up with a strategy about what to do.
I've been thinking hard about what steps to take.

Humor
I've been making jokes about it.
I've been making fun of the situation

Acceptance

I've been accepting the reality of the fact that it has happened.
I've been learning to live with it.

Religion
I've been trying to find comfort in my religion or spiritual beliefs
I've been praying or meditating.

Self-blame
I've been criticizing myself.
I've been blaming myself for things that happened.