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Stress and conflict in project management A mixed research study of a Swedish energy company

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Abstract

This study presents a mixed research on stress and conflicts in project management. It is based on the theory of stress and conflicts, their relationships with each other, as well as the relationships with role, trust and control, and communication. The theory is applied on parallel qualitative interviews and quantitative questionnaire studies conducted in the project management department of an energy company. The study highlights some common occurrences, causes and consequences of stress and conflicts in projects. It discusses identification processes, management of stress, conflicts and the relations in projects to ensure proper performance, cultures and attitudes, and methods of preventing stress and conflicts. The study further uses methods described to measure the stress levels experienced by individual project managers. The key findings are that stress and conflicts can induce each other, and affect both the physical and mental well-being of people, as well as both the performance of individuals and organisations. The studied company need to support employees with tools for identification and management, to increase knowledge about how to effectively address both stress and conflicts. Since the responsibility for identification and management of stress and conflict must be mutual between the organisation and its employees it is further suggested that clear company policies are developed to guide the project managers to expected attention and management of stress and conflict situations.

Keywords: stress; conflicts; project management; role; trust; control; communication

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/Oscar Sedström

Table of contents

1	Introduction	7
1.1	Background	7
1.2	Problem discussion	7
1.3	Purpose	7
2	Theoretical framework	8
2.1	Stress definitions and principles	8
2.2	Causes of stress	8
2.3	Stress effects	9
2.3.1	Stressors and performance	9
2.3.2	Prominent consequences of role stress	10
2.3.3	Stress and personal initiative	11
2.4	Stress management	12
2.4.1	Stress management barriers	13
2.4.2	Stress management models	13
2.5	The Positive and Negative Affect Schedule (PANAS)	14
2.6	Stress Energy (SE)	16
2.7	Conflict definitions and principles	17
2.8	Causes of conflicts	18
2.9	Conflict management strategies	18
2.9.1	Group dynamics and conflict management	20
2.9.2	Communication management	21
2.9.3	Trust, control and communication	22
2.9.4	Failing communication and collaboration	22
2.9.5	Formal and informal communication credibility	23
2.9.6	Communication media, intervals and contents	23
2.9.7	Communication and perception of project performance	24
2.9.8	Conflicts, roles and contracts between collaborators	25
2.9.9	Collaborating entities and hierarchical structures	25
3	Research Methodology	27
3.1	Philosophical stance	27
3.1.1	Paradigm of the present research	28
3.2	Design	28
3.3	Participants	29
3.4	Instruments	29
3.4.1	Interviews	29
3.4.2	Questionnaires	30
3.5	Procedure	30
3.5.1	Literature review	30
3.5.2	Company context review: a pilot study	30
3.5.3	Interviews and questionnaire survey	31
3.5.4	Data analysis	32
4	Result	33
4.1	Qualitative results from interviews	33
4.1.1	Experiencing stress	35
4.1.2	Causes of stress/Stressors	37
4.1.3	Stressful situations and relations	40
4.1.4	Stress management	42
4.1.5	Cultures and attitudes regarding stress	43
4.1.6	Experiencing conflicts	44
4.1.7	Causes of conflicts/Conflict generators	46
4.1.8	Conflict situations and relations	49
4.1.9	Conflict perspectives	50
4.1.10	Conflict management	51

4.1.11	The relationship between work roles, stress and conflicts	54
4.1.12	The relationship between trust, control, stress and conflicts	56
4.1.13	The relationship between communication, stress and conflicts.....	59
4.1.14	The relationship between stress and conflict	61
4.1.15	The spreading of stress or conflict.....	62
4.1.16	Additional individual reflections on stress and conflicts.....	63
4.2	Quantitative results from questionnaires.....	64
5	Discussion	66
5.1	Limitations.....	72
6	Conclusion.....	74
6.1	Suggestion for further studies.....	75
7	References	76
8	Appendices	78
8.1	Appendix 1: Interview instruction; Swedish original	78
8.2	Appendix 2: English translation of interview questions	86
8.3	Appendix 3: Questionnaire; Swedish original.....	90

1 Introduction

This chapter aims at giving an overview of the background of stress, conflicts and their management in work places and particularly in projects. It shortly describes the problem to be discussed in the presented research, and presents the underlying purposes of the study.

1.1 Background

Stress and conflict are widely covered in theorizing and empirical literature. Stress is also debated in media as a growing problem in today's society, leading to decreased well-being, or even burnout (Sommerville & Langford 1994; Örtqvist & Wincent 2006), and thus to both social and monetary costs. Stress at work is becoming a greater focus at companies in the western world. Managing such situations and reducing stress-related illnesses is of great potential benefit to firms and a way to stay competitive (Fay & Sonnentag 2002; Sommerville & Langford 1994). Conflict is a term with a broad meaning, from smaller disagreements to legal fights or even growing into physical violence. When it occurs in business relations it also may hinder progress at work, such as projects. Project, often involving people of different backgrounds and specialties is becoming a more common way of working in companies to create change with benefit to its customers and clients (Boddy 2002). Such work demands coordination, collaboration as well as keeping pressure on the involved to stay within time schedules and strict budgets. This is highly dependent on the work relations in terms of the work roles (Fay & Sonnentag 2002; Gong, Shenkar, Luo & Nyaw 2001; Sommerville & Langford 1994; Örtqvist & Wincent 2006), the trust and control (Faulkner 1999; Turner & Müller 2004), the communication (Boddy 2002; Erikson 2005; Gong et al. 2001; Turner & Müller 2004), and the individual personalities within the project (Boddy 2002; Sommerville & Langford 1994). Thus, a project is a typical work situation in companies where stress and conflict may not only occur but even be interlinked (Hyde, Jappinen, Theorell & Oxenstierna 2006; Sommerville & Langford 1994) and affect its overall performance.

1.2 Problem discussion

This study aims to investigate the experience of stress and conflict and its management within a Swedish energy company's project management department.

1.3 Purpose

The study purpose can be defined in five objectives, namely:

- Adding to the collection of qualitative data and conclusions on the experienced causes of stress and conflict in project management
- Helping to put focus and raise awareness on stress and conflict and its management within the chosen department for the study
- Offering guidance for the department on how to reduce stress and conflict and how to improve its management
- Contributing to the larger survey on positive and negative affects of stress (PANAS) and stress energy levels (SE) as conducted at the Göteborg University Department of Psychology
- Comparing the data on PANAS and SE from the studied project management department with norm data established in the mentioned larger survey

2 Theoretical framework

This chapter aims at describing the theoretical view of the presented research. It provides an overview of principles, causes and effects of stress, conflicts and its management, as well as insight into the complex underlying conditions of successful collaborations.

2.1 Stress definitions and principles

Sommerville and Langford (1994) describe stress as a social problem. According to them, stress has been defined by Cranwell-Ward as “the result of an individual perceiving that his/her inherent capabilities and resources are unable to complement or meet the demands placed on them a given situation” (Sommerville & Langford, 1994, p. 234). They further point at fundamental definitions of stress made by Seyle and by Cox.

Taking a closer look into the work of Seyle (1958), he describes stress as being the result of all adaptive reactions in the body. He states that this stress is a state manifested by a specific syndrome, but which is non-specifically caused. He defines it as “the sum of all the wear and tear caused by life” (Seyle 1958, p. 14).

Looking into Cox’s (1978) work he highlights the term demand and its importance to the concept of stress, and also describes stress as having more to do with perceived demands than actual demands. Furthermore, stress is stated to arise “when there is an imbalance between the perceived demand and the person’s perception of his capability to meet that demand” (Cox 1978, p. 18). Thus, stress is experienced when a person can’t adequately cope with the experienced demands. He further mentions that stress are usually described in terms of emotions such as for instance anxiety, fear, and guilt, to illustrate the stress.

Fay and Sonnentag (2002) and Sommerville and Langford (1994) portray stress as an experienced imbalance. Fay and Sonnentag (2002) explain stress using a model based on three components; an input function, a reference value, and an output function. The input function is the person’s perception of the situation, the reference value is the personal values, goals and wishes, and the output function is the person’s actual behaviour. The output function is triggered by an imbalance between the input function and the reference value, and aims to resolve this imbalance. Sommerville and Langford (1994) refer to Newman when presenting the general key elements of roles to be the individual attributes, the work, and relationships. These three elements all have to be in balance to avoid stress, and imbalance may lead to potentially stressful situations. A three dimensional grid making up an interface diagram with these elements as axis’s can be used as an early warning device.

Gong, Shenkar, Luo and Nyaw (2001) and Örtqvist and Wincent (2006) present stress from a role theory perspective. Role stress is described as the ambiguity experienced by a person when performing a role within a social context, having to live up to expectations on particular behaviour. This role stress is described as having three facets; role conflict, role ambiguity, and role overload. Role conflict is stress experienced due to contradicting expectations of the role. Role ambiguity, or role uncertainty, is stress descending from insecurity on how to act to fulfil the expectations of a role. Role overload means feeling stressed when the resources and time to perform the work needed according to expectations of the role are not available. Furthermore, role relation is a term used to describe the relationship between partners.

2.2 Causes of stress

According to Fay and Sonnentag (2002) the experience of stress is subjective, whereas the stressors causing it are objective. This means that stressors are external to the individual and stress is internal. For example, noise or maybe even music at a certain level in an office is an objective stressor, but may be subjectively experienced by different individuals and

therefore leading to different perceptions of stress, if their input function or reference value are different.

“In this framework, a stressor - leading in one way or other to a sensed discrepancy – can be regarded as a *signal* indicating that a work process, procedure, or design is below an optimal level” (Fay & Sonnentag, 2002, p. 224).

Fay and Sonnentag (2002) imply that role conflict and role ambiguity may cause stress but this depends on the individual's preferences and experiences of the situation. In a similar fashion, Gong et al. (2001) mention that stress in terms of role conflict and role ambiguity may arise due to loss of direction, lowered expectations, and instrumentality.

According to Sommerville and Langford (1994) there are numerous causes of stress. They mention uncertainty as one example and imply that moving a person from one group to another may give rise to stress if the new environment is unknown or require new responsibilities or roles. It is further recognised that demands may cause stress, and maximising employee performance using efficiency measures can lead to uncertainty about employment, and thereby induce stress.

Fay and Sonnentag (2002) highlight two kinds of stressors; situational constraints and time pressure. Situational constraints means a perceived disturbance in the way work processes, material and equipment function, for instance disturbing noise or broken working tools such as computer breakdown interrupting or hindering the work flow, risking personal achievement goals. Whereas time pressure means that the amount of time available to accomplish a task is too little.

Sommerville and Langford (1994) argue that time, cost and people are the three main stressors in projects. People should be under the direct control of the organisation while time and cost can be more under external constraints.

2.3 Stress effects

According to Fay and Sonnentag (2002), the symptoms of stress can be of both mental and physical nature. Sommerville and Langford (1994) penetrate this further and add behavioural symptoms to these two types. They describe psychological symptoms as being for instance lack of concentration, depression, tenseness or even paranoia. Behavioural symptoms that have been found are: irritability, lack of effort, excessive eating and drinking, or avoiding work environments. Physical symptoms include cardiobronchial pains, losing weight, and abnormal tiredness. Furthermore, these symptoms may be separate or combined.

2.3.1 Stressors and performance

According to Sommerville and Langford (1994) stress can affect both individual's and organisation's health and well-being, as well as productivity. Fay and Sonnentag (2002), state that the stress-performance relationship in companies has important effects on their competition.

Fay and Sonnentag (2002) and Sommerville and Langford (1994) argue that stress effects may be negative or positive, respectively healthy or unhealthy. Too much stress may cause “burn-out”, whereas too little stress may cause “rust-out”. Thus, stress in terms of putting pressure on people may lead to dissatisfaction when failing, or to satisfaction when performing successfully. Furthermore Örtqvist and Wincent (2006) state, after reviewing hundreds of journal articles, that role stress is generally described in theory as damaging to people. Nevertheless, it is occasionally presented as reducing boredom or giving an energy input to get a hold of the job at hand.

Fay and Sonnentag (2002) describe stress and its effect on performance in a simplified way as a linear relationship or as an inverted U-shaped curvilinear relationship. The linear relationship suggests that stress has a negative effect, and that the performance decreases when stress increases. The U-shaped relationship suggests that this is true after a certain optimal level of stress, but that performance actually increases as the stress increase up to this level. Thus, stress has an activating function. Sommerville and Langford (1994) also imply that individuals may work most effectively at a certain optimal level of stress.

“A moderate level of arousal is required to keep an individual alert and focused on the task. When there is too little arousal, performance is diminished” (Fay & Sonnentag, 2002, p. 222).

However, Fay and Sonnentag (2002) state that there is often more empirical evidence suggesting a linear negative relationship than an inverted U-shaped relationship, but emphasize that this may be due to the fact that the optimal level of stress is very depending on the individual and the task at hand and therefore hard to describe generally.

Sommerville and Langford (1994) mention that stress may lead to several different types of negative effects. For example, stress can cause poor job performance. Gong et al. (2001) state in a similar fashion that role conflict and role ambiguity leads to inefficiency, a negative effect that erodes job performance. Fay and Sonnentag (2002) also discuss that role conflict and role ambiguity can affect the performance but imply that it can be debated if this stress is merely negative or positive for the performance. They describe the negative effects of stress in more detail as either direct or indirect. Direct impairment on performance may occur when for instance tools needed for a task to be completed is malfunctioning and need to be mended. The pace of work may then have to be increased due to the time lost on the mending, but also decreased quality may be the result. Disturbing noise that drowns signals for task execution can also directly reduce performance. Stressors can also impair performance indirectly when they consume human's limited regulatory capacity.

Fay and Sonnentag (2002) further argue that the effects of stressors have been found to be different between in-role behaviour and extra-role behaviour regarding challenging and proactive initiative.

2.3.2 Prominent consequences of role stress

Örtqvist and Wincent (2006) distinguish eight prominent consequences of role stress presented in theory. They have performed a quantitative meta-analysis, reusing and combining data from available role stress studies. Their research aimed at providing an accumulated view of studied role stress consequences. The prominence of these consequences was made on basis of the amounts of studies performed on each particular consequence in relation to each of the three role stress facets; role conflict, role ambiguity, and role overload. Thus, twenty four relations were studied all together.

According to Örtqvist and Wincent (2006) the found prominent consequences were emotional exhaustion, reduced personal accomplishment, depersonalization, job satisfaction, organisational commitment, job performance, propensity to quit, and tension, which have all been repeatedly studied. Emotional exhaustion refers to a sense of being emotionally worn-out, which eventually may lead to burnout. Reduced personal accomplishment means experiencing decreased achievements in relation to ones expectations. Depersonalization refers to coping with the situation by keeping a personal distance to people. Job satisfaction means a more negative attitude to ones work regarding colleagues, salary, and the company. Organizational commitment refers to being a part of and loyal to a collaborating entity. Job performance means how well a person carries out his tasks. Propensity to quit means the employee's wish to leave the job position. Tension, means that a person is feeling

troubled and concerned at work, as well as relieved after work. These psychological conditions are all addressed as being consequences of one or more of the three role stress facets. Nevertheless, Örtqvist's and Wincent's (2006) research shows that the individual role stress facets are more associated with some of the consequences than the others. Nine out of totally twenty four relations had a medium effect size. The other relations had small or below small effect sizes. Role ambiguity had the strongest correlate with organisational commitment, job satisfaction, propensity to quit, and tension. Role conflict had the strongest correlate with tension, job satisfaction, propensity to quit, and organisational commitment. Role overload had only one medium size correlation, with emotional exhaustion. They finally conclude that the mentioned eight most presented role stress consequences in theory, or by logic, are in fact supported by their own meta-analysis of available data.

2.3.3 Stress and personal initiative

Fay and Sonnentag (2002) have studied employees' personal initiative as a way of extra-role performance, and its relationship to organisational stress. They distinguish between in-role performance and extra-role performance on a general level. The first level refers to behaviour required or expected by instructing managers, co-working colleagues, and role-descriptions, and the latter level refers to the opposite where the work performed is merely voluntary. They state that empirical studies have shown that a company's organisational effectiveness is depending not only on the in-role performance but also on the extra-role performance, and that showing personal initiative is of benefit to the individual.

Furthermore, Fay and Sonnentag (2002) differentiate between two dimensions of extra-role performance, namely affiliative-challenging respectively promotive-prohibitive. The most common dimension is the first, where it's a matter of preserving the relationships versus focusing on substantive issues, rather challenging relationships. The latter dimension means either promoting new behaviours and ways of working, or protecting work processes already in use. Personal initiative is presented as an example of the promotive-prohibitive dimension, and expressed as a behaviour where a person is going beyond the formal requirements of the given job and takes a self-starting and active approach to work. A typical example of such behaviour would be to make preparations for future challenges and taking actions to increase efficiency.

Fay and Sonnentag (2002) refer to a control theory framework to explain the effects of stress on performance. They discuss this by using the model based on an input function, a reference value, and an output function. They further refer to Edwards who enlarged this model to include coping as an alternative to the output function and emphasising on the importance of the imbalance experienced by the individual, resulting in negative psychological effects such as decreased well-being. Fay and Sonnentag (2002) themselves broaden this latter model to include personal initiative as an alternative to the output function. They thereby shift focus from a merely reactive model to a more active one, since personal initiative focus on preventing looming or reoccurring stressors rather than on acute stressor handling. Personal initiative is therefore considered as a long-term focus.

Fay and Sonnentag (2002) mention that when situational constraints occurs, personal initiative as extra-role performance, for instance learning tricks and remedies, may be used to act upon the situation to ensure in-role performance in the long run and reaching related goals. Accordingly, situational constraints are presented as being positively related to personal initiative. When there is time pressure, increased work speed is often used as a way of remedy, or even reduction of quality. These discrepancies in time and quality are experienced as unpleasant, and individuals thus may take actions, for instance to increase skills or develop work processes, to prevent these situations to reoccur in the future. Also time pressure is therefore presented as being positively related to personal initiative.

However, a reservation is made by Fay and Sonnentag (2002) implying that situational constraints and time pressure might not always be positively related to personal initiative, especially in situations with large amounts of stressors. Then the resources needed for extra-role performance are consumed by intra-role performance, and the long-term focus needed for personal initiative is blurred by a muddle of stressors. Yet, in these extreme situations the need for personal initiative is even greater, due to greater imbalance between the input function and reference value with damaging effects on individuals' well-being. Thus, also personal initiative may itself follow an inverted U-shaped curve and be negatively influenced by stressors after the optimal stress level.

Fay and Sonnentag (2002) have studied situational constraints and time pressure as stressors and the relation to personal initiative, assuming that a person doesn't take personal initiative in the very moment of stressful situations since they will then be too busy prioritizing their resources on the actual task. They refer to other studies implying that the work complexity and the employees' qualifications may affect their personal initiative, and therefore included these variables in their study too. Their study was based on qualitative research investigating personal initiatives and quantitative research investigating stressors. It was conducted involving citizens in former Eastern Germany, after the unification with former Western Germany. They involved various work experience from manufacturing, construction, tourist services, food services among others.

Their results showed that both situational constraints and time pressure did significantly affect personal initiative positively. Analysis conducted over longer periods showed that time pressure increased over time whereas situational constraints decreased. When stressors were at comparably lower levels, they were related to changes in personal initiative. Work complexity and the employees' qualifications were not significant for personal initiative. The studies on the U-shaped curvilinear effects showed no significance for this relationship. Personal initiative was not impaired even at high stressor levels. Alternatively, their study did not adequately cover the downward slope of the inverted U-shaped curve. However, the results support their idea that personal initiative is one output function in the stress process.

Fay and Sonnentag (2002) draw the conclusions from their study that stressors may work both negatively and positively at the same time. They may induce personal initiative but are also known for reducing well-being.

2.4 Stress management

Fay and Sonnentag (2002) discuss that there may be mechanisms within an organisation to handle stress. When a workplace is malfunctioning due to stressors and employees' inter-role performance is threatened, the organisation needs to intervene to help improving the work situation. Sommerville and Langford (1994) mention that the negative effects of stress, not only for the individual but also the organisation, is a strong reason for companies to be active in stress management to maximise employee's contributions. They state that having healthy employees is of great benefit for the company, to maintain efficiency and reduce absent personnel and any indirect costs from secondary stress on present employees due to the greater amount of work when others are absent. They also address the increased wellbeing of employees in such companies as being beneficial since healthier employees will produce better and thus more efficiently in the long run.

"The health and stress aspects of work being well managed could mean a positive return of investment from organisational activities such as training, staff development, employee assistance programmes, counselling, and healthy living programmes" (Sommerville & Langford, 1994, p. 241).

Fay and Sonnentag (2002) further state that individual health and well-being have been shown to be improved by stress management interventions and personal initiative may not

be reduced by such interventions. Personal initiative either focuses on removing the actual stressor directly or on improving the situation by relieving the pressure to compensate from these stressors indirectly. An example of the latter can be to help co-workers in stressful situations and is then pro-social rather than challenging in the way of dealing with stressors. However, since personal initiative is voluntarily it may be sacrificed in stressful situations.

2.4.1 Stress management barriers

Sommerville and Langford (1994) present some barriers to cope with stress within organisations. Senior executives may see stress as a normal part of the work and therefore don't properly address proactive stress-management. As example, the "macho culture" in some companies seems to hinder the companies from admitting to stress. The first priority must therefore be to develop an appropriate culture and environment within the organisation. Sometimes a change in the senior-management ideology is needed to achieve this. If the company doesn't already have a culture of caring and a people-centred ethos it can risk losing its face if addressing the existing stress problem.

According to Sommerville and Langford (1994), the companies which do consider stress-management may do it from a short-term perspective although stress has to be considered in the long-term view to properly investigate changes of habits and attitudes. Although managers often get training in planning and financial management in a long term perspective it seems that it is not the case when it comes to people management. This is often dealt with by using a short-term strategy. However, the authors argue that a healthy firm is not the result of short-term nice-people programmes but by investment in personnel in a longer timeframe, addressed to quantifiably increase productivity by keeping employees at work and reducing abundant illness and turnover expenses. There must be a holistic approach to deal with stress to make sure that not only one symptom is treated or that the treatment is only focused on one small part of the affected organisation.

"work-related stress is only a part of the total problem, and, by implication, only part of the solution. To effect an acceptable return on capital where stress management is concerned, organisations must treat the problem holistically" (Sommerville & Langford, 1994, p. 242).

2.4.2 Stress management models

Sommerville and Langford (1994) imply that the fit between the job and the person is a common aspect in many stress-management programmes. They refer to Dorch when mentioning that the matching of the tasks, skills, experience, and behaviour is of central importance in managing stress effectively. A model was created by Dorch based on the principles of describing the job by defining the contents of the job, in terms of what to be done, and the process, in terms of how it should be done. The content is explained by describing the objectives and context of the job, and the knowledge and competence needed. The process is explained by listing the required behaviour from an organisational perspective and the preferred behaviour from an individual perspective. This is then fitted together by finding the best match. Briner, Geddes and Hastings (1999) describe this model in similar terms and refer to it as the "classic theory". However, they regard this model as less useful in open projects since it allows too little flexibility. Sommerville and Langford (1994) also criticise this model for being too specific and time-consuming and difficult to apply to changing environments or transfer between people, tasks or department. The presented model developed by Dorch is illustrated in Figure 1.

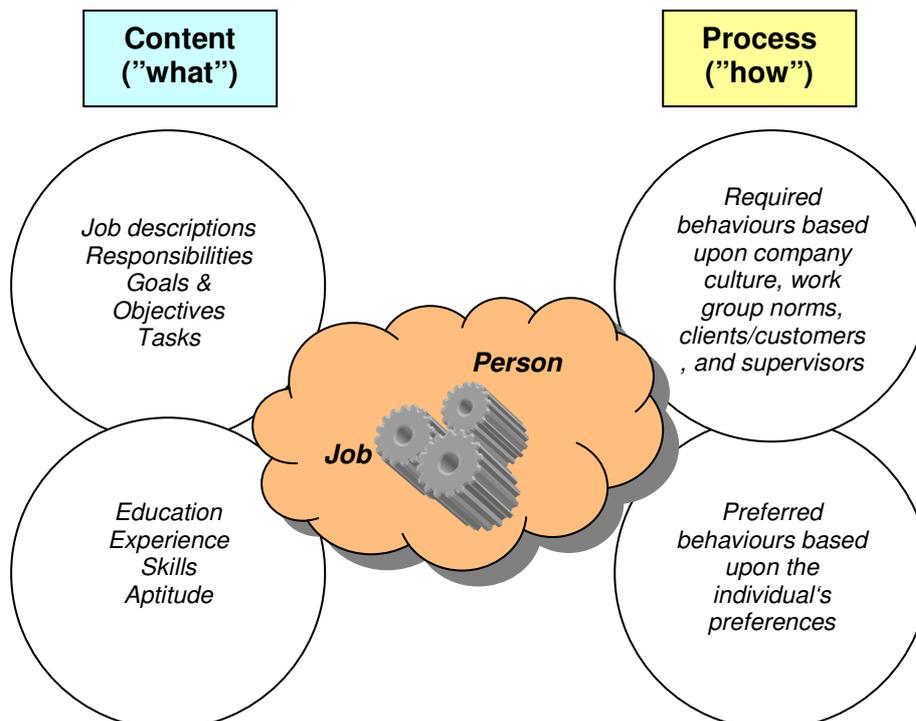


Figure 1. Dorch's model of the fit between person and job (Source: Sommerville & Langford, 1994, p.241, modified version).

An alternative interface model presented by Sommerville and Langford (1994) is based on the principles that stress-management programmes usually have the same contents and intents; the organisations' culture, background and values are important; the skills, experience and knowledge of the employees must be considered; there must be an interactive relationship between departments within the organisation; a holistic perspective is needed rather than a single technique or activity; and that long-term strategies should be used for stress-management within organisations. These principles are used to explain the situation by creating three clusters describing the individual, the organisation and the stress management programme. These clusters are then all put together, overlapping the other clusters completely, partly or not at all in some areas.

Furthermore, Sommerville and Langford (1994) discuss three aspects that might be considered when characterizing people resistant to stress: control, commitment and challenge. Control refers to the case where individuals believe that they can affect the outcomes of situations and thereby the causes of stress. They seek explanations to situations in their own and others actions. Commitment means that the individual is interested and believes in the job that is performed. Challenge refers to the individual seeing change as a norm of the job, rather than stability.

2.5 The Positive and Negative Affect Schedule (PANAS)

Watson, Clark and Tellegen (1988) describe the positive and negative affect schedule (PANAS) as a validated tool to measure peoples' experience of stress. This tool is based on self-rated mood analyses. Two 10-item mood scales have been developed for this purpose reviewing two factors, positive affect (PA) respectively negative affect (NA).

The results of such mood rates, interpreted into PA and NA, are described as representing two affective state dimensions of both psychobiological and psychodynamic construct. The scales correspond to the emotionality of individuals and their different responses on penalties and rewards. PA is presented as reflecting "the extent to which a person feels enthusiastic, active, and alert" (Watson, Clark & Tellegen, 1988, p. 1063). Furthermore, NA is described

as “a general dimension of subjective distress and unpleasurable engagement that subsumes a variety of aversive mood states” (Watson, et. al, 1988, p. 1063).

However, Watson, Clark and Tellegen (1988) also imply that the validity of any mood scales based on PA and NA must be considered. Therefore, they describe the PANAS scales and have tested their validity. Several terms were tested as markers for PA, respectively NA and controlled for factorial and external validity, in terms of capturing the underlying mood factors adequately. The two resulting 10-item mood scales are described as involving only terms with a substantial loading on only PA or NA. The developed PA scale includes the terms; interested, excited, strong, enthusiastic, proud, alert, inspired, determined, attentive, and active. The NA scale included the following terms; distressed, upset, guilty, scared, hostile, irritable, ashamed, nervous, jittery, and afraid. The PA and NA scales can be mixed together and used in questionnaires to measure individuals’ emotions, allowing the respondents to relate each of the terms to their own experienced situation, on a graded scale.

They state, based on their own findings, that “the PANAS scales provide reliable, precise and largely independent measures of positive affect and negative affect, regardless of the subject population studied or the time frame and response format used” (Watson, Clark & Tellegen, 1988, p. 1067).

Archer (2007) present a large questionnaire survey using PANAS scales to categorise four behavioural profiles among a large group of respondents. He describes these profiles using a diagram based on a PA, respectively a NA axis. The diagram area is divided into four sections where high levels of PA in combination with low levels of NA is categorised as a “self-fulfilling” profile. The opposite relation between PA and NA is categorised as a “self-destructive” profile. Low measured amounts of both PA and NA is categorised as a “low affective” profile, whereas high measured amounts of both PA and NA is categorised as a “high affective” profile. The PA respectively the NA values are calculated via dichotomisation and norm data are presented for the whole studied group. The four behavioural profiles in relation to PA and NA are illustrated in Figure 2.

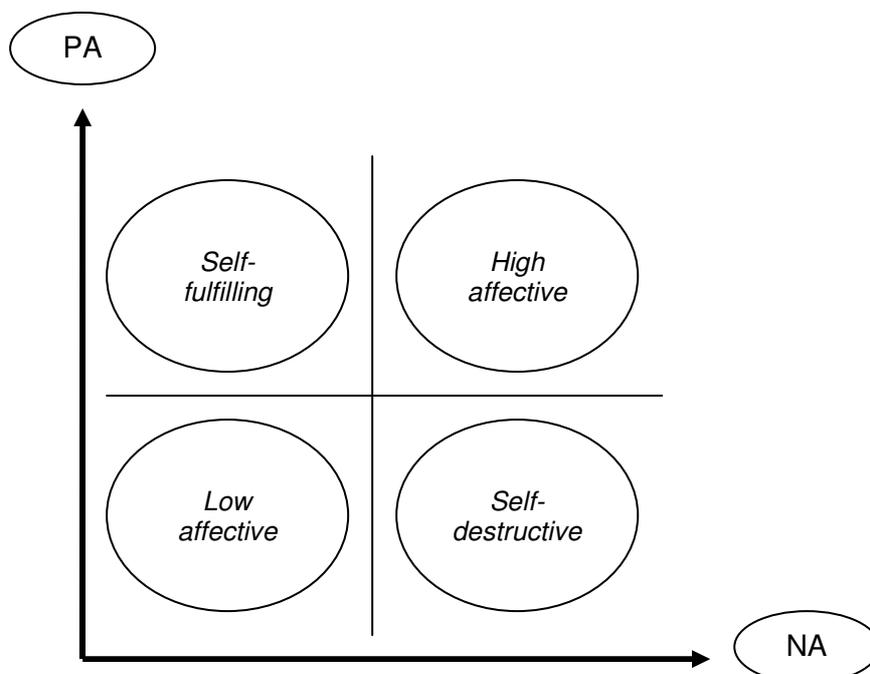


Figure 2. Categorisation of behavioural profiles on basis of PANAS scales (Source: Archer, 2007, p. 6, modified version).

2.6 Stress Energy (SE)

Kjellberg and Iwanowski (1989) present an alternative Swedish scale for measuring the experience of stress, the stress and energy scale (SE). This scale has been developed in a similar fashion as the PANAS scales but on basis of Swedish adjectives instead of English adjectives, to appropriately adjust for slightly different interpretations and meanings of words when translating English words into Swedish. Thus, a Swedish scale is presented as more adequate when conducting surveys on experienced stress in Sweden.

Kjellberg and Iwanowski (1989) have also found a two dimensional scale for self-rated mood analyses. The scales are measuring a stress dimension respectively an energy dimension with particular application to work situations. Energy is used to express how active a person experience that he or she is in a work situation, while stress is used to express how the person appreciates the same situation. Several terms were tested as markers for stress, respectively energy, including translations of words used in foreign scales, and controlled for factorial and external validity, in terms of capturing the underlying mood factors adequately. Words being regarded as having extreme loads were discarded, and to compensate for the loss of such extreme words, an extra grading option was added for proper variation on the evaluation scale used in for example PANAS studies. Much effort was put on procuring a symmetrical scale with a defined neutral point, including few words, the same amount of words used to describe the stress and the energy factor, as well as equal number of words describing each pole on both axes.

The two resulting 6-item mood scales are described as involving only terms with a substantial loading on only stress or energy, studied by plotting weights of words in a diagram. The developed stress scale includes the Swedish translations of the adjectives; stressed, tensed, and pressured on the positive pole, respectively calm, and two words both translated as relaxed (mentally respectively physically) in English, on the negative pole. The energy scale included Swedish translations of the following adjectives; energetic, active and sharp on the positive pole respectively ineffective, passive, and slack on the negative pole. The stress and energy scales (SE) can be used together in questionnaires to measure individuals' emotions, in the same way as the PANAS scales.

Kjellberg and Wadman (2002) present a questionnaire study using SE scales to categorise four behavioural profiles among a large group of respondents. They describe the four profiles using a diagram based on a stress, respectively an energy axis. The diagram area is also in this case divided into four sections, where high levels of stress in combination with low levels of energy is categorised as an "exhausted" profile. Low measured amounts of both stress and energy is categorised as a "bored" profile. High measured amounts of both stress and energy is categorised as a "dedicated under pressure" profile, whereas low levels of stress in combination with high levels of energy is categorised as a "dedicated without pressure" profile. The stress respectively the energy values are calculated via dichotomisation in the same way as for PA and NA. The four behavioural profiles in relation to stress and energy are illustrated in Figure 3.

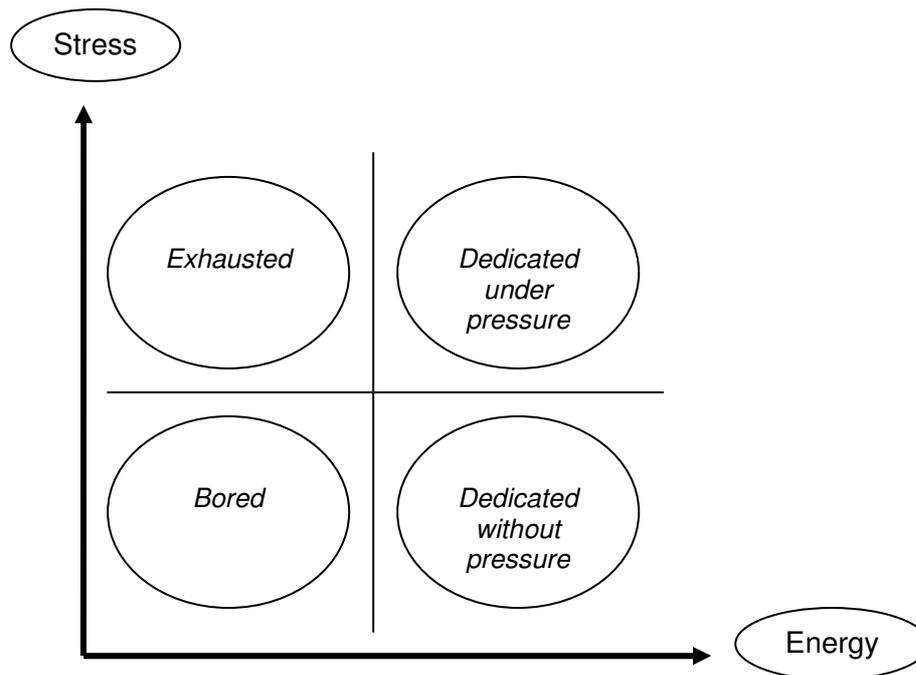


Figure 3. Categorisation of behavioural profiles on basis of SE scales (Source: Kjellberg & Wadman, 2002, p. 4, modified version).

The studies made by Kjellberg and Wadman (2002), performed with participants from four different companies and businesses, show that there are significant differences between the companies regarding how the employees experience their moods at work. The four studied groups were assembly workers in a car factory, assembly workers in an electronic industry, travel agency employees, and newspaper journalists. The results showed that the assembly workers were evenly spread throughout the whole SE diagram, where the ones from the electronic industry had an even larger distribution than the ones from the car industry. The journalists and travel agency employees were, with few exceptions, all found in the two high energy groups, indicating high dedication. The journalists were distributed in both the high and low stress areas of the diagrams' right hand side, while most travelling agency employees were found in the high stress area indicating people experiencing dedication under pressure. Parallel studies of the experience of musculoskeletal complaints among the participants showed that such complaints were significantly more common among the two high stress groups of the SE diagram. Kjellberg and Wadman (2002) thus argue that there is an increased risk of experiencing such negative symptoms if one is experiencing high amounts of stress, irrespective of the person feeling exhausted or just dedicated under pressure.

2.7 Conflict definitions and principles

According to Sommerville and Langford (1994) conflict has been defined by Baden-Hellard as "the opposition of interests, values or objectives" (Sommerville & Langford, 1994, p. 237).

Hashem and Varghese (2004) describe conflicts as being inevitable in collaborating entities since people have different views on things. They imply that conflicts start with one person experiencing that one or more other persons frustrate an interest of theirs. It is discussed that conflicts may have both positive and negative influence on work performance. Furthermore, conflicts are said to be resolved easier if they are recognised early on.

Sommerville and Langford (1994) also explain that the conflict relationships within projects occur within or between groups and persons. Furthermore, they regard conflicts as having

the same life cycles as projects, having a starting point, some intermediate stages, and an ending. All stages may not be experienced by all affected individuals. They argue that a person's behaviour is a function of both the situation and the personality. Thus, the behaviour of two persons experiencing the same situation may differ if their personalities are not the same.

In addition, Sommerville and Langford (1994) have found that stress may be linked to occupational conflicts.

"Occupational stress may be a precursor to, or complement, conflict situations" (Sommerville & Langford, 1994, p. 242).

2.8 Causes of conflicts

When discussing management within firms, Swan (2003) implies that conflicts arise due to value gaps. He describes these value gaps as differences in defining and interpreting value, and that this inadequate understanding of value among the participants may lead to goal misalignment. Turner and Müller (2004) state similarly, when discussing organisation of work, that a conflict is the result of people not having jointly consistent objectives. In contrast, cooperation is the result of people having common objectives and acting rationally.

Sommerville and Langford (1994) present a couple of originators of conflict specifically for the construction industry. These are the client, the contractors, the design team, subcontractors, suppliers and bodies external to these. Locating the exact source can be difficult since they may interact or work simultaneously.

The common causes of conflict are grouped by Sommerville and Langford (1994) into functional change, retardation of progress, variance in contractual obligations, and budgetary matters. These four causes are associated with more intangible but significant tension sources. The perception and resolving of the conflict is dependent on suppression and attention-focus mechanisms of the affected individuals and the organisations.

Sommerville and Langford (1994) put forward findings from their own study, involving project managers from various construction projects. Their study was conducted by the use of a questionnaire in which they addressed the possible influence of stress on conflict. They presented possible sources of conflict and the participants were asked to rank the sources in terms of their personal prevalence. The presented sources were design matters, technical issues, vendor relations, work execution, payments, personnel matters, contractual matters, union issues, health and safety, role of the individual, role of others, project organisation, project objectives, communications, and other things open to the respondent to specify. The rank scores were analysed by using Friedman's distribution and this clearly showed the significance of a high level of agreement on conflict sources among the respondents. The result of the questionnaire enabled the researchers to group the conflict sources in a primary set, a secondary set, and a tertiary set. The result showed "a top five" prevalence for source areas that were all strongly linked to the interface between the cooperating people involved in the project, such as for instance design matters, vendor relations and contractual matters.

"... people are the most important facet within the project" (Sommerville & Langford, 1994, p. 240).

2.9 Conflict management strategies

Conclusions are drawn by Sommerville and Langford (1994) that used traditional approaches to deal with conflict and disputes may only lead to some form of resolution but do not prevent conflicts from occurring. They also state that the influence of people on stress and conflicts

has been shown to be important when understanding and handling each situation. Management which deals with stressful or conflict situations must therefore have alternative strategies at hand to properly deal with these situations. They suggest the following methods: elevation of the positive coping strategies already in use, introduction of stress management and counselling programmes, training in identification and resolution of conflicts, and psychometric testing of employees.

Sommerville and Langford (1994) argue that the industry must adopt techniques which enable them to alter the environment in which projects take place to make effective progress in handling and mitigating stress and conflict. Stress and conflict that reoccurs consume much effort and resources from managers to come down to an acceptable situation to the involved individuals. Proper handling of stress and conflicts at an early stage can be beneficial in several ways to the organisation, and these methods may be implemented at low cost. For instance, more options to handle stress and conflict may be identified and available to the management if it is considered at an early start of the project.

Hyde, Jappinen, Theorell, and Oxenstierna (2006) state that there are relatively few attempts in literature to analyse the effects of managerial style on employee health. Therefore, they have examined workplace conflict management and its relationship to self-reported measures of stress, health problems, weary and sickness absence caused by overwork or tiredness. Their study comprised of surveys involving employees in Swedish and Finnish multinational forestry companies and bivariate analyses of reported ways of dealing with conflicts. According to their results those who report that conflicts, in terms of differences, are managed and resolved via discussion report stress, health problems, weary or sickness absence to a less extent than those managing such conflicts by using authority or by ignoring it. This was proven through binary logistic regression analyses to be the case regardless of the employees' job positions or their demographic backgrounds. This analysis showed no significant difference between those managing conflicts via authority or ignoring it. It is stated that conflict management and alternative approaches used to resolve conflicts are important for the health of employees and related to their experienced stress.

Hashem and Varghese (2004) present a concrete model for conflict resolution, applied and evaluated in a construction project with major disagreements between collaborating partners about large amounts of money and how to proceed with the project. The discussed conflict resolution model, the analytical hierarchy process methodology (AHP), is described as facilitating the comparison and evaluation of different demands by quantifying the disagreeing partners' potential losses and gains.

The application of the model is described by Hashem and Varghese (2004) as being based on the prerequisite that the partners agree that they want to come to a resolution about the conflict, in larger conflicts facilitated by a mediator. The principle of the AHP model is to provide an overview of the different presented demands from the partners and the possible decision alternatives in a hierarchical structure. The first step of the process is to get the partners to agree on a common goal for the resolution, in terms of evaluating the partners' different perceptions of their respective gains and losses from alternative decisions. The second step is then to define these possible gains and losses, for instance in terms of costs and benefits, for each partner. These gains and losses are used as criteria for the final decision and are written in separate boxes underneath the common goal to make up the primary branches of a hierarchical structure. Then the different alternative demands from one partner to the other are presented, for instance ending the collaboration, transfer the budget, or changing the evaluation methods of work. These demands are written as alternative decisions underneath the criteria, to make up the final branches of the hierarchical tree structure.

Hashem and Varghese (2004) imply that for a better overview the partners' gains can be presented in one separate tree structure and their losses in another. Also, one partners' demands together with the other partners' gains or losses can be studied separately. When the tree structures are put on paper the next step is to let the partners prioritise the importance of each box on a level with the others on that level, based on their relevance to the boxes on the level above. The priority is made using a scale where each number is equivalent to a measurable preference of each occurrence, such as 1 for equal preference and 9 for extreme preference. Even numbers are used for compromises between two alternatives. Each partner evaluates not only their own gains and losses but also their partners'. This is presented as contributing to the understanding of the opponents' situations.

After prioritising by both partners the figures are analysed by calculating the relative importance for the presented elements on each level. The composite weights of the presented alternative decisions are then determined by aggregating the weights from the top to the bottom of the hierarchy. All possible paths are followed through the tree structure and the figure in the box of one level is multiplied by the figure in the found box on the level below. At final evaluation the alternative with highest score is chosen as the preferred decision.

2.9.1 Group dynamics and conflict management

According to Murphy and McIntyre (2007) it is important to examine the overall project context when forming work groups. They emphasize that individual, group and environmental factors are likely to affect the group effectiveness and therefore should be considered at this stage.

Especially the mix of people could be worth considering when forming the project team since projects are predominantly about collaborating with people (Boddy 2002; Briner, Geddes & Hastings 1999; Murphy & McIntyre 2007; Sommerville & Langford 1994).

Briner et al. (1999) imply that there are usually internal routines within companies for how project teams are put together. Yet, they argue that project managers should consider who among the potential team members that can contribute useful networks, communicative or political skills, credibility, are most eager, has the biggest interest, or best use of participating in the project.

Sommerville and Langford (1994) emphasise that a greater focus on the people within the project team may help to reduce one of the key stressors and allows forming groups without unwanted behaviours, potentially better to deal with conflicts. The use of psychometric tests may allow the organisation to understand individuals approach to conflict and predicting their interactions, and put together teams of individuals with better cohesion and commitment to achieve set objectives more effectively. Boddy (2002) similarly discusses the dependence of the project team's performance on the involved individual's psychological characters, and how well they are balanced within the group. He presents Belbin's model for characterizing people and describes individual's profiles as nine roles; completer, coordinator, implementer, monitor-evaluator, plant, resource-investigator, shaper, specialist, and teamworker. The individual's characteristic Belbin-profiles within a group can be typed using forms with grounded questions.

According to Boddy (2002) the completer is careful, searches out problems and faults and delivers on time. The coordinator is mature, a good chairperson, clarifies objectives and promotes decision making. The implementer is disciplined, effective and delivers on time. The monitor-evaluator is sober and strategic, sees all possibilities and judges carefully. The plant is unconventional, creative and finds solutions to problems. The resource investigator is communicative, contact seeking and creates networks. The shaper is challenging and has the drive to overcome problems. The specialist is self-starting, narrow minded, skilful and

provides knowledge. The teamworker is diplomatic, cooperative, a good listener and is sensitive to people's situations.

Yet, it is emphasized that project groups should reflect the task at hand and don't need to be comprised of all nine roles. Successful teams often include a capable coordinator, a monitor-evaluator, a strong plant, and one or more people that stimulate the plant. More than one coordinator, plant, resource investigator, or shaper in the group may create problems. Successful teams are also stated as having developed a culture where members are encouraged to review tasks, and norms about behaviour.

Nevertheless, Boddy (2002) emphasises that a project team can't just be formed and expected to function immediately. Before the group can perform well and the objectives can be met, the project members must learn how to cooperate. There has to be some form of team evolution. Five development steps are identified; forming, storming, norming, performing and adjourning. The forming stage refers to putting together the team members and presenting them to each other, finding out who else is in the group. The storming stage refers to starting the work process but facing different opinions and standpoints on how the work should be performed. Thus, conflicts at this stage may be a natural part of the team development process. The project manager has an important role to help the project group to overcome this stage. The norming stage refers to the group establishing proper work processes for their collaboration. Thus members' individual responsibilities and roles are clarified and accepted. The performing stage refers to members working well to achieve the project's objectives. The adjourning stage refers to the group disbanding after finishing their task. The team may then reflect on their work as well as future assignments. Changes of for example members or goals along the way can cause the project to go through these stages several times.

According to Sommerville and Langford (1994) the reduction of time spent on the forming, storming and norming stages of the project life-cycle in groups with typed individuals can give significant advantages when reaching the productive performing stage at an earlier point in time.

2.9.2 Communication management

Briner et al. (1999) mention that it can often feel important to the team members to get to know each other closer and start to build their identities early on in a project. Boddy (2002) states that the project manager can't only rely on the individuals within a team, it is also important to create roles and work structures. He presents the norming stage as critical to establish a common language to guide the group and decide on proper ways of working together effectively. He addresses a few important areas to agree upon, such as plan meetings, face up to disagreements and choose ways of communication. Group members depend on information from others and communication concerns the kind of contribution which people make, and whether this helps the group to manage the task or not. They need to clarify how to handle information efficiently, through agreed channels, at what time and with acceptable contents. This is important, not least to the project manager, to influence people affected by the project. Similarly, Erikson (2005) discusses this within a broader context and implies that communication is fundamental to any organisation and work on internal communication is necessary. The necessity for effective internal communication is presented as giving co-workers overview, create agreement on goals, provide better basis for decision-making, create motivation and unity, facilitate collaboration, counteract on rumours, facilitate delegating, decrease the amount of moving personnel, facilitate recruitment, promote personnel development, create competence on change and to reach better results and thereby increase profitability.

2.9.3 Trust, control and communication

Turner and Müller (2004) discuss the relationship between project owners and project managers and state that communication has a critical role to serve in this relationship. They argue that the partnership between project owners and project managers may affect the project outcomes. In all delegated work there is a “principal-agency” relationship between the owner and the delegated task performer. This refers to a situation where one party is dependent on the other to perform a task on his behalf. Therefore some authority to make decisions is delegated. Nevertheless, since the access to information is asymmetric between the two, it can lead to mistrust. Principal-agency theory can be used to explain the potential of conflicts that may occur between the two parties. The owner needs to feel confident in the manager’s performance of the task, and the manager must assure that he is performing what the owner expects. Mistrust and tight control may be a result if this is not achieved through proper communication.

According to Turner and Müller (2004) project communication is linked to at least four types of emotions; trust, interest, perception of progress, and comfort or need for control. Trust is described as having three different aspects; emotional, ethical, and competence. Good communication can help to build trust and poor communication can destroy trust. They state that an owner that is concerned of the progress will show interest in the project and demand reporting in appropriate levels. Also, if the owner shows interest in the project the manager will respond to it by better performance. Thus, the owner’s comfort level is a function of trust and interest.

2.9.4 Failing communication and collaboration

Turner and Müller (2004) describe three ways in which failing collaboration can be the result from failing projects or communication; more frequent reporting due to failing projects, failing collaboration due to remote working, and misaligned objectives through informal reporting. The first may happen if there is a loss of trust in the project manager; the second may occur if either the owner or the manager neglect communicating or they are separated by great distance. The third may happen if the communication is merely informal but occurs to seldom, and is in need of more structure.

The best project results are achieved when the project manager is empowered to take own decisions on the project, according to Turner and Müller (2004). Otherwise as the project develops, the adequate adoption of the work process along the way may fail. They also state that it has been shown empirically that the project manager should be empowered even more when projects start failing. They present quantitative study results to support the common statement in literature that project owners should empower their project managers. These results show that low levels of structure and collaboration in projects are more common in projects with poor outcomes, whereas medium levels of structure and high levels of collaboration is more common in projects with successful outcomes. Structure is being described as combining clear methodology with organisational automation to achieve project processes with formal control and communication. However, although knowing this, many project owners and project managers fail to achieve this in their project relationships and rather control their subordinates than empowering them, which in turn induces conflicts.

Turner and Müller (2004) suggest that one of the reasons for this not being realised in many projects is the fear of letting the project manager maximizing his own benefit from the project rather than the clients’, if not being limited and aligned with the project owners’ interest through tight structures. They call this phenomenon the “moral hazard problem”. Yet, all work to be performed can’t be specified in detail through contracts covering all circumstances. The owner will not be able to get total insight into the projects’ progress at all times and will therefore rely on information from the project manager to keep himself updated. This information will have to satisfy the owners’ needs for assuring that the project will deliver a

product in accordance with the requirements in terms of performance and functionality, quality, and that it will be delivered through a proper process, at the right time and cost. Configuration management data is presented as a key element in this communication, to assure appropriate progress and efficient use of resources at different times throughout the project.

2.9.5 Formal and informal communication credibility

Turner and Müller (2004) also state that trust between the two discussed parties is often considered as being of high importance for their relationship, often arising from frequent collaboration. This trust is related to the use of informal and formal communication.

According to Boddy (2002) both formal and informal communication is needed. Formal communication assures that all stakeholders have the same information, and especially the project managers' version to counter misleading informal information. However, Informal communication is usually interpersonal and more rapid than the formal. Erikson (2005) too mentions that the formal communication in the company is important but has to be complemented with informal communication. The informal communication is more personal, alive and directed to individuals who make people feeling engaged and gives people the opportunity to react immediately on what is communicated and to who is communicating it.

Turner and Müller (2004) discuss that formal communication is conducted through official channels according to an agenda. It is often considered as slow but highly credible. When using formal communication it is necessary to balance the effort needed to produce formal reports and the need for updates. Informal communication on the other hand is often interpersonal and spontaneous. It is perceived as quick but less accurate than formal communication. Informal communication is achieved through sharing just enough information so that the other party is getting a feeling of knowing what is going on. However, when trust is lost, collaboration is also lost.

However, the perception of what is formal or informal communication is presented by Turner and Müller (2004) as being affected by the culture, situation and environment of the interacting people. Examples are given where information is first verbally transferred between owner and manager and afterwards summarized in exchanged e-mails for memory support, and later transferred into issues in formal reports distributed to larger group of people. Thus, the communication shifts from trust building informal communication to controlled formal communication when more people are involved.

2.9.6 Communication media, intervals and contents

Turner and Müller (2004) emphasize that the project manager needs different amounts of communication in different parts of the project life-cycle. During the initial planning phase the manager needs information from the owner about objectives, requirements, project context, priorities and possible obstacles that may hinder the project. When proceeding into other phases the direction of information changes and the owner needs information on performance and decisions for review and acceptance. At the end of the project both parties have to provide information about the experienced project outcomes to allow for future adjustments and learning.

Communication during the project is either calendar driven, at shorter or longer periodic intervals, or event driven, at different milestones and stages of the project life-cycle. Communicating frequently via for instance telephone may reduce formal bureaucracy but may also lead to information overload or too much unnecessary details. Turner and Müller (2004) present three communication frequencies; continuous communication, fixed interval communication, and variable interval communication. They imply that the latter type is

preferably used to decrease the amount of communication but also may be a sign of one part neglecting the importance of communicating.

Different media and channels may be used for communication. The most credible information is often considered to be formal written reports with control criteria for measuring and evaluation of progress. Six categories of formal communication contents are presented; status and achievements, changes, issues and open items, next steps, quality and progress, and trends.

Also, it is implied that the communication contents and the used media are inseparable and interlinked. Four modes of communication are presented; personal project reviews, project analysis, written status reports, and verbal updates. Turner and Müller imply that trust can't be founded on informal communication only and that the moral hazard problem leads to the desire for formally presented data and control measures. It is suggested that brief verbal updates are often appreciated by the owners to complement the communication through the other modes, assuring the credibility of the formal information and that they have understood it correctly. It also relates to the importance of the media chosen for the communication and its strong influence on how well the information is understood.

Correia (2007) presents a study of the influence of information and technology-rich (ICT) environments on conflicts. She states that ICT-rich environments play double roles in conflicts, first as a reducer of conflicts since it offers flexibility, convenience and low-cost communication, but also argues that her study shows it also contributes to conflicts. The study was conducted involving students of an instructional technology programme in the USA. The study groups were heterogeneous, which is motivated by referring to earlier research showing that conflicts are more common in such groups than in homogenous groups. The studied groups collaborated with each other in an ICT-rich environment and members were interviewed about their experience of conflicts and its relationship with communication throughout this collaboration.

It was found from this research that the interviewees experienced it as particularly important to agree on strategic uses of ICT at an early stage of the collaboration. It was found that for instance the downloading and uploading of files on commonly used discussion forums was regarded as being inappropriate and even causing conflicts. The participants wanted structures and rules for how to use the available systems in satisfactory way for all team members. Another finding was that group decisions were preferably made via looking for consensus than by voting, since in the latter case questions were recurring repeated times and still regarded as unsettled by some members, leading to conflicts. "Unsolved issues can act as levers of conflict" (Correia, 2007, p. 16). She also found that when critical decisions were to be made by the group members, they preferred to use richer means of communication media. This meant that if face-to-face meetings could not be arranged, web based video conferences, where body language could be used, were preferred to text communication such as e-mails.

2.9.7 Communication and perception of project performance

Turner and Müller (2004) state that there is a relation between the owners willingness to communicate and their perception of project performance. In successful projects the owner wanted to communicate more but considered the project to be low performing, in relation to the project manager. In unsuccessful projects the owner wanted to communicate less but considered the project to be high performing, in relation to the project manager. Thus the owners desire to communicate about the project is contributing to the project performance, but is driven by the perception of it as being a low performing project. However, according to their other presented results this control can't be too structured since it will then be too bureaucratic to handle. They finally conclude that communication can be made in many ways but the best result will be achieved if there is a balance between informal and formal

communication, when personal meetings are maintained on regular basis, and when data for measurement of project progress is provided appropriately to the owner.

2.9.8 Conflicts, roles and contracts between collaborators

Gong et al. (2001) discuss role conflict from the perspective of CEOs in international joint ventures and try to clarify the role process. They state that role conflict may be a constituent of inter-group conflicts. They further imply that partial inclusion is necessary to differentiate between boundaries where one entity in co-operation with another entity overlaps each other to make up one larger entity together, for instance two subsystems within a larger system. Since these entities may stem from different cultures or economic environments, this can be crucial to both creation and resolution of conflicts. In such collaboration between different commercial entities it is common that the partners agree on a complete contract that formally shows responsibilities and rights. In partnering companies the CEO stand in centre of the interface between them, on top of the collaborating organisations, with key responsibility for these collaborating entities and conflict resolution among them.

According to Gong et al. (2001) it is stated in role theory that taking an organisational role, is easiest if the role consists of just one single activity, located within only one entity of the organisation where all co-workers act only within the same entity too. This is not the reality for CEOs in joint ventures. These situations are coloured by different expectations, changing contexts and limited access to parents' resources which can lead to role ambiguity and poor working results. The partners' positions may change and lead to intra-sender conflict, or the situation where both the individual partners' interests and the joint ventures' should be fulfilled may lead to inter-role conflict. Also, different cultural and social backgrounds among co-working entities may cause confusion in role-expectations, potentially leading to person-role conflict.

Gong et al. (2001) describe the role of contracts as a help to specify the substance of the collaboration, by establishing the objectives, the supply of resources from each entity, and the priority of these resources to fulfil the objectives.

“A contract is both a reflection of bargaining over respective objectives by the different parties and a mechanism through which the signatories have their goals synchronized and arbitrated” (Gong et al., 2001, p. 765).

A complete contract is presented as reducing role ambiguity as it clarifies goals and the consequences of fulfilling or not fulfilling the goals. Thus, it also helps to avoid conflicts caused by role ambiguity and clarifies how to resolve conflicts when they occur. Role conflict is a potential risk as gaps in perspectives between partners creates bigger incentives for opportunistic behaviour and contradictory roles in the contact with the CEO. Role ambiguity potentially may increase when it is not clear what instructions should be followed. The contract should clarify these differences in partner roles. Yet, a contract clarifying goals set at a starting point can't completely guarantee achieving newly emergent goals.

Gong et al. (2001) present results from their own research, supporting that CEOs role conflict and ambiguity decrease with contract completeness, increase with parent firms' objective gaps, and that contract completeness mediates the effect parent firms' objective gaps have on CEOs.

2.9.9 Collaborating entities and hierarchical structures

Gong et al. (2001) assumes that effective communication is difficult when CEOs in joint ventures feel high levels of role conflict and role ambiguity. This is supported by their study results. They state that bringing entities together is dependent on effective communication to establish partners' objectives and differences, and to prevent conflicting messages or

partners from taking opportunities of information asymmetry. This is hard when there are cultural differences between the collaborating entities. Opportunistic behaviour, interpretations, and misunderstandings are then likely to increase, while relationship commitment decreases. The cultural differences between parties are therefore assumed to have a negative influence on CEOs role conflict and role ambiguity. However, this is rejected by their study results.

Gong et al. (2001) state that the balance of the hybrid governance structure in a joint venture is disturbed when one partner starts dominating the other and a more hierarchical structure arises. It is put forward that according to role theory such hierarchical structures should facilitate clarification of role relations and reduce role ambiguity within the overall system. Under such circumstances trust in the relationship between the partners is key. Trust is necessary to make up for the lacking autonomy in the dominated entity to maintain CEO devotion. However, it is rejected by their studies that parent dominance should reduce CEOs role conflict and ambiguity. Yet, it is partially supported by their study that the CEOs own autonomy is reducing CEO role conflict and role uncertainty.

Faulkner (1999) states that control and trust are two key issues in collaborations that must be in balance. To achieve joint businesses goals, positive synergetic effects, and resource effectiveness the boundaries between co-working entities need to be opened. Any transfer of control from one party to the other involves risk-taking and therefore has to be based on trust.

Furthermore Gong et al. (2001) express that uncertainty is reduced and roles clarified in formal organisations due to a higher degree of channelling information. Relationships between partners and the overall system are thus clearer, and solutions to conflicts may already be provided and preset. Their study results partly supports that organisational formalisation is reducing CEOs role conflict and ambiguity. It is also suggested that some role conflict and ambiguity by the CEO in a joint venture may, because of the central directing role of the collaborating organisations, lead to low performance in the overall system. However, their study results showed that role conflict and ambiguity increased satisfaction with the performance of the overall system, rather than lowering it.

3 Research Methodology

This chapter aims at describing the methods used when conducting the presented research. It provides an overview of philosophical perspectives behind the methodology, chosen approaches, the participants and their project context, the data collection processes, as well as the analysis of such data.

The study was conducted in two parallel parts analysed in sequences. The main part was in-depth interviews with the objective to qualitatively investigate the views and experiences regarding stress and conflict and the management methods used by the participants to handle this kind of situations.

The secondary part of the research was a short questionnaire (Archer, 2007) with the objective to quantitatively investigate the affects of stress and stress energy levels among the participants, by measuring how the interviewed person feels in terms of a number of listed adjectives. This questionnaire had the purpose to reference the studied group to other groups participating in a similar but much larger quantitative study, i.e. to a norm sample (Archer, 2007). The interviews were digitally recorded and afterwards transcribed consecutively. The questionnaires were collected continuously throughout the study.

3.1 Philosophical stance

Proctor (2005) states that scientific methodology can be defined as “the means for making decisions about the adequacy of empirical and theoretical statements” (Proctor, 2005, p. 200). Proctor (2005) also mentions that the research paradigm, the worldview, affects the methodology, the questions asked and the developed theories. It determines the appropriate methods of investigation.

Poggio (2004) implies that there is not only one appropriate method to be used for research but preferably a mix of methods, and that any research will be biased to some extent due to the philosophical and ideological assumptions on which it is based.

Rocco, Bliss, Gallagher and Perez-Prado (2003) discuss different types of mixed research methods and why to use them. This ultimately derives from the paradigmatic perspectives of the research and especially if the researchers are preferably pragmatic or dialectic and whether they are purists or not. Positivistic purists aim at making objective research, independent of their own values, to explore the dependency of outcomes on actions. This is then preferably achieved with purely deductive logic and quantitative methods.

Interpretivistic purists consider the reality to be socially constructed and aim at making several subjective perspectives reflected in the research. This is then preferably achieved with purely inductive logic and qualitative methods to retain the social context. However, mixed research methods may be used by others than paradigmatic purists, the pragmatist because it seems to be the easiest and most efficient way to conduct it, and the dialectist to make the research stronger due to synergistic benefits.

Rocco et al. (2003) imply that such mixing of methods could be used at any point and at several points in the research. This may be done interactively or in sequences to design a later step by using information collected in an earlier step. It may include all research processes, and be used equally or dominated by one approach. Thus, mixed research allows for both exploratory inductive processes for finding empirical evidence and confirmatory deductive processes for testing hypothesis to be used. Finally, it is also stated that qualitative and quantitative approaches may be very similar, for instance scaled open questionnaires or very structured interviews.

3.1.1 *Paradigm of the present research*

The paradigm of this present research is a practical investigation of the experiences of stress, conflict and its management in a project management department. The aim was to mirror this information in the theoretical framework of stress and conflict management based on a literature review. This was considered to be a good way to develop additional data on the subject, to increase knowledge and a best practice within the particular context of the studied department.

The paradigmatic perspective of the researcher is rather dialectic than pragmatic, and not purist. Thus an interpretivistic approach is preferred rather than a positivistic approach, and thus following an inductive logic preferably to deductive logic.

However, the researcher not being a purist, a pragmatic and positivistic approach following a more deductive logic could preferably be used to test the reliability of the subjective data to others outside the investigated department and to make the research stronger. This suggests using mixed research methods sequentially for verification of the wider relevance of the results. Taking a pragmatic perspective, this latter part of the research could be facilitated by reusing survey questions from relevant studies that has already generated data from a much larger reference group (i.e. the norm group), for comparison (Archer, 2007).

The epistemology of the primary research is based on subjectivism, creating knowledge from individuals' subjective experiences of stress and conflict and its management, in one project management department within a specific context. Yet, involving a large percentage of the project managers within the studied department, and the researcher keeping an objective perspective when analysing the subjective data and presenting the results, will facilitate an evaluation pervaded by objectivism. An additional study, in a mixed research method approach, will objectively measure the general relevance of the results from that particular organisation to others concerned with similar projects.

3.2 Design

The study design aims to use a research method which allows communication and learning on experienced stress and conflict and its management through reflection between the researcher and participants. It also aims at finding recommendations for improvements applicable in both theory and practice and suitable for that particular context being the reality of the studied department.

Jonsson, Danielsson and Jöborn (2005) discuss the importance of being well aware of both qualitative and quantitative research methods, designs for sequencing, framing of the setting, and ways of analyzing the study material. They discuss that qualitative methods can preferably be used in studies to optimize the output in management research, being suitable for gaining data on underlying cultural understanding, human behaviour, decision making processes or ambiguous collective judgement, and allowing free discussion and presenting of views. Jonsson et al. (2005) mention that qualitative results may provide valuable insight into individual or group thinking concerning various management tools difficult to reveal by a quantitative-oriented approach based on a larger number of participants or cases. They further imply that a qualitative approach could be necessary for the involvement of 'real' actors to generate data on how 'real' management tools can be received.

Proctor (2005) distinguishes between quantitative and qualitative research methods in the following way. He states that "quantitative researchers take a natural science perspective, believe in one true measurable reality" (Proctor, 2005, p. 201), they stress the importance of predicting outcomes and quantifying data to find laws by the use of experimental designs. He puts that in contrast to qualitative research and continues "qualitative researchers take a social science perspective, believe in multiple realities that are socially constructed and

context dependent”, they focus on describing and understanding, to find meaning instead of laws or causes, by using thorough interviews or observing the participants (Proctor, 2005, p. 201).

Rocco, Bliss, Gallagher and Perez-Prado (2003) state that any research that contains elements of both qualitative and quantitative approaches are mixed research methods. These mixed methods combining theoretical and technical aspects of different approaches may be used to elevate the study. For example to validate that any discovered variances are in the trait and not in the method or to overcome bias effects reflected in a single method.

The present study has therefore been designed for a mix of both qualitative and quantitative research, including both an extensive interview section to validate, contradict or complement the reviewed literature and a short questionnaire to appreciate the participants experienced level of stress in relation to a much broader reference group, and thereby the relevance of the interview results to others outside of the studied department.

The research is cross sectional and will investigate the experience of stress and conflict and its management at a specific time (Osborne & Grainger, 2007a).

3.3 Participants

Twenty project managers participated in the two parts of the study, an initial thorough interview and a complementary questionnaire. They all worked at the project management department at an Energy Production and Distribution Company with a turnover of 500 million SEK spread on approximately 120 projects a year.

The participants were sampled in two stages within a department of sixty-two project managers. The first sampling was made on basis of including all department groups and excluding the smallest and largest projects from a total cost and time perspective, thus creating a sampling frame (Fisher, 2007). It was also considered in a second stratified sampling stage that both people with experience from projects with known high levels of stress and conflict, respectively low levels, should be represented in the study to include key sub groups (Fisher, 2007). In some cases, people were excluded due to unavailability, being busy elsewhere during the study period or being absent due to illness or vacation. There was however no exclusion of people based on demographic reasons such as age, sex or cultural background. Neither, there was any exclusion of people due to educational background or work experience perspectives. The two samplings of participants were conducted by the department manager with assistance from three group managers.

3.4 Instruments

An interview instruction and a questionnaire were used to conduct the research.

3.4.1 Interviews

The interviews were semi-structured, based on a vis-à-vis discussion in Swedish around seventeen numbered questions prepared in an interview instruction. Each of these numbered questions was made up of an initial question followed by one or more questions to make it possible for the researcher to direct the discussion into desired subject areas and to maintain an interactive dialogue throughout the interview.

All questions were prepared on basis of an initial literature review regarding stress and conflict and its management, together with a company context review, to enable forming questions relevant in both theory and to the particular situation within the studied firm.

3.4.2 Questionnaires

The questionnaires were paper-based with closed questions in Swedish, designed to give ordinal data. It was structured for investigation of the positive and negative affects (PANAS, Watson, Clark & Tellegen, 1988) and for testing stress and energy levels (SE, Kjellberg & Iwanowski, 1989). It included a list of totally 32 adjectives and graded boxes in a Likert format to be ticked manually, in relation to the participants own experience.

The questionnaire was taken from Karlsson & Archer (2005). It had been used in earlier research conducted by Archer and his colleagues (Archer, 2007), as presented by the researcher's supervisor.

3.5 Procedure

3.5.1 Literature review

Meetings were held with the researcher and the supervisor before and during the research to discuss the research process and to direct the search for relevant literature to the study. The literature search was conducted several times throughout the research process and was focused to physical libraries and electronic databases available via Göteborg University, Chalmers University of Technology and Northumbria University, using their respective search engines GUNDA, CHANS and NORA.

Several databases were used for conducting the literature research: Psyc INFO, Psyc Articles, Blackwell Synergy, Ingenta Connect, Science Direct, ASSIA (CSA), Ideal Library, and Emerald Insight. The search was primarily focused on articles published in management, sociological, and psychological journals. The search words were: stress, conflict, stress management, respectively conflict management. Search areas were limited to titles, abstracts and key words of articles. Peer reviewed articles were prioritised before others.

3.5.2 Company context review: a pilot study

Much effort was put on finding a project management department suitable for an in-depth study of a topic within the human resource management (HRM) area. The search was focused to the Gothenburg area in Sweden to allow close collaboration between the researcher from Chalmers University of Technology and the supervisor, respectively the firm. The company was then chosen for its responsibility and experience of managing investment projects within both the engineering and the construction industry, involving people from the own organisation as well as consultants and entrepreneurs in a mix of matrix-run projects and semi-autonomous projects. The firm was also chosen for its recently increased focus on stress and conflict.

Meetings were held with the Head of the project management department before and during the research to transfer knowledge about the project management context of the department. The company's intranet was checked for information and presentations of the company and its departments. The departments Project Management Handbook, based on The Project Management Institute's Body of Knowledge (the PMI BOK), was shown to the researcher together with the department's Activity Plan and several Project Reports from various projects. Examples of earlier conducted surveys related to stress and conflict were reviewed, such as annual co-worker indexes and brief investigations on the indoor-climate's effects on for instance experienced stress, conducted by a private surveying company respectively a private health improvement company. Also, a copy of slides shown during a recent department seminar with the latter company was handed over to the researcher for information.

The studied project management department was organised into three project management groups of different size, and an administrative group of five people including the head of the

department, economists, and secretaries. The project management groups comprised three group managers, fifty-two employed project managers, and ten hired consultants working as project managers or construction managers.

One group was responsible for projects concerning construction of distribution nets for electricity, district heating, district cooling, and broadband. Another group was responsible for connection of residential districts to the distribution net for district heating. The third group was responsible for projects concerning energy production processes. District heating was the main energy type handled by the majority of the department. The construction phases for this particular energy type were usually performed by a few entrepreneurs contracted by general agreements.

The three groups had much in common, sharing the same facilities, project management processes, the company's organisations, and information systems etcetera. Only big projects with relatively high budgets had steering committees. Normally, the project manager reported to a specific project owner within the company. Project teams were described as involving contracted entrepreneurs and hired consultants with various specialist competences, as well as representatives of the company's own operation departments. Yet, there were slight differences between the groups, regarding their project contexts. One group worked in closer collaboration with the company's sales department and private customers. Another group worked more with research and development projects and process technique. The third group worked in larger geographical areas and in closer collaboration with infrastructure associations. In one group all projects were generally described as being unique, whereas in the other two groups projects were generally described as being routine work and highly repetitive. There was also a big difference regarding how many parallel projects the project managers within the groups had. In one group some had up to 30 parallel projects, although described as very small.

The work procedure was generally described as starting with a mission description based on a sold energy product, followed by a pre-project examining costs and conditions, project construction designing, forming a project team, contracting entrepreneurs, project initiation via construction meeting, budgeting and time scheduling, different building phases including excavation and installation, inspection, hand-over of product and documentation, finishing project rests lagging behind, project completion, and finally writing a project report. In parallel to this work there was continuous administration of payments, economy control and project progress reporting. The size of the project teams were described as between 3 up to 20 persons at the most, and the budgets between 6-70 million SEK, and the projects scheduled for between 6 months up to 1.5 years.

The data collection took place at the company's premises between June and August. Throughout this period one of the group managers was on the sick list due to stress-related illness. A deputy manager was therefore replacing him. There was also at least one known occasion when a project manager was home sick recovering for a few days due to symptoms interpreted as being stress-related.

3.5.3 Interviews and questionnaire survey

Twenty interviews were conducted. All were scheduled in advance via e-mails and electronic calendars, by use of the department's vacation lists, since the research took place during the summer vacation period from June till August.

The interviews took place behind closed doors in "silent rooms" in an open-landscape office, interviewing only one person at a time. At the beginning of the interview the study purpose and the researcher were briefly introduced to the interviewed person. A four-digit-personal-code was produced for each participant by using a dice, to facilitate anonymous referencing. This code was memorized or written down by the interviewee to enable future control of their

particular quotations contribution in the final research report. Handwritten notes were taken by the interviewer continuously throughout the interviews to enable referring back to previous answers. Each interview was also recorded on a digital voice recorder after approval from the interviewee. The date of the interview and the personal code was mentioned at the beginning of the recording to assure correct referencing.

The interviews were based on a vis-à-vis discussion around questions listed in an interview instruction placed in front of the researcher, to achieve what Svensson and Starrin (1996) calls "a guided conversation". Before going into the numbered questions, the different groups of questions were shortly described by the researcher. To allow the interviewed persons to think through the projects in which they work, the participants were first asked to generally describe the products, organisation, phases, and their role in the projects. The interviewer then posed questions on experienced stress and symptoms, stressors, stress occurrence, stress management, experienced conflicts and symptoms, conflict generators, attitudes to conflicts, conflict occurrence, conflict management, specific questions regarding the experienced effects of current work roles, communication, and exercised trust and control on stress and conflicts. Questions were also posed regarding experienced relationships between stress and conflicts, it's spreading from one party to another, and finally a question open for the interviewee to express any other considerations regarding stress and conflict. When participants answered affirmatively, the interviewer probed further. Some questions were supported by using examples, mentioned and explained to the interviewee. However, the interviewed person was first allowed to answer freely on all questions. Thus, as argued by Svensson and Starrin (1996), the interviewer took the role as a medium to help the interviewee to a coherent and understandable reasoning. The interviews were structured to run for one hour, and a watch was used for timing it. However, a few lasted up to 1.5 hours. All interviews were conducted in Swedish.

At the end of each interview the questionnaire was explained and handed over by the researcher to the interviewee. All questionnaire statements and explanations were in Swedish. The questionnaire was self-administered and filled in by the respondent and later handed back to the researcher for collection during the research period. All twenty interviewees responded.

3.5.4 Data analysis

The digitally recorded interviews were transcribed consecutively on a computer. Answers were written down chronologically in connection to the numbered questions in the interview instruction Word-template in the original language, as verbatim as possible. The individual interviews were prepared for analysis through structuring and demonstrating the material using sentence concentration (Kvale 1997). During the transcription of individual interviews the participant's recorded spoken comments were clarified in text by adjusting for reformulations or grammatically incorrect sentences to make them more concise and avoid misinterpretations (Kvale 1997). The respondents' answers were during the interview phase consecutively put together five and five and collected underneath each related question. Thorough answers out of scope were cut and pasted and placed in connection to the question where they had more relevance and logically belonged. All answers were searched through and essential information was marked. Marked texts were then summarized above the full answers and were later given headers representing common denominators as sub categories. No quantification of qualitative data was made since a case study is not aiming at giving answers that are valid to all situations (Osborne & Grainger 2007b). A total of fifteen interviews were transcribed and analysed in the described manner and afterwards the sub categories from the individual interviews were structured all together and were further analysed as overall categories and concentrated central themes (Kvale 1997). The remaining five interviews were used for complementary information, analysed "ad hoc" from handwritten interview notes and saved voice recordings (Kvale 1997). Several quotations were then

added as examples to support the categories. All themes, categories and quotations were finally translated from Swedish to English.

The questionnaires were collected and the individual answers were indicated by numbers and listed in a Microsoft Excel sheet. Answers concerning stress energy and answers regarding positive and negative affect of stress were put in separate tables. The answers were analysed by using Microsoft SPSS for statistical evaluation. Results were analysed in comparison to data from a much larger norm group (Archer, 2007) as reference and were also controlled for statistical significances.

4 Result

This chapter aims at describing the qualitative and quantitative results of the presented research. It provides a summary of the answers from all twenty conducted interviews, complemented by representative individual quotations, as well as tables and data from the conducted questionnaire survey.

The results from the qualitative analysis are presented in a reverse order as the quantitative results. The quantitative results are first presented individually and then as a summarized result. However, the identified individual results of the qualitative analysis are related to each other in such a way that these individual results present joint emergent properties which the individual results alone doesn't show. The analogy is used were looking at a single molecule doesn't say what physical state the single molecule is in, whereas looking at its relation to other molecules does. The goal for qualitative analysis is to discover variations, structures and processes of properties, phenomenon, and meanings not already fully analysed. This means that the combined results should be presented before the individual results, due to pedagogic reasons. Thus, the author will describe the physical state before describing the individual molecules (Starrin & Svensson 1994).

All qualitative and quantitative results are translated from Swedish to English and quotations are carefully presented as close to the original expression and meaning as possible.

4.1 Qualitative results from interviews

The qualitative results from the twenty interviews are presented as central themes and linked categories for each of the stress and conflict phenomenon, as well as for their specific relationships covered by the research. Each category is then further presented as sub categories, where sub categories are based around common denominators with summarized examples from the interview answers. Sub categories are also supported by several quotations from individual interviews. Each quotation is followed by the interviewed project manager's personal four-digit-code in italics to facilitate traceability and control of presented quotations.

An overview of the qualitative results, in terms of themes and categories for each phenomenon, are given as structured themes and categories in table 1.

Table 1: Themes and categories of interview results from project manager participants

Phenomenon	Themes	Categories
Stress	Experiencing stress	<i>Identification/Reactions</i>
		<i>Tools for stress identification</i>
	Causes of stress/Stressors	<i>Time-related causes</i>
		<i>Money/Finance related causes</i>

		<i>Trust-related causes</i>	
		<i>Work process related causes</i>	
		<i>Relations related causes</i>	
		<i>Responsibility and role related causes</i>	
		<i>Volume related causes</i>	
		<i>Information/communication related causes</i>	
	Stressful situations and relations	<i>Project phases/Work moments</i>	
		<i>Stressful relations</i>	
	Stress management	<i>Management/Techniques</i>	
		<i>Preventing stress</i>	
		<i>Experienced limits</i>	
	Cultures and attitudes regarding stress	<i>Possible improvements</i>	
	Conflicts	Experiencing conflicts	<i>Identification/Reactions</i>
<i>Tools for conflict identification</i>			
Causes of conflicts/Conflict generators		<i>Time-related causes</i>	
		<i>Money/Finance related causes</i>	
		<i>Trust-related causes</i>	
		<i>Work process related causes</i>	
		<i>Relations related causes</i>	
		<i>Responsibility and role related causes</i>	
		<i>Contract and agreement related causes</i>	
		<i>Information/communication related causes</i>	
Conflict situations and relations		<i>Conflict relations</i>	
		<i>Project phases/work moments</i>	
Conflict perspectives		<i>Fundamental attitude</i>	
Conflict management		<i>Preventing conflicts</i>	
		<i>Management/Techniques</i>	
		<i>Experienced limits</i>	
Stress, conflicts and their relationships		The relationship between work roles, stress and conflicts	<i>Work roles</i>
			<i>Work processes</i>
			<i>Personal initiative</i>

	The relationship between trust, control, stress and conflicts	<i>Trust, stress and conflicts</i>
		<i>Control, stress and conflicts</i>
	The relationship between communication, stress and conflicts	<i>Problems</i>
		<i>Formal/informal</i>
		<i>External/Internal</i>
	The relationship between stress and conflict	
The spreading of stress or conflict		
Miscellaneous	Additional individual reflections on stress and conflicts	

The qualitative results in terms of themes, categories, sub categories with summarized examples within parenthesis, and quotations from individual interviews are further presented below.

4.1.1 Experiencing stress

Identification/Reactions

Several symptoms of stress were presented by the twenty project managers. These were chest pressure, increased heart activity, "raise oneself on tiptoe", "flash-over", forgets things, sleeping problems, tiredness, feebleness, dizziness, apathy, gets warm all over, got no time to eat, stomach trouble, the skin and hair get dry, cold sweat, aggressiveness, irritation, search out faults in others, getting rude/impolite, hard to prioritise/plan/take decisions/concentrate, falls behind, low performance, uneasiness, feels chaotic, gets upset, affects the mode, feels disturbed/pressured/unstable, passivity, decreased effort/happiness, becomes introvert, ponders, feels frustrated, less patient, "runs through the corridor", can't let go of work, increased speed/performance, hyper activity, is on the alert, or just many small signs. Some said they rather notice it on others, such as the team members, "the lads", and entrepreneurs. One person mentioned using risk assessments to identify potential stress by identifying possible project obstacles and problems. A few persons seemed to be unclear about stress identification and said they don't know, or can't describe symptoms. Some mentioned they react afterwards since they have no time for reflection at work, and usually react at home.

A few interview quotations are presented below as examples.

"If I should try to describe symptoms of stress, well I don't really know how I react. I guess I don't have any characteristic symptoms of stress". 3434

"Maybe the heart rate increases a little bit. That happens when there is suddenly something you must do that you hadn't planned for". 2155

"The heart bounced a little bit extra then". 1311

"...a kind of tiredness when you come home and can't let go of work". 6116

"It has happened a few times that I haven't been able to sleep, and then off course one is not in the best shape or in the best mode the day after". 1551

"...if one has so much to do that one must prioritise, then nothing happens, one just focuses on how to prioritise". 4611

"I guess it's mostly a kind of frustration about that you can't get forward". 5426

"Frankly, I get less done if I have too much to do. /.../ I can recognise low performance when it is too much. At a certain level of stress everything can work out just fine, but not when there is too much". 3332

"If I feel stressed about something anyway....then I can feel sort of hunted. But at the same time when one feels like that, then one actually gets more things done. One gets a little more efficient. /.../ I rather think one works like hell then, so high performance sounds more like it". 4115

"I recognise myself in terms of hyper activity. One calls here and there and time just disappears very quickly".5565

"It's a type of hyper activity when one just runs after everything and believes one will make it all in time". 4611

Tools for stress identification

Some project managers mentioned using private stress experience as tools for identifying stress, such as having been ill/exhausted due to stress, had the "can't-happen-to-me-syndrome", listens to the surroundings, experienced wife helps to identify signals, got "burnt-out" friends. A combination of work experience and education were mentioned by a few project managers, such as helping to get the identification process validated. Most highlighted their work experience as the tool used for stress identification. A couple of interviewees mentioned that they had some form of education or training about stress. Most said they got help from seminars/courses, while someone said it had little effect. Someone mentioned useful information via media as being the main tool for stress identification.

A few interview quotations are presented below as examples.

"It's by experience I identify such situations, I have never had any training about it". 2155

"I recognise it via my work experience, but also since I have some education about human resource management. I have studied some Organisation & Leadership". 6641

"I have no special training about this, but I have tried when possible to go on a course every now and then, to try to read my own signals at least. Then I have also realised afterwards that I've been very close to the limit once a couple of years ago, which I hadn't really understood at that time". 4611

"We were at a stress seminar a few weeks ago. Then it hit me that I recognised a lot when they discussed symptoms of stress". 6116

"No, I have no special training regarding stress. Sure, we went to a short stress seminar recently at Feelgood, but I don't take that type of thing really seriously". 1551

4.1.2 Causes of stress/Stressors

Time-related causes

Many interviewees implied experiencing time-related stress due to the following presented causes; long processing of errands/waiting on decisions, reading laws, technical issues, steering committee controls details, short lead times/dead lines, our project name "Speed up" says it all, group manager absent when quick decisions are needed, some customer contacts, more work due to construction problems, "emergency call responses", delays due to malfunctioning photocopier, lack of construction material, delayed deliveries, lack of personnel, dependency on others, must sit and wait, unpredicted obstacles in the ground, too much administration, have no time, too much going on simultaneously, new types of work, or too much time spent on meetings. Some mentioned sudden events as causing stress, such as getting a call at night about a probable gas leakage, or unexpected extensive drilling damages. Someone put forward that stress was caused by many small things put together, indicating mainly outward circumstances.

A few interview quotations are presented below as examples.

"...time, on the other hand, is very stressful. Maybe not my own time in particular, but since I'm so dependant on others in the project team. If the construction workers don't get there in time then you can't do anything about it yourself, other than to sit and wait and watch when the delay is expanding. That's stressing". 4611

"The major causes today I believe is the frustration in our group regarding that the company was reorganised a couple of years ago. That was something they called "Speed Up" and that name itself really says it all". 2155

"What has really happened is this thing about time schedules being dislocated, due to the high pressure, which is experienced as negative. That one has to explain and anchor. It can be that the opponent shall do a continuing project based on that and then suffers from that. That type of things can be a cause of dissatisfaction". 1552

"Short lead times on orders. Then, it can be long delivery times for material, entrepreneur's can be highly pressured too. Lack of material and personnel it is then". 6641

Money/Finance related causes

A few project managers expressed money-related stress and presented causes such as money getting more and more important, inadequate budgets, increasing cost due to construction problems, breach of contracts, discussing reasonable costs, exceeded budgets, hunt for money when requested to build cheaper, time scheduled account closures, tug-of-war with entrepreneurs, contracts and documents, or conducting more cost estimates than other groups. Others stated that they experienced no money-related stress and that it's seldom causing problems, or having very generous budgets.

A few interview quotations are presented below as examples.

"Problems during the drilling led to extra work which increased risks for higher costs and a lot of phone calls had to be made. It was a type of time pressure then too. The greatest cause was really that you don't know anything more than what you can see yourself. /.../ One has no control of the situation and why it has happened". 1311

Trust-related causes

Someone expressed trust-related stress from being responsible alone for the projects.

Work process related causes

Many project managers implied they had experienced work process-related stress and presented the following reasons for that; couldn't influence it, too short time from order to delivery, lack overview of lead times and entrepreneur availability when receiving order, external construction design, insufficient general entrepreneur agreement, no general entrepreneur, missing routines, no budget decision when starting constructing, unclear order, residential areas not completely sold when starting constructing, unidentified work in the process such as calculating cost estimates, or receiving more responsibilities than powers. Some expressed insecurity related stress from lost control, the need to control that work is done, helplessness, powerlessness, lack of knowledge/competence, many unsettled issues, hard to make arguments as newly employed, or from not knowing what the customers were promised. Others referred more to work environment and mentioned the following causes for that; their responsibility for project team members according to the law, or getting disturbed at the open-landscape office. A few mentioned unplanned amounts of work caused by people making mistakes, increasing work due to technical problems during construction, new customers are added on top, or since the partner quit work. Some presented stress due to lack of organisation, caused by reorganisation, new partners, new work structure, or increased responsibilities in the department. Someone just mentioned many shortages at work as the major cause of stress. Another one mentioned bad planning as causing stress since it's expensive. A few implied stress was caused by chain reactions since technical problems increase work load and thus costs, or since using same entrepreneurs affects your colleagues.

A few interview quotations are presented below as examples.

"It's mostly related to time. When we get an order it is often not that long time left until we shall deliver the heat. /.../ A lot of work in parallel to short lead times you can say. 5565

"It was like that then that we didn't get the chance to affect how we wanted to build, and now we have gotten instructions how to build in a certain way. We have had to correct things gone wrong many times. That's one of the causes of stress, a frustration about that you were not allowed to steer how to get more satisfied customers". 2155

"We have that type of work when we must be able to think things through to be able to prepare strategies, but we can't do that in the work environment we've got here. The work environment here is a cause of stress. We don't have a suitable placement where we sit". 6554

"Right now, as we work today, we feel that we are a bit short of people. We have many areas that should be delivered in time and we have had people leaving their jobs here without any successors". 2155

Relations related causes

Relations-related stress were described by many project managers, due to "personal chemistry", being personality-dependent, depending on trust and control, when involving external construction manager, having bad relations from start, due to conflicts, being hard to arouse enthusiasm, questionings, dissatisfied customers or entrepreneurs, positive relations is a prerequisite, the role being dependant on relations, or being more important than technical competence. Some said that conflicts generally causes bad relations. Someone described experiencing a mental stress from a "backpack of old complaining customers".

Another project manager said there was no relations-related stress, stating that the relations are the fun part of the job.

An interview quotation is presented below as examples.

"Difficult customers! /.../ They want to be ahead of things all the time. But we can't handle customers one by one. Frankly, they are too many. /.../ If they come when you have a lot to do in another project, then it's very tough". 4611

Responsibility and role related causes

A few expressed stress due to lack of responsibility, caused by energy consuming waiting, unclear coordination responsibility, or decisions that are not taken, highlighting that it's occurring within the project team, and that information is not only the entrepreneurs' responsibility.

A few interview quotations are presented below as examples.

"Well, I can feel a type of worry about having forgotten something. Insufficiency and fear of losing control of the wholeness. And then, it can be difficult to fall asleep since you lie and ponder then". 6641

"I guess it's sometimes having the feeling of being insufficient, that one thinks one will not make things one should have done. One misses out on some things, like filling in data in a system where one is supposed to report figures and things like that". 1551

Volume-related causes

Many interviewees described volume related stress, caused by "too many balls in the air", too much at the same time, having to prioritise, too many phone calls and parallel projects, receiving new jobs all the time, having no time to sum up older projects due to new ones, no time to reflect, or too few low-stress periods. Some mentioned stress due to lack of personnel, due to the manager being on the sick list, or due to having open vacancies. Others mentioned lack of knowledge/competence as causing stress since there are few with particular competence among the personnel, when needing to dig into others' areas, since hired sales personnel have left, having not only standard installations, one can't be a specialist at everything, or being especially common in electricity projects. Some expressed stress due to lack of quality due to inadequate order information/project directives, faulty instructions, unclear sales data, poor check-ups and time schedules from entrepreneurs, the quality of drawings, shoddy building, not complying with regulations, or even that it mustn't be too good. Others implied satisfaction-related stress from experiencing inadequate performance, missed things, possessing unsatisfactory competence, or inward pressure. Someone mentioned self-inflicted stress from deliberately taking on challenging projects. Someone else expressed stress from having difficulties to stake out boundaries during reinvestments in old equipment, and regarding the team members' own responsibilities.

An interview quotation is presented below as examples.

"Then it's problems to sum up a project in time, when it's finished. One postpones it since at that time one has several new projects that have started". 4611

Information/communication related causes

Some project managers described experiencing stress from lack of communication and information since people don't understand each other, due to unread e-mails, regarding time schedules or technical issues, in the contact with customers, regarding financial updates, being too little/late/seldom to customers, when the sales persons' promises are not written

down, or indistinctness in general. Many expressed IS-related stress due to financial follow-ups, having many administrative systems, or from using them rarely.

A few interview quotations are presented below as examples.

"I don't think it's lack of knowledge but insufficient basic data that we design our constructions from, and what the sales person and the customers have agreed upon. It can be a lot of information missing there". 4611

"I experience the quality of time schedules from entrepreneurs to be insufficient". 5565

4.1.3 Stressful situations and relations

Project phases/Work moments

Stress was presented as occurring in most work moments and phases of the project. At project start during hand over from the sales department. During construction design when not finished in time, being experienced as irritating. During specification, when specifying material for the entrepreneur. At purchase since it is hard to foresee and cover problems and guarantees, since everything falls back upon it, needing to follow laws, regarding reinvestments, being time-consuming, getting many opinions, or when evaluating equivalent tenders. When writing contracts since it's tough but seldom occurring in individual projects which are normally handled as suborders at call. During planning since it directs the whole project, due to unknown factors, when being more reacting than planning, due to added customers, or when updating time schedules. At reporting to steering committees, or at milestones, During the building/construction phase at installation, assembling, excavation, at caused problems for third party, when relations get bad, being the critical part with the client, when in customers' homes, regarding technical issues, being the costly part, having short of time, since its then "it happens", being dependent on others, when time schedules fail, when customers complaint, or especially winters and evenings. During coordination when bad planning, when needing quick decisions, when very much and unclear, but being harder for the entrepreneur. At inspection, when receiving time consuming remarks and opposition, when customers own the equipment themselves, or when having just a few minutes per house. At operational start since it can be "tricky sometimes", being like graduation, or when unpredicted problems arise. At hand over due to late manuals and technical documents. During payments and cost regulation if the purchase is indistinct, at invoice management once a month, since having unclear application of contracts, when costs starts floating around, due to undelivered technical documentation, if final cost regulation can't be settled, or when costs are not accounted for. At final compilation/project closure when increasing amount of reports requested, when writing final project reports, due to new parallel projects.

A few interview quotations are presented below as examples.

"Then, the planning of each project we do ourselves as project managers, and that can be stressful sometimes, especially when there are many new customers added". 4611

"But the purchase process is probably what I spontaneously experience as pretty strenuous. And the writing of contracts then, since that's where one can make the really big mistakes in the project. /.../ When one makes a purchase one must cover all possible questions that may arise later, which can be very difficult to predict". 3666

"The first thing is when you're in the final phase of the project and can't live up to the dead lines you've promised. That's when you realise that it is getting short of

time and you can't keep the lead times you've promised. Then it starts. The second thing is during the construction when the relationships are starting to get tensed. Sometimes my entrepreneurs in the house fall out on each other and then I have to mediate between them". 5565

"Installation and assembling is the part where I think it can really happen things and you get surprises that were not known from the start. When you're excavating you never know what you will find". 3434

"It's in the construction phase. That's when it starts to cost a lot of money and all machinery is rolling, all the people are busy and the time is short". 4611

Stressful relations

Stress was also presented as occurring in most relations of the project. In customer/client relations at quality deficiencies, or since they "don't reason like us". With orderer or steering committee if support and decisions are missing, when they are only questioning about money, when having unclear prerequisites, when having to explain oneself, or due to unknown promises. With managers and co-workers such as construction managers, due to an "internal frustration" in the company, when getting no support, only regarding a few exceptions, or with the line organisation. With sales persons when they are not trained, when they provide inadequate data, or being mainly due to the organisation. With consultants regarding hired construction designers. With entrepreneurs when they argue among themselves, when they use you, since there is often late delivery, since they just want to make money, when the company had to end the collaboration with one firm, or since they inform inadequately. With material suppliers since their deliveries take long time, since they are powerful, but usually being the entrepreneurs' problem. With subcontractors since they never finish in time. With other stakeholders such as external construction managers, since they must be planned for and coordinated, authorities, and the public.

A few interview quotations are presented below as examples.

"The time planning etcetera can be a bit tricky when people are not keeping their promises. As example one very seldom gets time schedules from the entrepreneur". 3332

I can't define stress in a good way, but I can tell you that I sometimes get irritated during the construction design if I for instance have asked a consultant to draw something and he then doesn't bring that to our meeting as I expected. 1311

"Usually, for me it's this thing about the customer. I think it's important that the customer is happy. If the customer calls me and complains and says he isn't satisfied, then I get stressed". 3332

"An entrepreneur is a competitive kind of person and wants to make money. /.../ He digs a little for the first person and then for the second and then for the third, but nothing is finished. /.../ That is a factor of stress". 1311

"We have quality routines that we follow pretty well, but the qualities of the orders are very bad. We basically get just one page of paper but what is agreed between the sales person and the customer we need to pull out of them. Sometimes the customer knows more than me when we go there and meet them and that's a clear deficiency". 5565

"Then there are other stakeholders, for example road unions. /.../ They can be very troublesome. /.../ They may want things done in a way that is very hard to understand". 4115

4.1.4 *Stress management*

Management/Techniques

Several stress management techniques were presented by the project managers. Writing reminders in almanac. Prioritising, by weeding out work tasks, and doing irreparable work first, or dealing only with urgent problems Time planning by prolonging project time plan, calculating from end to start, setting reasonable dates, or by planning for the whole period. Pondering and investigating. Identifying roles and scope. Using relaxation techniques. Sorting paper and clearing the brain when clearing desk, to enable overview. Dividing work tasks among team members. Performing risk assessments to quickly identify material needs. Working harder by working overtime too often, bringing work to home, or making calls from the car. Postpones work. Putting up a barricade around the office desk for peace and quiet. Forcing oneself to think of something else such as listening to book recordings in the car. Reacts at home by playing with the children, spending time in forests and nature, resting or sleeping, solving "sudukos", juggling, by physical contact, reading, building things, or walking. Exercising, being the only thing that works on neck and shoulder pain, helps both mentally and physically, relaxing by running/walking/driving motorbike, or regarding sport as very important. Giving it immediate attention and being necessary to act, "taking the bull by the horn" Taking a pause and leaves work to be able to reflect properly. Using mental training to handle brace. Conferring with someone or asking a sounding board, by saying no or reason with the manager, asking colleagues, helping each other, solving customer issues together during coffee break, by bringing helping partner to negotiations, by listening carefully to warning signals in the surroundings, having found a mentor, or talking a lot with others.

A few interview quotations are presented below as examples.

"I try to prioritise my own time. /.../ I then try to learn to prioritise what can't be repaired later. Then it can be that other things will cost much more money, but it's not as important since it can be made later although at higher financial costs". 4611

"As I've mentioned I write a lot of reminders on a lot of notes etcetera. /.../ My best way to manage stress, it may sound banal, but it is to clean the desk and get papers structured. After that I usually feel ready to cope better with more stress, so to say. It's like one cleans the head at the same time as cleaning the desk". 5565

"One has to manage stress. There are two ways. Either one works on or one put it on the shelf and takes a break until one have the energy to handle it again./.../ I guess one works even harder really, and put down to many hours on it. /.../ I have no special techniques to manage stress". 3242

"I manage it by exercising regularly, so I've become well trained as a result from it. /.../ That's a very good way to clear the mind and I feel very resistant to stress from it, since I know when I walk into a negotiation that I will win since I'm in better shape than the others". 6554

"There are relaxation techniques available If one feels stressed, one can brief oneself and write thoughts down in a diary, exercise or quite simply let things pass. These are activities that I use after work". 6641

"But I often read books at home about things that hasn't to do with work or build things at home just to think about other things. I take walks and so on but I sometimes feel stressed anyway". 1552

Preventing stress

Some preventative actions were described by the interviewees. Manning the project team with people that usually work well together. Manning the team with both a project manager and a construction manager. Informing and delivering material at an early stage. Making payments in parts and regular financial tuning. Writing minutes after meetings. Trying to be distinct. Taking on help early from the surroundings, partners, department administrators, economists, colleagues, or construction designers. Relieving each other. Adapting working hours to entrepreneurs. Getting help with negotiations.

A few interview quotations are presented below as examples.

"I try to discuss a lot with my wife at home and I'm fortunately spared the worst things since I have the possibility to ask and receive very clear signals". 6554

"Also, I have good help from an administrative person that works here. There I get help with daily routines and things like orders, documentation, and other things to get a better flow". 1552

Experienced limits

The project managers expressed some limitations for managing stress. Having no time for reflection. Not yet being fully skilled and always having more to learn. Getting all worked up about small problems. The own work structure and paper effectiveness. The departments' work routines and processes. Lack of knowledge about how to properly manage stress. Being hard to foresee stress. Addressing the problem too late. Stating there are but can't point at any. Many persons stated that they want training and education such as needing to learn personal effectiveness or needing to learn more about stress and its signals. Someone mentioned limiting oneself by trying not to shout and be dominant. A few experiences no limitations.

A few interview quotations are presented below as examples.

"The limitation is that one seldom gets the time needed for reflection. It's too much going on and too many questions all the time". 5565

"But the lack of knowledge can be such a thing, more training so I can better learn how to identify my own signals and get to know more about other ways to manage it. I believe that". 6554

4.1.5 Cultures and attitudes regarding stress

Possible improvements

Most interviewed people mentioned possible improvements for the future. Raising the question about stress more often and arranging collaboration meetings between departments. Having more comfort and team building activities if time allows. Using mentors and deputy project managers to a greater extent. Helping managers to get to know their employees and their individual differences better to interpret signals and see who are most pressured. Needing to recruit personnel instead of as now solved by hiring consultants, and ending long time vacancies in the department. Managers must dare to act by taking decisions, dealing with conflicts, engage in collaboration issues between departments, but it was also mentioned that employees must allow the managers to act. Improving

administration since it's an increasing amount and too many systems being used, by better planning and work division, getting more administrative support to relieve pressure, getting the old campaign support back, improving work structure and prioritising some parts. Improving contracts especially regarding entrepreneurs' time schedules. Improving work routines by complying with the existing quality system, regarding communication with marketing department, for construction managers, and regarding construction meeting minutes. Prolonging the too short time from investment decision to construction and stop start building without finalised order. Getting more time for construction design. Many stated that they want more help with stress identification and stress management via seminars, and that the recent stress seminar was very good and unusual, and that the company should continue with that. However some said that people had no time to attend the seminar and someone even mentioned that stress seminars is just blah-blah.

A few interview quotations are presented below as examples.

"I have recently been at a stress seminar at Feelgood, and that type of things I believe are good, making people more aware of typical signals of stress and tip offs and advices about stress management. I believe it's very good that one can learn how to identify signals from colleagues". 5426

"But it feels much better now when I know that I have a superior manager that I can talk to if necessary, in difference from a few years ago. It's a definite improvement there. Then if you go to Feelgood or not, such things feel like blah-blah to me". 1551

"I don't think we talk about it a lot. /.../ We recently went to one of those lectures at Feelgood, with a doctor and a psychologist that talked some about it, but not everyone here had time to go there. It's not something we usually do, it was the first time". 4115

"...it's a kind of nonchalant style in this company when it comes to stress. It feels as if they don't take stress seriously outside this department. /.../ Then, one is ought to raise the question when at those work place meetings and reflect a little at those collaboration meetings about how we really feel within the department. Most people are very good at hiding their stress inside. It's sort of the culture here to hide it. 5426

"I experience this as a very personal friendly company to work in". 1311

4.1.6 Experiencing conflicts

Identification/Reactions

Many project managers said that they identify conflicts mainly via discussions with straight talk and dialogue, when people say what they think, from reoccurring errands, unacceptable demands and wishes at meetings, and even that if it's not discussed it's not noticed. Someone said that conflicts are identified when questions are raised. Others stated they notice it when people get defensive and pledge innocence. Some referred to conflicts when trust is lost and when people haven't done their job properly. A few described conflicts as when things are implied and insinuated and people don't share the same picture, when someone talks "crap" about somebody indirectly, when needing to find out the truth and get different parties' stories. Some mentioned that it's a floating and indistinct boundary between negotiation and conflict. Many described conflicts in terms of argumentation about different views and opinions, disagreements, or quarrels. A few project managers even implied that conflicts involve threats about legal issues or lawyers getting involved. Someone referred to receiving "late tackles". Others mentioned that they identify conflicts from uncontrolled talk

describing that first they sneak it in, then they load up and finally it bursts out. Someone said it couldn't be misinterpreted when a person called and yelled and I wasn't worth a penny. Some just referred to identifying conflicts from verbal information at meetings or via telephone. Others referred more to making it clear in writing by writing down the problems such as writing e-mail in anger. A few described that they identified or reacted on conflicts in similar ways as with stress. Such physical and psychological signals of conflicts were getting perplexed, aggressiveness, irritation, getting mad, started yelling, feeling it in the stomach, the blood pressure being raised, feeling depressed or dejected, getting sad for a long time, but underlining that depression may not necessarily be due to conflicts. A few mentioned that they notice it on peoples reactions such as blackening eyes, lower mode, a certain type of atmosphere, seeing it on them, that something doesn't look as it should, from whispering, people speaking in a different tone or raise the voice, persons getting wilder, people are interrupting.

A few interview quotations are presented below as examples.

It can be when people call and yell at you, and then it's very easy to notice. /.../ It's most often a dialogue. /.../ But, I guess that if you don't have a dialogue, then you don't notice the conflict. 5565

"I regard conflicts as everything from disagreeing about something till getting into a bad relationship with someone. /.../ I think you can see on people that something is not as usual. They might be in a lower mode and then you have to figure out if it's just the bad weather or something about work that feels heavy. 3434

"Then, where the limit goes between a routine negotiation and a conflict is a bit floating. I believe I identify it when it starts to go that far as when you sit here and disagree and the questions come back and they start to threaten about eventually taking it to juridical instances". 1551

"The person yelled at me, but I didn't really understand why. It was like you could hold the phone with a straight arm. It couldn't be misunderstood it was a conflict. It wasn't possible to talk to her at all. I can tell you it was aggressive. I was sad for a long time afterwards you know". 4115

Tools for conflict identification

A few interviewees mentioned training and education as used tools for identifying conflicts, such as a part of a project management course, but mentioned that one always learns more in every project anyway, or that this particular education had low effect. The vast majority mentioned work experience as the used tool for identifying conflict situations and that it is very valuable. However a few emphasised the importance of knowing the colleagues and someone mentioned rather acting according to feelings. Most project managers said they have no training or education about conflicts. Many mentioned that they want training or education and need to get better at conflict management.

A few interview quotations are presented below as examples.

"I have never had any real training about conflicts, it's via my work experience I identify and manage these situations". 2155

"No, I have no special training about conflicts, and I think it's kind of hard to talk about it. I guess I'm pretty bad at it. 3332

4.1.7 Causes of conflicts/Conflict generators

Time-related causes

Some people expressed lack of time as causing conflicts, due to entrepreneurs or other external relations being too busy, or due to rework. Others more specifically referred to dislocated time schedules as causing conflicts, when not receiving any warning in time, due to missed deliveries, or dislocations without any explanation, but also that it is sometimes the effect rather than the cause.

A few interview quotations are presented below as examples.

"Time is more a cause of conflicts with respect to the entrepreneurs and the consultants". 3332

"Towards the subcontractors it can be that you don't feel you get warned about delays early enough". 3666

Money/Finance related causes

Many project managers mentioned lack of money and conflicts about economy as being very common. These disagreements about money were expressed as being due to carelessness, since money and time are closely related, that "they" don't understand it's important, especially common with entrepreneurs, when the partner tries to fool you, and also that this is sometimes the effect rather than the cause.

A few interview quotations are presented below as examples.

"You disagree about money. I can't say that there is anything in the relations themselves that causes conflicts. I have a financial conflict with an entrepreneur right now about 2.5 million SEK. It's mostly about economy that you don't agree with the entrepreneur about payments". 1311

"Another conflict we had was regarding how much money we should pay a construction firm that had worked for us. The conflict was about how much of their performed work that we had actually ordered from them". 6641

Trust-related causes

Someone mentioned little trust received from the orderer as the cause of conflicts.

Work process related causes

A couple of interviewees described lack of quality as causing conflicts, related to dissatisfaction about product or work, poor quality in received order, or being more as a breeding ground for conflicts. Some mentioned lack of personnel as causing conflicts, especially among subcontractors, since resources are not optimally used, but also that it's the project managers' responsibility to ensure. Someone expressed lack of knowledge when no one can answer as causing conflicts. Others referred more specifically to lack of competence due to competition about the same employee, needing the right competence to secure proper performance, due to too many parallel projects, some people got knowledge but no experience, especially in electricity projects. Someone even described too much knowledge and competence as the cause such as prestigious conflicts between specialists. Another project manager mentioned that causing negative effects on others property and having ruined things in peoples' homes have caused conflicts. A few mentioned additional work as causing conflicts, such as work not being in original plan or specification, or not being planned by entrepreneurs. Some described technical work processes as causing conflicts, such as faulty excavation, due to inadequate quality, inappropriate placement of

radiators and pipes, late asphaltting, or work tasks being left out. However, it was also described as being unusual.

A few interview quotations are presented below as examples.

"It can be a customer who is not satisfied with the product and the work we've done. We may have done faulty excavations". 2155

Relations related causes

Many interviewees pointed at personal relations as the cause of conflicts and described it as being a very important part, and occurring in the relations with entrepreneurs and customers, with project team members, due to a common history or bad person chemistry, or due to having different information and pictures. In some cases people were even said to fall out with each other. Again someone emphasised that this sometimes is the effect rather than the cause. A few persons gave examples about experiencing an attack on individuals, when people are like cat and dog, or due to ignorance. This behaviour increased the conflict. Others referred to conflicts in the collaboration between departments regarding sales persons and the marketing department due to a strong dependency and having bad control. Someone described it as being like opponent teams, especially when other departments take over responsibilities but then come back for help, or when having sudden collaboration. Someone also described that the projects were disturbing the current operations within the collaborating departments.

A few interview quotations are presented below as examples.

"I have a great example from one of my projects. Then, we were a team with several experts and specialists concerning different fields. /.../ There were two persons who were both very competent within a field, but they thought differently and it therefore were incredibly tough conflicts within that team. /.../ Simply, all time was spent when they focused on prestige. /.../ It can be lack of knowledge and competence sometimes but in my case rather the opposite". 3666

"Yes, in the personal relations. If I say like this, we have had a few different teams in this building working with something". 6554

"Internally here it's a lot of protection of own interests. People don't want the fixed order of things to be disturbed. They think that this is what I do and I don't want that to change, I want my daily business in peace. Often, the projects come in and disturb that". 3242

Responsibility and role related causes

A few project managers expressed that lack of responsibility was causing conflicts such as overlooked coordination responsibility, but it was also described as person dependent. Someone mentioned that having shared decision responsibility causes conflicts. Others mentioned different responsibilities/roles/prerequisites as causing conflicts, for instance regarding work environment, since it leads to different acting and risk management. Some described that indistinct roles/responsibilities/work division/organisation and boundaries between projects and team members causes conflicts, especially towards the customer, and more commonly regarding electricity projects than district heating, and also that it leads to more work for others.

A few interview quotations are presented below as examples.

"It can be due to having very different backgrounds and roles. I, who live with the responsibility of work environment, may think that it's very important having a

work environment plan, while others may think it is unnecessary work. That's because we have different roles and prerequisites". 3666

"...I was the project manager for the electricity part but then we had another project regarding the district heating, that our villa group managed. I was the contact person for both projects, but I wasn't the project manager for the district heating. That was the cause then. /.../ she probably thought it was a bit unclear who had the responsibility. She believed I had the responsibility but I didn't look at it like that". 4115

Contract and agreement related causes

Some project managers described that indistinct prerequisites causes conflicts, such as unclear routines and rules, unclear quality requirements, lack of documentation, or since hired sales persons have quit. Others referred more specifically to deficient contracts, for instance inherited contracts for electricity projects, or due to missing general entrepreneur/coordination responsibility/contact person in electricity projects. Many mentioned indistinct application of contracts and agreements as causing conflicts, such as estimation of work and costs, questioning and different opinions, due to interpreting the agreements different than electricity entrepreneurs, or when interpreting situations differently than others. Someone stated that it is impossible to cover everything in contracts, and that it sometimes lead to juridical and legal issues.

A few interview quotations are presented below as examples.

"It is many times different interpretations about the contracts. It's sort of there one appreciates the alternative performances and costs. It can also affect the time in the next stage of course". 1311

"Unfortunately, the general agreements we have are deficient. It's something we inherited and just have to cope with". 6554

Information/communication related causes

Someone mentioned that conflicts arise due to some partners being unaccustomed to documenting time schedules and financial measures. Others pointed at lack of information as a common cause of conflicts, for instance not receiving it in time, being deficient to costumers, getting indistinct or false information, or more generally that misinterpretations are linked to information. Many emphasised lack of communication as causing conflicts, such as no communicated quality requirements, people taking the liberties to do something without informing others, since there are always two parties, since it involves both explanations and interpretations, due to inadequate feedback, or wrong way of reporting/people taking short cuts/or having delivery problems.

A few interview quotations are presented below as examples.

"Indistinctness and information are closely related and a great cause of conflicts. It's lack of information one can say. It often creates conflicts". 2155

"...we built according to the quality we had agreed a price on, but the customer had communicated a totally different quality with the sales person, who had not communicated to us. The quality of the order was deficient then and the cause of that conflict". 5565

"It can be indistinct boundaries between parts of projects and team members. Then people can take liberties, they want to do something but don't tune it with others so someone else suddenly gets more work without even knowing it". 4611

“One deficiency that I experience particularly often is the lack of feedback”. 1551

4.1.8 Conflict situations and relations

Conflict relations

Conflicts were expressed as occurring in most relations of the projects. Some said it occurs in all relations, both in internal and external relations, throughout the whole span, or whenever there is bad chemistry between persons. Many emphasised the relations with customers, for instance due to them receiving inadequate information. Others pointed at the orderer or steering committee, but expressed that it is depending on the energy type. Some emphasised the relations with consultants due to faulty construction design, but generally being about smaller amounts of money. A few mentioned managers and co-workers, due to competition about team members, regarding relations both within the project team, and outside the project team in the internal organisation, with sales persons due to giving bad support or spoken promises to customers, or with the operational departments. Many emphasised the relation with entrepreneurs such as the general entrepreneur since they “use you ruthlessly”, or the company keeping together in external relations. Some mentioned that it’s due to a great dependency on entrepreneurs, and someone mentioned that it was actually working out better than expected. A few referred to the relations with suppliers and described that it was generally regarding lead time for deliveries. Others pointed at the relations with subcontractors, due to fuss among different entrepreneurs, due to great dependency, since they are not careful/negligent/make things dirty, or giving examples of machine operators shouting at passing pedestrians. Some mentioned other stakeholders such as the inspector, external building proprietors or contractors, landlords and house-owners, the traffic authority, and road unions. A few emphasised that the relations are normally friendly and that they found it being a personnel friendly company or that the relations rather hinder than creates conflicts.

A few interview quotations are presented below as examples.

“It’s both internally and externally. It occurs on a daily basis, really. It can be towards the customers, entrepreneurs and the internal co-workers. It occurs throughout the whole span. /.../ We can get into conflicts throughout the whole span, from construction to money”. 2155

“Well, I have to say that I don’t know about a single conflict among the co-workers here. /.../ It’s maybe the other way around that people take care of each other instead”. 1311

Project phases/work moments

Conflicts were also described as occurring in most project phases and work moments. A few mentioned that it occurs in all phases throughout the whole span, from construction to payments. Some mentioned that it occurs already during project assignment when receiving order, since it collides with ongoing projects. Others referred more specifically to the project start up during hand over from the sales department, when receiving project budgets/contracts/agreements, at group formation, or since construction managers are already busy. A few emphasised the construction design when choosing methods and specification, since the consultant makes inadequate drawings, due to having different views, due to indistinct information and irritation, or even that it is an internal game of conflict then. Someone mentioned conflicts in relation to the purchase and writing of contract due to receiving the agreements afterwards. Someone also pointed at the specification of material due to discussions about technical details. A few referred to conflicts during the planning regarding cost calculations, revised budgets, or due to giving low priority to things. Many emphasised the building/construction phase during installation, assembling, disassembling

and transportation of old oil-burner, when working in people's gardens/bedrooms, or generally whenever operating near the customer. Some mentioned the coordination of work such as when time schedules are dislocated. Others expressed conflicts during inspection due to different opinions out in the field, due to having much work before inspection, or when needing to rework things. These were by some described as minor conflicts or as disagreements and reprimands but no real conflicts. Someone emphasised the hand over of the project product since that's when customers complain. Many mentioned conflicts during payments and cost regulation but some regarded this as being more negotiations than conflicts. A few pointed at the project closure since people are tired of the project by then, or due to having discussions about money. Some described the final compilation and connected documenting after ending projects, to involve conflicts since new projects are then already started.

A few interview quotations are presented below as examples.

"It's often in the beginning of the projects. That's when you should receive your orders, your project budget, and should get to see the agreements. /.../ There can be some unclear things during the construction design, although it's not with the construction designer we get into conflicts, usually. But that work moment, I mean that time of the project, there can be conflicts". 5426

"There are probably most conflicts during the performance phase. That's during installation and assembling when most conflicts arise, but the toughest ones are usually in the start of the project. /.../ It's really during the construction design, when everybody realise that it's for real. Then a lot of things can happen and people get irritated". 3242

"It's mostly during installation. Both since we are out digging among people and cause a lot of noise, and since we're not keeping the dead lines when we should be finished". 5565

"it's when we go into people's gardens and houses. We go all the way into people's bed rooms sometimes and that's very sensitive". 4611

"It's money that it's all about when there are conflicts. /.../That's when you can really use the word conflict. Then you usually regulate the costs with the entrepreneur". 1551

4.1.9 Conflict perspectives

Fundamental attitude

Many interviewees had a positive attitude to conflicts. There were many examples of this such as conflicts making you get wiser, bringing the group forward, being beneficial for the project in the long run, that one must allow people to say what they think, considering it as instructive both to win and to loose, that it enables improvements, regarding it as challenging and stimulating or even refreshing sometimes, often being sensible, regarding it as good to put light on things and to document them, being good to clear the air, being worse when problems are not addressed, that they can result in good things, can result in new insights and changed opinions, or more generally that it has positive effects. Some expressed a neutral attitude or having both a positive and negative attitude to conflicts and wanted everybody to sit up in the carriage, being natural but no one really wants them, tries to be cooperative. Someone said it was a tough question to answer. Others had a clearly negative attitude to conflicts, regarding it as no benefit, giving no stimulation, being unpleasant, being hard to give criticism, trying to avoid them, working better without them, taking a lot of energy

and time, always hard, troublesome, and being a negative situation. Some implied they just don't like it, and someone said it's "no desperate eager of mine".

A few interview quotations are presented below as examples.

"One tries to avoid conflicts, really. That's the best. As good as possible via information. /.../ The work flows better if there are no conflicts. But when conflicts do arise one has to address them, for instance by coordination". 5565

"You could say it's a negative situation but the outcome can be positive. It's always unpleasant when conflicts arise". 3666

"Firstly, I regard conflicts as a possibility to make improvements. I have learnt not to regard single conflicts as a problem. /.../ But you must address them properly. That's the prerequisites. I'm not afraid of conflicts, I wouldn't say I like them, but I can tell you that I like to challenge and develop, and then you have to be prepared of getting into conflicts". 6554

"I don't know if I'm really good at managing conflicts that has occurred. I mean if I have any good method to deal with it when it has really crashed, so to speak. /.../ I guess I'm a little bit afraid of conflicts". 3434

"Conflicts that affects my project, even if I'm not personally involved in the conflict, then I regard it as my responsibility as project manager to resolve it. /.../ I don't really think one should let conflicts be unresolved, one has to address them. Otherwise one will be walking around fretting about it all the time". 5565

"I don't think I have that urge really to resolve other people's conflicts. If they can resolve it themselves that's much better, I mean if I'm not involved in the conflict from the start. /.../ I don't think one has to get involved in or resolve all conflicts. /.../ But, if they come to me with it I guess I have to try to involve myself in it". 4115

4.1.10 Conflict management

Preventing conflicts

Many project managers said that conflicts can be prevented. There were several examples given such as automatically by acting properly, not provoking, being generous to stakeholders especially at inspections, that it pays off to give more of cheap things early on, being prepared and well informed is important but hard especially in inherited projects, by asking an experienced colleague, delivering information before questions arise, being active in the forming of project team/create a good project organisation/choose team members, by adapting work to individuals, having a well planned leadership style and create good relations before starting up work, planning work properly such as disassembling, being clear about the projects' prerequisites, involving entrepreneurs early on, having good contracts that regulates the entrepreneur, by getting more and accurate information earlier on from orderer at the project start, having clear and true work processes, or by getting everyone involved in contributing to improvements. A few more specifically said that some types of conflicts can be prevented if having regular meetings with all participants, if changes of plans are noticed, if few entrepreneurs are used, if colleagues help each other with customers and formal complaints, but not always being "in your power". Someone mentioned it being very hard to prevent conflicts and that they are rather handled acute. Those who mentioned active forming of project team said it's like choosing players to a football team, that the wrong team members may cause problems, that they are competing about the same resources, it's usually done by choosing internal members that resemble oneself, to create a homogeneous

group, by picking the right person for the task, that cooperative skills are more important than knowledge, by trying to balance the own personal character with others, by blending different personalities and picking "owls" that dig into details, that the team needs a mix of personalities to get forward, that different individual competences are a great benefit to the project, by building a team from work experience, or by picking "the lads" that usually works together by habit. Others said they have just some power to choose team members such as choosing construction designer, the construction manager being a matter of resource availability, that it's easier externally than internally, trying to choose members when possible, and that entrepreneurs are divided by the project planner. A few said they had no active forming of project team and that it's only on basis of technical competences or expressing that it doesn't work that way. Some interviewees described clear limitations for preventing conflicts, such as that they can't choose entrepreneurs since it's based on general agreements, feeling constrained and hindered by the law of public purchasing, and that it's a dilemma being a public company.

A few interview quotations are presented below as examples.

"I believe one has great possibilities to influence it. I absolutely experience that one can prevent conflicts". 1552

"Of course a conflict can be prevented, again via distinctness and information. Then the amounts of conflicts are reduced". 2155

"I believe one has great possibilities really. Firstly, one has regular contacts with most people involved in the project. One has forums both internally and externally where conflicts could be managed". 5426

"I always try to have an open relationship in the project, where one lets people say what they believe, to get people to feel that they can affect the outcome of their work and the project itself". 3666

"It may be that one chooses a team. One knows here internally who resembles oneself in some ways. I believe that's one way to avoid conflicts, absolutely. 2155

"I often can influence the team composition, but not always. It depends a little on the situation". 3666

"In that way I have deliberately created a team with different types of people. /.../ I have those people who I usually call owls, who goes into details. /.../ But you can't only have that type of people because then you never get anywhere". 6554

"I really never create a team from the perspective of a good composition, but rather pick those who have the right technical competences". 3242

Management/Techniques

Several conflict management techniques were presented by the project managers. Prioritising conflicts before anything else, always having it on the agenda, and taking it seriously. Having a dialogue disregarding personal enthusiasm. Making a quick phone call to the involved and regarding entrepreneurs as often being managed even quicker than others. By argumentation and taking a dialogue or controlling specifications with implied costs. Identifying roles and where people can turn for support. Having a keen ear to clarify different views and letting people tell what they think. Using documented agreements such as notes, time schedules, meeting minutes, steering documents, and getting it black on white. Arranging meetings to explain and negotiate. By reconciliation with entrepreneurs. Obliging with customers and apologise on behalf of the company to avoid dislocated time schedules,

or back and admit your mistake. Informing all concerned by forwarding information immediately throughout the whole chain, or informing entrepreneurs about conducted mistakes. Conferring with someone or asking a sounding board by taking advice from or shifting parts with colleagues, asking the superior manager to intervene, raising the question, delegating upwards immediately and getting help, referring customers to the possibility to make a formal complaint, and considering it as relieving to receive support from superior managers, and regarding working as a team as being a great benefit. Explaining the purpose and the main idea with the project and gain support from the project intentions. Writing e-mail in anger which worked out amazingly well. Identifying the cause, being regarded as important. A few interviewees implied very low awareness about conflict management, by mentioning that they haven't thought about it, or that it's mainly managed via unplanned actions. Some implied it comes natural, such as reasoning/explaining/being level-headed/argumentation/motivate via paragraphs/compromising about proposals/document to enable reviews in peace and quiet.

A few interview quotations are presented below as examples.

"No, I don't think I have really thought that much about those things. We have no responsibility for the personnel, really. That's up to the line management as I see it. We do the job and the personnel are managed by the line, if you simplify it a little. /.../ I haven't really thought about limitations or ways of preventing conflicts in those terms, it's something that comes naturally". 1551

"The first thing is that you are so interested in your job that you listen to signals. You have to develop a way of working so that no one hesitates to come to you and talk if they have any concerns. One can't say to people, don't come to me you have to solve that yourself. One has to listen carefully and try to see the need. I can tell you that is always on my agenda. If I rank my work, then conflicts where people feel bad is my first priority. That's the most important! That's my first priority". 6554

Experienced limits

Many interviewees expressed some limitations for managing conflicts. Needing more tools. Not daring to address conflicts. Being hard to give criticism. Lack of time and own competence. Having problems with "reading" people. Being naive and always believing that people are doing their best. Being dependent on support from managers and colleagues. Being exposed to the entrepreneurs' arbitrariness at dislocation of time schedule and agreements. Not managing conflicts well enough. A few mentioned that they experience no limitations for managing conflicts.

A few interview quotations are presented below as examples.

"I absolutely experience limitations about managing conflicts. It's about daring to deal with it. /.../ So that's clear, it's always good to get more tools for how to manage conflicts in projects". 3666

"I actually feel a bit tied up there. /.../ I can mix the contracted entrepreneurs a little but if I'm not satisfied with them then I can't drop them each time. /.../ Sometimes they have been around for too long and start getting comfortable and think it's going just fine and stretches the contracts in all directions". 4611

"When it came to these money and the invoices I was dependent on discussing it with my superior manager and that he was engaged in it. /.../When it comes to conflicts due to delays in projects, where people are putting the blame on having too much to do, then I feel exposed to the entrepreneurs' good will. The

entrepreneurs are aware of that too and that he's one of the few players in this business". 6641

4.1.11 The relationship between work roles, stress and conflicts

Work roles

The project managers expressed many occurrences of stress or conflicts being related to work roles. Being person and project dependent what roles are taken in a team and younger co-workers taking on more responsibilities than necessary. New roles being added consecutively due to scope enlargement or new needs since changes occurs naturally in projects. Indistinct roles and unclear responsibilities leading to or might be leading to stress and conflicts such as depending on the received delegation, due to being clear internally but not externally towards the customers, due to being like different companies within the company and wanting better collaboration towards the customers, being inadequate and causing frustration,, making one feel insecure, due to needing improvement, since it's easier to follow-up work when everyone knows their roles, since there are written work descriptions available but it's not clear in practice, being clear on paper but not in practice, being a matter of education and training, having little general knowledge about project work internally, due to people just working on by force of habit, due to person dependency and experiencing vast spreading, since some people don't know what's going on, since people takes the liberty to do things, due to indistinct boundaries between entrepreneurs or team members, since the responsibility is delegated downwards to often and the decision responsibility is falling between chairs, due to indistinct boundaries between project managers and construction managers, since different individuals do different amounts of work, due to floating responsibilities and levels and being unclear who is doing what, or since it varies between individuals in collaborating departments. Some mentioned intentional indistinct roles and responsibilities between the project manager and the construction manager that might lead to stress and conflicts. This was explained by the opinion that one can't be too static and must be flexible, needing floating work descriptions, sometimes jumping over the construction managers' head since it's easier and quicker to do it yourself and wanting control, since it's person and project dependant what roles are taken so you negotiate about it yourself, and that it has both advantages and disadvantages. Some described that they experienced that the there were distinct roles in practice, mentioning that it's due to few participants and small projects, being limited via written instruction that works in practice, everyone doing different amounts of work in different ways but being adjusted to each other since people figure it out, since there is one representative per involved department, due to widely differing competences, since it is discussed among parties, or since some can have either one or two roles in the same project. Someone mentioned experiencing distinct roles both on paper and in practice.

A few interview quotations are presented below as examples.

"I have to say that the work roles are pretty clear in my type of projects. It's usually one person representing each group of stakeholders". 6116

"Yes, I think the roles are clear. /.../ I have to say that the work roles are divided in a clear way within the project. I believe that everyone knows their roles and what each and everyone should do and how they should do it". 1552

"They are on the paper. Then I believe that the responsibilities are often to easily delegated to the people below. There are many decisions that fall into no-mans-land". 5426

"One thing that I believe you could work on more is this thing about getting more distinct work roles from the start. That you have a written obvious role and then

can let go of more things and can follow up more concrete from the role what worked and what didn't work. That can be clarified better. /.../ We have a very great span. /.../ It can also be unclear who is doing the job in practice". 3666

"I guess there are unfortunately some vague boundaries between the construction manager and the project manager, where it has been tricky. I have deliberately been a bit vague there, but haven't received any signals that it may cause stress. /.../ ...it can be very clearly described, but I have deliberately left it open to the construction manager and the project manager to decide this on their own, since I believe they engage better then. But there is a backside too, I'm aware of that". 6554:

"Sometimes I feel that I'm in the construction manager's field of responsibilities". 6641

"We have very floating work descriptions, and quite simply I poke a finger into the construction managers' role very often. I have a dialogue and meetings directly with the entrepreneurs that's really in the construction managers' role to have. /.../ I haven't experienced this as causing stress or conflicts myself, but I don't know how the construction managers would answer that question themselves. It means I'm going above their heads and do things, so maybe it does". 5565

"We have, as I mentioned, construction managers here from this department and they are pretty different and do pretty different things in the project /.../ Then it's kind of floating what the construction managers really do. Then you may think that something is done but then it turns out it wasn't. /.../ In a way, that can lead to stress and conflicts". 4115

"The work roles are clear here but I think that the customer experiences it as indistinct from the company. I feel that we work in a faulty way towards the customer. We are like different companies within the company". 2155

Work processes

Some project managers expressed stress or conflicts as being related to work procedures. Being unclear how work shall be performed since it's hard to handle external stakeholders although it isn't a very peculiar job, due to sometimes not being clear what shall be done, since others' work is unclear, since it shall be open to the entrepreneurs, and being unclear in electricity projects but not district heating projects. Others mentioned it being clear how work shall be performed in practise, being the project managers responsibility, since knowing that some parts are not on their desk, due to working according to a specific project model, since ambiguity depends on other things such as technical issues, due to working according to delivery orders from the orderer, since it's clearly described on paper in routines and everyone knows the working process, since it's the same type of projects all the time, due to routine assignments and no need to invent the wheel every time. A few mentioned that it's intentionally open how work shall be performed and that one can't use strict routines, only steering common values and competence, and only following authority requirements and security regulations.

A few interview quotations are presented below as examples.

"The ordinary jobs are conducted relatively according to routine". 1551

"Well, I plan the work all by myself really and it's not always clear what should be done". 6116

Personal initiative

Many project managers stated that they take personal initiative to other work, someone emphasising that it is a factor of stress or conflict, while others said it's not a source of stress or conflicts, and even can prevent stress or conflicts. Examples were that it opens up doors for your career, being mainly service work and small things, fixing fussing equipment or technical aids, pushing on departments and superior managers by telling things straight or else it will not be done, enabling business improvements, poking into in the construction managers' role and taking meetings with entrepreneurs, doing others work due to lack of resources, helping each other by services and favours, helping others with cost calculation, improving work methods/routines/financial reporting/supplier management or construction designing/technical solutions, putting forward ideas concerning the whole department, not just sitting and waiting for things to happen, reorganises departments and help planning vacations regarded as the company management's strategy, pointing out faults in old upgraded equipment, sorting out computer errors, claiming that the younger generation has more ideas about improvements and having fresh eyes to look at things, putting a lot of time on the relations, trying to create a good atmosphere, putting on the role of a sales person, visiting customers and entrepreneurs for small talks, doing "the little extra", or regarding it as being most work since only keeping budgets/dead lines and adequate results are really expected. A few mentioned that they don't take much personal initiative to other work, or at least not as much as wanted, due to being criticised once for going passed the manager, or due to having more than enough work already.

A few interview quotations are presented below as examples.

"Yes, I take personal initiative to work that is not expected from me. It's one of those stress factors really. /.../ It can be a lack of resources in the project and no one can take some tasks, and then I say okay, I'll do it myself then. Other than that we also help each other with the projects too". 4611

"The work I take initiative to that is not expected from me is usually things that have not to do with the projects at all. That is different things having to do with our routines". 4115

"It can be for example improving work methods in the department, so that I engage in the business development. /.../ Then if I bump into problems with printers and different things I guess I'm that type of person who don't hand it over to someone else but rather try to fix it myself". 3666

"It happens that I take initiative to other work, but maybe not as much as I would like to do. I work a little bit more with technical issues and things that I regard as falling behind due to too much administration". 1551

4.1.12 The relationship between trust, control, stress and conflicts

Trust, stress and conflicts

Some interviewees expressed a relationship between stress or conflicts and trust. A few mentioned examples such as that receiving a lot of trust can lead to conflicts but not stress, is good but the responsibility can be stressing sometimes, that it's too much in respect to inadequate order information, or that they are encouraged to try out new ways of working. Others pointed at problems with lack of trust, implying too much control by orderer, the steering committee controlling details, between project managers and entrepreneurs, being time consuming and strenuous, and that people sometimes misunderstands interest for control. A few expressed receiving trust from colleagues although being new in the game, being humble and takes advice and is possibly naïve. Someone mentioned having given too much trust and been burnt due to having blue eyes in the beginning. Someone expressed

that trust is founded on knowledge/competence/insight and that people who dare to back and apologise are trustful. Some said they give too much trust to participants and that it affects the stress level, giving examples of wanting to control consultants and entrepreneurs more, not wanting more written reports but needing more control of performance out in the field since entrepreneurs perform check-ups regarding their own work and it's a risk of too little control. A few said that trust is received on an adequate level both upwards and downwards, in the project, within the company, that they enjoy it and get free reins, that it's necessary and works out well, and that they are not alone about it.

A few interview quotations are presented below as examples.

"One has to have knowledge and competence and an insight about what is good. That gives trust. If you don't give any trust then you don't get any trust back". 6554

"I think it works very well and I like getting great amounts of trust in my role as project manager". 1552

"Yes, we receive great amounts of trust in what we are doing. We get very free reins from our nearest managers. I think it's rather necessary". 5426

"I experience that I receive very much trust myself. That puts one under an obligation. Many times you stand very alone when you get down to it, and that can be stressful sometimes. You are in principle like a CEO for a little project. Some obligations and deliveries can be stressful living up to". 6116

"I must almost say that the trust I receive from above as a project manager is little to big. I mean since the orders are so deficient". 5565

"For example in a situation with the steering committee. There it is also about how professional you work in projects in a company and if the steering committee understand their role. That they understand that it takes time from the project managers if they poke their nose into small details. That can be very tough sometimes. It's also a matter of trust". 3666

"I can feel then that when you've agreed with the general entrepreneur about a time schedule, then that time schedule is not holy to him and the subcontractors. They very easily dislocate the time schedule without informing about the reasons for that.

That's a lack of trust when they don't report when there are changes. Or more precise, it's I who don't have trust in them living up to the time schedule and then have to control that it's being followed all the time". 6641

Control, stress and conflicts

Some project managers expressed a relationship between stress or conflicts and control. Many mentioned examples of too little control or interest from the orderer, such as them only being interested in economy, having no real control, having too many orders per orderer so they have no time for it, wanting them to show that they care, wanting more questions, that only time and money is controlled by the steering committee and that they should look at the whole project rather than just at the money, or that it's mainly via progress reports or contract briefing. , A few described too little controls of others, wanting more control but having no time, and that being frustrating. Some pointed at more control of team members through reports being needed, not needing more controls out in the field, wanting more reports about economy and time schedules, regarding it as good to get things documented on paper, being important as support and evidence and that it facilitates meetings. Others pointed at more

control out in the field as being needed, wanting more reporting from the construction manager who controls the entrepreneurs and more questioning of the entrepreneurs and suppliers, wanting improved routines for steering check-ups and control lists, needing more controls at the customers' place and at building sites. Some described it as problematic that entrepreneurs do their own check-ups/technical control/writes diaries and that there are too few construction managers available. Others mentioned that control via reports are stressing and therefore rather wants more controls out in the field. Someone said that little control is a reason why conflicts don't arise but contributes to increased costs instead. Many expressed stress or conflicts due to troublesome and unnecessary reporting via information systems such as doing too much administration and too many systems, only few orderers being interested and the information not seeming to be used. Some said they use it seldom, want more help, can't see the benefits with tricky programs, that it's a messy reporting that can be better organised, and that there are badly administrated spartan account reviews once per year. A few expressed that there is adequate control from orderers, that the economic control via information systems is necessary, that it's a normal level but can make you crazy sometimes, or even that the final reporting works out well, and that everyone has clear check points. Someone mentioned that control by authorities and third parties are stressing since decisions linger. Some referred to measures and controls as being necessary to get things done and that it leads to stress when one must be on one's toes, stating it's not a good system and more than wanted since quality is enforced by controls. Someone mentioned that controls via inspections are important and works out well. Others expressed having to control others more than wanted and would like to give more trust, wanting team members to take more responsibility, stating that many things are forgotten and one has to remind people. Some implied they were being perfectionists and controlling the own work too much, or wanting control on things even if they are not on the own desk.

A few interview quotations are presented below as examples.

"It's very much related to individuals. Some people I know they don't need to be controlled. /.../ In other cases I have been giving a little bit too much trust and have become burnt in a way when I haven't received what I expected. Too little control I must say can lead to stress that way". 6116

"That which is measured and controlled is what is also done, that's how it is. I believe there could be more control of entrepreneurs and suppliers out in the field, that's for sure. We live on that, unfortunately". 6554

"I would like to perform more controls in the projects, maybe not so much internally here, but increasing the control of consultants' work and the entrepreneur. That could at least influence the level of stress, but you can never have total control". 5426

"I don't experience that more trust or control from above is needed, but sometimes I wish that the orderer showed a little bit more interest". 4115

"I would like more control of time schedules. I don't experience that there is a lack of control of technical installations at the construction site, but it's more progress reports concerning time, but of course also about economics even if that is usually no problem". 5565

"I must say that I'm not at all happy with the controls that our construction managers here perform. /.../ It's more controls at sites that are really needed. It works like this, you go out to the construction site and go through a diary report that the entrepreneur has written himself. /.../ The deficiencies in the controls that the construction managers perform leads to less conflicts really. /.../ If he had

performed all the controls he should have done then there would probably been more conflicts instead. But then the work had probably been cheaper in the end too. 1311

“When looking back on the projects I have drawn a few blanks so now I always write records of all meetings we have. /.../ That’s regarding all meetings and that I save e-mails and things like that”. 3666

“Some consultants that we have here have been here for years, while others are new, and it’s obvious that one has to control them a bit extra to make sure they understood things right”. 6116

“If it is then an unfamiliar person who has come here one has to look a little bit closer at that person than the others that one has already worked with earlier”. 3434

4.1.13 The relationship between communication, stress and conflicts

Problems

Many project managers expressed that stress or conflicts are often related to communication. Some stated that communication must be clear and distinct, especially during initiation, that it’s important that the information is correct, and that the message must also be understood. Some more specifically highlighted indistinct communication about the project goal and that a dialogue is needed through both information and questions. A few interviewees referred to indistinct routines and instructions for reporting to orderers resulting in too many informal contacts, being stressing for construction designers, and leading to too much information from different people internally. Others pointed more at the need for improved routines for construction meeting minutes, that getting it more formally facilitates project management but are not used properly. Someone stated that there is generally too much information and that it’s indistinct. Someone else expressed that one can never get too much information.

A few interview quotations are presented below as examples.

“All relations are about communication. If it’s anyone that I don’t get along with or can’t communicate with although I try, then I feel it’s very strenuous and stressful”. 3666

“We meet the other departments here every three months, for tuning in how things are generally going. /.../ The first meeting we had was a lot of custard-pie throwing back and forth. But it calmed down after a while since the more we get to know each other, the easier it is to talk to each other too”. 4611

“If the communication works, there are usually less conflicts and less stress. The communication is the corner stone in everything and what one should really work on. There’s a lot of communication via meetings, e-mail and telephone. /.../ I think that we are bad at communication here”. 3666

“I always try to have a dialogue since then you know it usually works out better. /.../ I like to meet eye to eye because then you can point and show or draw a picture. /.../ That’s the only time it’s really clear if you are thinking about the same thing”. 3242

“It’s like this, every communication channel has its field of application, but they overlap each other too of course”. 1551

Formal/informal

Many interviewees distinguished between formal and informal communication. Some mentioned that formal communication is clearer, such as written explanations. Others described formal communication as being necessary, such as meeting minutes and economy reporting to orderer according to routine and it was presented as more often used externally. A few said there were small amounts of formal communication and regarded it as satisfying. Some stated that formal communication is troublesome and leads to stress since it's too much economy reporting, since report writing is problematic and that it needs improvement, due to being unclear what information is expected and to whom, that one shouldn't need to document what has been said, due to too many meetings, or that it is stressing for the reporters.. Some referred more specifically to stress or conflicts related to too many formal information systems, describing it as the most annoying part of communication, that systems should be assembled and the information used more, that few are interested and only few orderers read the information, that it's confusing and doesn't work optimally, that it's tough when one has many parallel small projects and that more informal and spoken communication with the orderer is needed instead. Someone stated having informal communication also with orderers. Others described informal communication as being the major part and a large part of daily work such as chatting or having small talks or conversations in corridors and during coffee breaks. Some said it was too much informal communication while others expressed it as being satisfying and preferred to administration and reporting. Someone mentioned that informal communication is clearer and others that they wanted more informal communication since it's faster. Someone mentioned wanting more formal communication, regarding it as being too little and few formal reports, and needing more to be documented. Someone mentioned wanting both more formal and more informal communication, although informal communication being regarded as more sought-after. A few project managers expressed that it was a good balance and enough informal and formal forums or reporting opportunities such as construction/project/steer group meetings or being mostly spoken and via e-mails but of adequate amount and variation. Someone explained that it's up to each individual and the problem rather having to do with lack of contents.

A few interview quotations are presented below as examples.

"I can say that more informal communication is needed internally. /.../ The informal communication via coffee breaks and other occasions is really very important". 1311

"It's sometimes too much informal communication, especially internally". 3666

"I would like to have a few more formal reports about the progress. The construction manager may have the information but I don't get it to me. /.../ The written part could be better in terms of e-mails and minutes". 5565

"In some situation one has to be extra clear about things and sends some more formal information". 1552:

"Then we have these economy systems that we are supposed to report via every month, and that can be regarded as a more formal type of communication. That's pretty tough when you have so many projects. /.../ Then I think that the orderer could have more informal communication with us instead and for once ask how things are going, but they never do that. It's mostly formal there". 4115

"An economical control is necessary of course, but I believe we have too many different systems here to report data in. Sometimes I can wonder if they really

use all that information they get, and if the people they are meant for are really logging in to the systems. I'm not sure about that". 5426

"On the contrary, I believe that we should report in only one system and then use that information and not unnecessarily in many different places" 3666

"Then we have these programs we fill in. /.../ But when you have a lot of small projects and you should sit and write some accrued cost and so on, then it's a lot of work to sit and work that out". 3332

External/Internal

Some interviewees distinguished between external and internal communication. Many described that they communicate differently internally and externally, being more careful internally, putting on a façade externally, having more communication and straight talk externally, communicating more with entrepreneurs and construction designers than others, or more with construction designers than with entrepreneurs, as well as communicating more via e-mails externally. Many specifically described having more formal communication externally such as more meetings with external partners, regular or sometimes too seldom construction meetings, e-mails and meeting minutes being regarded as formal documents and having a juridical status externally, or that more formal communication externally depends on economic reasons. Some specifically expressed having more or even too much informal communication internally such as spoken information. Someone said it's more formal communication internally about economy and different types of documentation. Some said they communicate the same way internally and externally.

A few interview quotations are presented below as examples.

"I communicate much more externally than internally since the most work is performed on the outside. It's both with entrepreneurs and construction designers and people like that I'm thinking about. Internally it's not that much communication really, other than economy and different forms of documentation". 1311

"Externally it's more often meetings with minutes and construction meetings have a certain juridical status, so what have been said there and been put into minutes and adjusted is valid as a formal written record. /.../ We who sit here, including the consultants, have a direct spoken communication with each other of course". 1551

"I don't experience any difference about how I communicate internally and externally". 2155

4.1.14 The relationship between stress and conflict

Many project managers expressed that there is a relationship between stress and conflicts. A few mentioned that conflicts may lead to stress and vice versa. Someone said it must logically be a connection. Someone else stated that there is a clear connection. Some described that different opinions may lead to both stress and conflicts such as interpretations of contracts, or having different respect for time schedules. Many mentioned that conflicts give rise to stress, describing that conflicts that make you feel bad leads to stress, since unsettled conflicts makes you feel stressed, since conflicts lead to stressful relations, and that conflicts lead to stress since they interfere with your work progress. Many also mentioned that stress give rise to conflicts due to delays, since low priorities due to stress lead to conflicts with the affected, that unprepared meetings due to stress lead to conflicts, since lack of information due to stress lead to conflicts, that pushing people due to stress

leads to conflicts with the affected, since stressed people get irritated more easily. Someone said that stress can make you avoid conflicts. Others mentioned that there is not always or necessarily any connection. A few said that there is no connection between stress and conflicts. Someone said that he had not thought about it.

A few interview quotations are presented below as examples.

“If you address a conflict it’s usually resolved. /.../ Otherwise, if you don’t address it, it lies there in the background and can actually cause stress since you walk around thinking about it instead”. 5565

“But if you got a lot to do it may easily lead to conflicts too. When you start to eliminate and prioritise something, then something is put in first focus and some other things in less focus. The one who suffers from that getting less focus isn’t always so happy about that then”. 4611

4.1.15 The spreading of stress or conflict

The interviewed project managers expressed that stress or conflicts may spread from some people to others. Many mentioned that both stress and conflicts spread since some projects just starts off wrong and then runs in the wrong direction all through, since the surrounding environment is affected, since it affects others when someone says no to a job due to stress, that both negative and positive things affect others, when incomplete sales struck the project manager and then the entrepreneur and eventually the customer, when delayed subcontractors struck the entrepreneur and eventually the orderer, from the project management department to the company’s operational departments, that it spreads via coffee breaks, due to lack of communication, due to indistinct or missing information, when one party doesn’t know what the other is doing, since it’s like the cat on the rat and the rat on the rope, but spreading mostly internally. Many also expressed that stress spreads but not conflicts due to dependency on others, due to burnt out entrepreneurs, since one project gets low priority when another gets higher priority, since it dyes off to other people involved, since the group manager being absent due to stress creates stress for others in terms of worrying.. Some mentioned that the knowledge about conflicts spreads between customers and within the company, since formal complaints lead to many people being informed about it, or like rings on the water. A few said that neither stress nor conflicts spread and that they live their own life within a small fraction of the project, or that the real reason why people are stressed is because they have too much work to do. Some said they had no experience.

A few interview quotations are presented below as examples.

“If I can see that things will take longer than planned, that means that the entrepreneur will be late also in the next project, and my neighbour here or some other project manager will suffer from that. We use the same entrepreneurs, you know”. 4611

“That has happened. In the big project that I’ve told you about, we had the same pipe fitter as in another project. It was stressful due to that. I have to take on some of the blame for that to myself but there were excavations that where open for a very long time. That caused irritation among the tenants and the road-users in the area”. 1311

“When people have so much to do that they start saying no to new jobs it spreads. I can imagine that it spreads all the way down to the marketing department who have made promises to the customers in their turn”. 5565

4.1.16 Additional individual reflections on stress and conflicts

Many interviewees added optional miscellaneous reflections about stress and conflicts. A few expressed that nothing happens in the company, that it's discussed very often but there are few improvements, that the company must watch out for stress signals more properly, that the company must see to the problem and prevent people from being burnt out, that the company should have intervened much earlier, that efforts have to be done continuously and not just occasionally. Someone mentioned that it's important having regular meetings with co-workers via work place meetings, although not everyone likes to speak up then. Some emphasised that the group manager being absent due to stress-related illness which leads to an extra strain on co-workers, insecurity, lack of resources, sadness, more work, lack of time, lack of competence, improper communication, dilemmas about invoices and technical issues, and to people crossing authority barriers. Others described it as being important to get to know oneself to be able to manage stress, since it's only oneself who can delimit oneself, since it's about having knowledge and insight about how you function yourself, and that it's important being focused on the own and others' signals. Some said they got very useful knowledge about stress at seminars and via media, and want more training and education, such as more professional seminars for the co-workers, more courses about conflict management, and more training in negotiation technique. Someone mentioned understanding the entrepreneurs since they have a worse situation about personnel and other things, and that it's much easier to be an orderer than a supplier. Someone emphasised that it's more important to be broad-minded and good at managing relations than being an expert on the basic work tasks, and appreciates when people are helping each other or doing the "little extra". Someone put forward that stress and conflicts and related illnesses can be reduced in a similar fashion as alcohol related illnesses. Someone mentioned that it's important to relax in the spare time after work and that if you've done what you think you should have when you leave work you don't have to worry when the phone calls. Someone said that a certain pressure is needed to do a good performance but it may as well be shown by encouragement, that it's hard to define stress and that everyone has their own definition, and that he didn't attend the stress seminar since he didn't think it would have given anything. Other comments were that one may take criticism to hard personally, that a good rule is to "get everyone up in the carriage", that there should be an adequate quality system for the work process, recommendations about doing regular check-ups regarding economy, that always being reached via e-mails, telephones and messages is stressing, that the coming reorganisation of the company leads to uncertainty and worrying due to possibly cutting down on people, that one can get physically affected by stress, that it's important with a close manager, that it's a stressing work environment in the open landscape office, that it's interesting how stress works, that it's hard to understand "burn outs", that one misses time for reflection, and that neither stress nor conflicts are anything positive.

A few interview quotations are presented below as examples.

"Maybe we should note that our group manager is on the sick-list, since that is trying for the rest of us left here. /.../ That also leads to insufficient and indistinct communication and problems with getting approval of invoices, and problems with discussing questions regarding technical issues that might cost money and therefore must be discussed and approved by your superior manager". 4611

"A certain type of improvement or what to call it is needed if one should perform something, I mean a small kick in bottom so to say. But it can as well be that someone appreciates what one is doing". 3434

"I mean, being reached all the time. That must have increased the stress in work places in comparison to how it was in the old days". 4115

“ I think it’s very interesting with stress and how it works. Especially in respect to these cases of burnt-out people that I know about. /.../ I don’t really understand how it can be like that for real”. 3332

”When it comes to stress I think I have gotten a lot of useful information via news media and some courses. If I get sleeping disorders, head aches or just forget things, then I know it’s time to do something. When it comes to conflicts i feel that I would need more help via courses and other things. /.../ Maybe one takes something to heart that one really shouldn’t have to do. 3666

“I believe that everyone has their own definition of stress and that people therefore talk past each other when they make statements about things. /.../ There was a stress seminar recently that our department attended but I didn’t accompany them there since I don’t believe I would have gotten anything out of it”. 3434

4.2 Quantitative results from questionnaires

The quantitative results are given in table 2 and table 3.

The distribution of responding project managers on the PANAS scales axes are presented in table 2.

Table 2: Dichotomisation of PANAS data from project manager respondents, via separation of PA respectively NA results in two categories each (1.00-4.00) and presented as Σ (PA_{dicho}, NA_{dicho})

PANAS	1.00	2.00	3.00	4.00	Total
Frequency	4	6	6	4	20
Percent	20	30	30	20	100
Valid percent	20	30	30	20	100
Cumulative percent	20	50	80	100	X

Note 1. Σ = Sum

Note 2. 1.00 = Self destructive (low PA and high NA); 2.00 = Low effective (low PA and low NA), 3.00 = Highly effective (high PA and high NA), 4.00 = Self fulfilment (high PA and low NA).

Four personality categories are distinguished among the respondents by the PANAS survey. The results show that a total of four respondents (20%) are categorised as being self destructive, six (30%) as being low effective, six (30%) as highly effective, and four (20%) as being self fulfilling.

Table 3: Number of respondents, averages and standard deviations for studied project managers in comparison to norm data

Measure	Norm data			Current data		
	N	m	sd	N	m	sd
PA	6557	3.35	0.98	20	3.76	0.44
NA	6557	2.08	1.00	20	1.81	1.59
SE Energy	4508	2.93	1.94	20	3.22	0.60
SE Stress	4508	2.06	1.94	20	2.19	0.57

Note 1. N = number of participants, m = average, sd = standard deviation.

Note 2. A scale with 5 grades was used for PA respectively NA where 1 = Not at all; 2 = a

little; 3 = To some extent, 4 = Pretty much; 5 = Very much.

Note 3. A scale with 6 grades was used for Stress respectively Energy, where 1 = Not at all; 2 = Scarcely; 3 = To some extent; 4 = Pretty much; 5 = Much; 6 = Very much.

When controlled for statistical significance, the data given for the norm group respectively the current data from the twenty responding project managers differed significantly regarding PA ($t[19] = 4,07, p = ,001$), NA ($t[19] = -22,10, p = ,05$), and SE Energy results ($t[19] = 5.70, p = ,001$), but not for the SE Stress results ($t[19] = 1.03, p = .317$). In other words, the results showed that the studied project managers in general have higher PA weights and lower NA weights than the norm group. When the whole studied group was compared to the norm data it is shown that both the SE stress and the SE energy weights were higher for the project managers than for the norm group.

5 Discussion

This chapter aims at reviewing the qualitative and quantitative results from the perspective of the presented theory. Furthermore, some limitations of the research are presented.

The results of how the project managers react on stress show that it can be experienced as different imbalances in mood (Cox, 1978), physical well-being or in their achievements or behaviours (Sommerville & Langford, 1994). Examples are; getting upset, having stomach trouble, falling behind with work, or getting rude/impolite towards people. Thus, the symptoms of stress can be of both physical and mental nature and many described their symptoms in terms of emotions such as decreased happiness, feeling frustrated or irritated, or even apathy. Examples are also given where people don't perceive the situation to be what they hoped for, for instance when feeling frustrated about not getting forward. This can be interpreted as if their reference values are not met by the situation they are in (Fay & Sonnentag, 2002).

Answers describing the experiences of stress as; becoming more efficient and increasing performance, support the theory that stress effects may be positive. Yet, most stress experiences are described in negative terms. There were few examples of project managers referring to personnel being away from work due to "burn-out", as well as single individuals describing the need of pressure to be able to work comfortably, indicating "rust out". Others described low performance after a certain level of stress. Thus, some project managers may indeed experience an inverted U-shaped curvilinear relationship between stress and effectiveness, with a certain optimal level of stress for some people, while others are experiencing only a negative linear relationship (Fay & Sonnentag, 2002).

There are several clear indicators of many prominent consequences of stress experienced by the project managers (Örtqvist & Wincent, 2006). For example inadequate performance and missed things indicate reduced personal achievements, poor check-ups and time schedules from entrepreneurs indicate decreased job performance, having no time for reflection at work and different examples of reacting at home indicate tension, searching out faults in others or getting rude indicate decreased job satisfaction, decreased effort or happiness indicates emotional exhaustion, and becoming introvert indicates depersonalization.

Most interviewees mentioned that they primarily use their work experience for identifying the occurrence of stress. Nevertheless, most people that had the possibility to get any type of training or education about stress said they had much help from that to get more aware of stressful situations and how to identify their own stress signals and also in others'. Some get help from their family or friends to identify stress. Stress clearly involves much effort from affected people themselves to be identified. Thus, the company may need to help employees with tools for this identification process of stress, since the companies themselves are indeed affected by the negative effects of stress (Sommerville & Langford, 1994).

Some of the mentioned experiences of stress were clearly subjective, while others mentioned objective physical symptoms to describe their stress, for instance getting an increased heart activity or sleeping disorders. The experience of stress can therefore be said to have many objective features, and not only being subjective (Fay & Sonnentag, 2002).

Also the causes of stress were presented as both subjective and objective by the interviewees. Examples of both situational constraints and time pressure were given (Fay & Sonnentag, 2002). Time and people were the main stressors in projects according to the interviewed project managers, and also cost, but not to the same extent (Sommerville & Langford, 1994). Other stressors were for example experiencing lack of knowledge,

information, and responsibility, bad “personal chemistry”, having too many things to think of at the same time, or feeling insufficient and worrying about being unsuccessful. Lack of knowledge may for instance cause stress without being directly related to time, cost or people since some people feel stressed when they feel they don't have control of a situation. Thus the effects of stress, and also the causes, can not only be objective but also subjective, and it's not supported that stress itself is only subjective (Fay & Sonnentag, 2002).

A few mentioned causes of stress, for instance; receiving more responsibilities than powers, no budget decision when starting constructing, and unidentified work in the process such as calculating cost estimates, are examples of project managers experiencing all three facets of role stress, namely role conflict, role ambiguity and role overload (Örtqvist & Wincent, 2006).

Stress was described as occurring in most work moments in projects, however work moments such as installation, assembling, and excavating during the construction phase were the most commonly mentioned, together with the purchasing and final phase of the project (Sommerville & Langford, 1994).

Stress was also implied as occurring in most relations, but the entrepreneur relation was the most prominent, together with customers and sales persons (Sommerville & Langford, 1994).

The project managers gave examples of both direct and indirect impairment of work due to stressors (Fay & Sonnentag, 2002). Direct impairments were for instance the need to fix photo copiers, and indirect impairment was due to disturbing and inappropriate work environments.

Most interviewees stated that they take personal initiative to extra-role behaviour in addition to their in-role behaviour (Fay & Sonnentag, 2002), for instance improve work methods and routines, and even reorganise departments and help planning vacations, as well as helping each other, taking on the role of a sales person, and put a lot of time on the relations (Fay & Sonnentag, 2002). Thus, as the latter examples show, also affiliative-challenging personal initiatives are occurring and not only promotive-prohibitive initiatives.

Some said that the personal initiative is actually a factor of stress itself. According to the earlier mentioned experiences of stress, personal initiative then may reduce well-being. Others said it's not and may even prevent stress, and that showing personal initiative is of benefit to the individual since it opens up doors for your career. Some answers, as for example having more than enough work already, or not taking personal initiatives as much as wanted, indicate that the resources needed for extra-role performance are sometimes consumed by the intra-role performance and impaired by stress (Fay & Sonnentag, 2002).

Furthermore, mentioned causes of stress such as the group manager being absent when quick decisions are needed, show that employees' stress can affect not only themselves but also the organisation's health and well-being, as well as their productivity (Sommerville & Langford, 1994). These evident negative effects of stress can be seen as a need for the company to be more active in stress management. Information given by concluding miscellaneous interview answers, and by the company context review, that the group manager was absent due to stress-related illness even emphasises this need.

Some expressed ways of managing stress in practice were; by prioritising, conferring with someone about issues, or clearing the desk. However, many mentioned ways that were only used after work, such as exercising. Some said they had no particular stress management techniques other than working on even harder.

According to the interviews many project managers' experienced that there is too little focus on stress in the company, and it was even implied that there is a culture of hiding stress

(Sommerville & Langford, 1994). Yet, most participants expressed positive reactions about the mentioned recent focus on stress via seminars in the project management department. This indicates that the company would benefit from more reactive focus on stress and stress management interventions such as seminars, but also from a more pro-active focus on its culture, and shift from an implied short-term perspective to a long-term perspective. Comments about experiencing difficulties when managing projects with collaborations between different departments, may suggest that this pro-active focus should be a holistic approach throughout the company's departments, including the senior executives to create an interactive relationship within the organisation.

Looking at the project management department, there were vast differences in the perceived people management responsibility among project managers (Sommerville & Langford, 1994). Someone stated that being interested in the overall job is important and supporting co-workers is always on the agenda, while someone else said that human resource responsibilities lie only on the line managers. The expectations on this type of responsibility could be clarified to the project managers and others by the company culture and organisation policies. The expectations on individual's respectively the company's responsibilities for stress management could be handled in the same way.

A vast majority of the interviewees stated that stress can be prevented. Mentioned methods were for instance making payments in parts and regular financial tuning, taking on help early from the colleagues, and manning the project team with people that usually work well together. The latter comment implies that that the fit between the job and the person is considered when preventing stress (Sommerville & Langford, 1994). These mentioned examples of possibilities to prevent stress together with comments such as; being so interested in your job that you listen to signals, and that; changes occurs naturally in projects, indicates that the project managers can be characterized by all three types of stress resistance, namely control, commitment and challenge (Sommerville & Langford, 1994).

While stress was identified more through inner physical and psychological signals, conflicts were commonly identified through a dialogue between parties, indicated by the following examples; straight talk or dialogue, and people saying what they think. Thus, communication plays a more important part in the identification process of conflicts than for stress.

The results of how the project managers react on conflicts show that it can be experienced as disagreements, quarrels, threats about legal issues, but also as physical and mental imbalances such as aggressiveness, irritation, feeling it in the stomach, and the blood pressure being raised.

Some project managers described the experiences of conflicts as not only negative, such as interrupting the work flows, but also as positive since it provides the possibility to make improvements (Hashem & Varghese, 2004). Most project managers stated that conflicts must be resolved and that they even feel responsibility to resolve other person's conflicts that may affect the project. There were vast differences on suppression and attention-focus mechanisms for conflict management and resolution among the interviewed project managers, as shown by the following comments; haven't thought about it, respectively prioritises conflicts before anything else (Sommerville & Langford, 1994). These examples indicate that the company's performance may be affected by extreme ways of dealing with conflicts in projects, and the company's expectations on this could be needing clarification for guidance of the project managers.

According to the interviewed project managers, people and cost issues were more common causes of conflicts than time (Sommerville & Langford, 1994). The personal relations were also indicated to be even more prominent causes of conflicts in projects than for stress, indicated by answers like; falling out with each other, being like cat and dog, or acting like

opponent teams. There were also several other prominent causes mentioned, such as issues implying change of scope, retardation of progress, variance in contractual obligations, budgetary matters, payments, design matters, technical issues, vendor relations, work execution, contractual matters, personnel matters, safety issues, project organisation, project objectives, communications, and roles and responsibilities, for example overlooked coordination responsibility (Sommerville & Langford, 1994).

Very few interviewees mentioned that they had any training or education regarding conflicts, but rather act according to work experience and through feelings. However, some said they need to get better at conflict management, and that they experienced a floating and indistinct boundary between negotiation and conflicts in their roles as project managers.

Conflicts were also described as occurring in most work moments in projects (Sommerville & Langford, 1994). Again installation, assembling, and excavating during the construction phase were the most commonly mentioned. However, conflicts were implied to be common also in the start of the projects and in connection to payments and cost regulations.

Conflicts too, were expressed as occurring in most relations, but again the entrepreneur relation was the most prominent, together with customers and other stakeholders such as road unions and external building proprietors (Sommerville & Langford, 1994).

Practical examples of managing conflicts were, among others, to apologise on behalf of the company, controlling specifications with implied costs, identifying roles and where people can turn for support, letting people tell what they think, or to delegate upwards immediately. There were few examples indicating that conflicts were managed via authority or by ignoring it (Hyde et. al, 2006).

Most participants believed that conflicts can be prevented by for instance giving more of cheap things early on, by active forming of project team, creating good relations before starting up work, getting everyone involved in contributing to improvements, or by delivering information before questions arise.

Some project managers put forward that they actively formed project teams as a means of providing a good collaboration and to prevent conflicts from occurring in the projects (Boddy, 2002). Other claimed they had little possibility to influence the teams' compositions, and were forming groups on basis of technical competence only, or by use of internal routines for how project teams are put together (Briner et. al, 1999). Most actively formed teams were said to be composed on the basis of involving known people, indicating experienced credibility, rather than by use of psychometric tests (Boddy, 2002). Thus, new co-workers may be less appreciated by such forming and risk exaggerated control in projects. Some preferred homogenous teams while other emphasised the importance of balancing characters in a heterogeneous team. No one mentioned choosing members on basis of useful networks, communicative or political skills, being most eager, having the biggest interest, or best use of participating in the project (Briner et. al, 1999).

A mentioned example of custard-pie-throwing back and forth at initial meetings between collaborating departments, but calming down after a while, supports the theory that the co-workers must learn how to cooperate before they can perform well together and the objectives can be met (Boddy, 2002). Thus, storming and norming phases are important for team development and a transition stage where conflicts can indeed be seen as naturally occurring and in need of management.

Comments about all relations being about communication indicates that this team development stage is in need of choosing ways of communication and how to face up to disagreements to work efficiently (Briner et. al, 1999). This is further supported by examples

of conflict causes such as people taking liberties to do something without informing others, or inadequate explanations and interpretations. Furthermore, this supports the theory that communication is fundamental to any organisation (Erikson, 2005).

Many project managers also expressed the need to clarify how to handle information efficiently, through agreed channels, at what time and with acceptable contents, by giving examples of stressors such as lack of communication or information in terms of; unread e-mails, inadequate contact with customers, the sales persons' promises not being written down, or indistinctness in general. These and several other examples indeed imply that effective communication is experienced as giving co-workers overview, create agreement on goals, provide better basis for decision-making, create unity, facilitate collaboration, counteract on rumours, facilitate delegating, create competence on change and to reach better results (Erikson, 2005).

Examples of economic control being regarded as necessary, experiencing too little interest from the orderer, or the steering committee controlling too many details, support the theory that communication has a critical role to serve in the relationship between project owners and project managers (Turner & Müller, 2004). It also indicates a "principal-agency" relationship between them. Project managers themselves can also have the principal role in other relationships in projects, as indicated by examples of wanting to control entrepreneurs more, or feeling insecurity-related stress such as powerlessness from being dependant on others.

It is shown that information is asymmetric in "principal-agency" relationships (Turner & Müller, 2004) by comments about not receiving warnings in time about dislocated time schedules, or not receiving information available to the construction manager. Project managers giving examples of jumping over the construction managers' head, and even needing to control that work is done indicates that mistrust and tight control may be a result if this information asymmetry is not achieved through proper communication. The latter examples also indicate that subordinates may rather be controlled than empowered, inducing conflicts. Indeed, this also points at an existing "moral hazard problem" in the discussed relationships (Turner & Müller, 2004).

These examples of information asymmetry and "principal-agency" relationships support the theory that communication is in fact linked to at least four types of emotions; trust, interest, perception of progress, and comfort or need for control (Turner & Müller, 2004).

Some project managers described their own role as being like a CEO for a little project, or stated that they enjoy receiving a lot of trust and even mentioned that it's necessary. This implies that the best project results may be achieved when the project manager is empowered to take own decisions on the project (Turner & Müller, 2004). Nevertheless some say that the responsibility can be stressing sometimes when receiving a lot of trust, for instance with respect to inadequate order information.

The need for both formal and informal communication (Boddy, 2002) is supported by some project managers putting forward that they would like to have more formal reports about the progress, or wants more informal communication with the orderer. It is also indicated by examples of receiving too much informal communication internally, and several complaints about formal information systems for reporting to orderers, that there is a need of balance between formal and informal communication to prevent information overload but also bureaucracy (Turner & Müller, 2004). In fact, there seems to be a tendency of needing formal communication such as orders, contracts, meeting minutes, work descriptions and routines to prevent conflicts, but informal communication mainly via spoken dialogue or even body language to identify conflicts when they occur (Correia, 2007).

The different amounts of communication needed by the project managers in different parts of the project life-cycle (Turner & Müller, 2004) is illustrated by comments about stress and conflicts arising due to lack of information about orders, or missing drawings in the early work moments, while the need later in process refers more to continuous updates on work progress in terms of time and costs.

Comments about every communication channel having its field of application but overlapping each other support the need for different media and channels to be used for communication (Turner & Müller, 2004). Furthermore, it implies that the communication contents and the used media are inseparable and interlinked. The many expressed examples of stress and conflicts related to inadequate communication indeed indicates that there are several modes of communication such as personal project reviews, project analysis, written status reports, and verbal updates (Turner & Müller, 2004).

The channels used for information in technology-rich (ICT) environments (Correia, 2007) may in fact increase stress and conflicts related to communication, given by the comments from project managers about such problems, due to unread e-mails or too many and confusing formal information systems.

There were also some comments indicating that communication internally respectively externally differs, due to the communication channels used in remote relations, but also due to reasons related to trust and increased need of formal information. All together, communication is an important part of the causes and resolutions of both stress and conflicts.

Interviewees giving examples about available written work descriptions being clear on paper but not in practice, people just working by force of habit, vast spreading and strong person dependency on performed amounts of work, all indicate that role conflicts may induce stress and conflicts in projects (Gong et. al, 2001). As already mentioned, role conflict can also be a constituent of role stress (Örtqvist & Wincent, 2006).

Comments from project managers about different acting and risk management due to different backgrounds and roles imply that stress or conflicts may arise due to roles, even when they are distinct (Gong et. al, 2001). This could be due to for instance cultural differences, as indicated by the expressed little general knowledge about project work internally within the company.

Furthermore, made comments such as indistinct boundaries between project managers and construction managers, and variations between individuals in collaborating departments causing stress and conflicts indicates that partial inclusion may be necessary to differentiate between boundaries where one entity in co-operation with another entity overlap each other (Gong et. al, 2001).

Some project managers stated that it's easier to follow-up work when everyone knows their roles, implied that this clarifies goals and the consequences of fulfilling or not fulfilling the goals (Gong et. al, 2001). However, to achieve joint businesses goals, positive synergetic effects, and resource effectiveness the boundaries between co-working partners may need to be opened. This is implied by some project managers, giving examples about the roles of project managers and construction managers needing to be flexible and not too static. Someone stated that it has deliberately been left open to the construction manager and the project manager to decide their respective role responsibilities by discussing it on their own. Thus, communication in terms of open discussions, rather than a complete contract with work descriptions, is implied as a preferred way of defining the respective roles (Gong et. al, 2001). Other given examples of partners interpreting different types of agreed contracts, formally describing responsibilities and rights, were presented as ambiguous and also

causing stress or conflicts. Yet, some form of formalisation of roles, either via contracts or via decisions on basis of discussions seems necessary to reduce role conflict, as well as role ambiguity and role overload (Gong et. al, 2001).

There were several comments suggesting that stress and conflicts can be interlinked (Sommerville & Langford, 1994), for example that conflicts lead to stressful relations, or that conflicts lead to stress since they interfere with your work progress. Some examples were also indicating that stress, as well as conflicts may spread from one person or group to another since one project gets low priority when another gets higher priority, or due to incomplete sales affecting the project manager and then the entrepreneur and eventually the customer.

The questionnaire results indicate that 20% of the respondent project managers are characterised as self destructive, 30% as low effective, 30% as highly effective, and 20% as self fulfilling if plotted in a diagram based on the PANAS scales (Archer, 2007). Thus, 20% of the project managers don't feel enthusiastic, active, and alert to a high extent, but rather subjective distress and unpleasurable engagement that subsumes a variety of aversive mood states (Watson et. al, 1988). A group of 30% feels neither enthusiastic, active, and alert to a high extent, nor subjective distress and unpleasurable engagement that subsumes a variety of aversive mood states. Another 30% feels both enthusiastic, active, and alert to a high extent, and subjective distress and unpleasurable engagement that subsumes a variety of aversive mood states. The last 20% of the project managers feel enthusiastic, active, and alert to a high extent, but not subjective distress and unpleasurable engagement that subsumes a variety of aversive mood states.

When comparing PA and NA weights of the whole studied group with norm data it is shown that the studied project managers in general have higher PA weights and lower NA weights than the norm group. This indicates that the project managers in general feel enthusiastic, active, and alert to a higher extent than the norm group, but subjective distress and unpleasurable engagement that subsumes a variety of aversive mood states to a less extent than the norm group (Watson et. al, 1988). This result was statistically significant.

Also, when looking at the SE weights of the whole studied group and comparing them to the norm data it is shown that both the SE stress and the SE energy weights (Kjellberg & Iwanowski, 1989) were higher for the project managers than the norm group. This indicates that the project managers feel more active in a work situation, than the norm group. This result was statistically significant. It also indicates that the project managers appreciate their situation as more stressful than the norm group. However, this result was not statistically significant.

5.1 Limitations

The research was only involving project managers from one single department of the studied company. No other departments within the company or external partners were represented to give another angle of stress and conflicts in projects. Only samples of participants within the studied department were interviewed. A large percentage of the total number of project managers was involved in the study. Nevertheless, excluding one or more project managers can be seen as a limitation.

When presenting quotations from interviews, such quotations are always just extracts from a context. Thus, presenting the full interviews would probably give a fuller, but not necessarily a clearer picture of each individual's experiences.

The interviews were conducted between June and August, the Swedish summer holiday season. A clear majority of the interviewees had one or more week's vacation during this period, some within weeks before or after the interviews took place. Yet, a few participants

did not have vacation at all during this period. Potential effects from this timing on the interviewees have not been considered.

6 Conclusion

This chapter presents the final conclusions of the research, and discusses recommendations for further studies.

Stress and conflicts, often emerging from time, cost or relational constraints, affect both the physical and mental well-being of people, as well as both the performance of individuals and organisations. Although performance may initially increase for some individuals due to stress, it will eventually decrease performance for all individuals.

Experiences of roles, trust and control, and communication are important to the causes and resolutions of both stress and conflicts. However, communication also plays a more important part in the identification process of conflicts than for stress. While stress is identified more through inner physical and psychological signals, conflicts are identified through dialogue between parties. Stress on the other hand involves even more efforts from affected people themselves to be identified. Thus, the company needs to support employees with this identification process of stress, since the companies themselves are affected by the negative effects of stress.

The result also show that stress and especially conflicts are seen as a major part of the project managers every day job, and many participating project managers state they need more ways and increased knowledge to effectively treat and deal with both stress and conflicts. Therefore training and seminars addressing both conflicts and stress and its management are proposed to be used. Although some have little belief in such education, some which never participated themselves in voluntary seminars, most participants stated it helps, especially to validate the stress concept and improve their own identification process. Experiences of conflict management courses or seminars were shown to be rare, although conflicts or at least negotiations were generally described as common. Thus this is a field to be better used and tried out, either in terms of conflict management programs or more precise negotiation training.

The study shows that stress can lead to conflicts, and vice versa. It also shows that there are many similarities between stress and conflicts, sharing some causes such as lack of information or exceeded time frames, and effects such as low performance and experienced frustration. Nevertheless, conflicts are described as hard to foresee and thus this suggests that not only the management of conflicts need more focus, but also the identification process in terms of earlier identification. It is also shown that it is hard to define what a conflict is and what negotiation is normal to the role and working processes of the project manager. Thus this situation and circumstances need to be put in focus, not only by management training but also in terms of clear company policies to guide the project manager to proper handling. For instance, bad personal chemistry is often mentioned as a cause of conflicts. It can be discussed within the company if such causes are adequate in the professional relations and work processes in its business, for instance during contract and cost negotiation, or if the company should be able to manage conflicts due to such causes, to minimize the amounts or degrees of conflicts. The same questioning could be posed regarding conflicts due to any distinguished causes or related to any presented effects, and in an even wider perspective in regard to stress.

As a group, the studied project managers' possess a strong energy, feels more enthusiastic and less distressed in comparison to the norm group of reference. However, there is range of dominating mood states among the project managers in the company, with profiles ranging from self-fulfilling to self-destructive.

6.1 Suggestion for further studies

The vast collection of qualitative data from interviews allows for other research of a meta-analytical type to be conducted using the same data. To look at similarities or cultural differences between countries the same research method could be used to study project managers in the same type of industry outside Sweden. Any similar research based on other data could also be taking another perspective focusing on a wider part of the organisation, including the views of other project partners than project managers. The next step in the study of stress and conflicts and its management is suggested to be an investigation of the effectiveness of stress and conflict prevention methods.

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8 Appendices

8.1 Appendix 1: Interview instruction; Swedish original

2007-06-13

Intervjufrågor för studie av konflikter och stress inom projekt ledda av SP

Instruktion:

Anteckna dagens datum här: _____

Presentera studien och mig själv:

Lite om studien.

Den här studien om stress- och konflikt ingår i mitt exjobb som är den avslutande delen på min MSc (Teknologie Magisterexamen) i internationell projektledning på Chalmers och Northumbria University i England. Exjobbet baseras på vetenskapliga artiklar om stress och konflikt och en intervjustudie omfattande 20 projektledare på Göteborg Energi. Slutrapporten skrivs på engelska under juni-september.

Lite om mig själv.

Jag själv är tjänstledig under 1 år och har läst utbildningen (med elever från ca 20 olika länder) under höstterminen i Göteborg och under vårterminen i Newcastle.

Jag har innan utbildningen jobbat som ingenjör inom läkemedelsindustrin. De senaste 4 åren har jag bott i Stockholm och jobbat på AstraZeneca i Södertälje. Där jobbade jag med processutveckling, förpackningsutveckling och kvalitetssäkring inom tabletttillverkningen av ett flertal produkter, t ex Alvedon, Seloken, Losec och Nexium.

I praktiken har jag under de sista 2 åren varit delprojektledare i investeringsprojekt med ansvar för validering av tillverkningsprocessen. Innan jag kom till AstraZeneca jobbade jag i knappt 1 år med liknande saker på ett litet läkemedelsföretag som heter Ferring AB utanför Malmö.

Innan dess pluggade jag kurser i bl a farmakologi och cellbiologi på Göteborgs Universitet och reste runt lite i världen och jobbade på Pripps under ett par år. Jag har tidigare läst till Högskoleingenjör i kemiteknik på Chalmers Lindholmen. Jag är idag 32 år och är uppvuxen i Västra Frölunda.

Presentera kortfattat de olika frågekategorierna i intervjun.

Frågorna rör stress; stresshantering; konflikter; konflikthantering; specifika frågor om roller, förtroende kontra kontroll, och kommunikation; samband mellan stress och konflikter; avslutande frågor

Förklara anonymitet och kod:

För att kunna referera till svaren men bevara anonymitet för den intervjuade används en tärningskod.

Be den intervjuade att slå en tärning 4 ggr och anteckna samtliga slag i en följd.

*Anteckna den intervjuade personens personliga fyrsiffriga kod här: _____
(Be den intervjuade personen att memorera eller anteckna koden själv också).*

Starta inspelningen

OBS! *Läs upp koden på "bandet" vid start av intervjun för att kunna referera informationen till en specifik anonym person.*

Låt den intervjuade inledningsvis få tänka igenom och berätta lite om sina projekt. Ställ sen numrerade frågor till den intervjuade. Vid behov ställ även angivna följdfrågor för att rikta in diskussionen mot önskade områden och för att skapa en känsla av dialog.

Projektbakgrund

Kan du kortfattat berätta lite generellt om dina projekt?

- Vilken är din roll i projekten? Hur ser projektorganisationen i regel ut? Vilka typer av produkter och tjänster tas fram i dina projekt? Vilka är vanligtvis de olika arbetsfaserna i projekten?

Stress

1. Förekommer stress i dina projekt?

- Genom vilka signaler och tecken identifierar du stress i projekten (t ex osäkerhet, hyperaktivitet, sömnlöshet, låg prestation etc)? Hur tyder du dessa? Via din arbetserfarenhet, din utbildning, särskild träning, eller inte alls?

2. Vad orsakar stress hos dig eller dina projektmedlemmar i dina projekt?

- Vilka är de främsta orsakerna/stressorerna (t ex otydligheter eller brist på kunskap, kompetens, personal, ansvar, kvalitet)? Tid, pengar och personliga relationer? Varför har du för mycket att göra och för låg budget (alt. brist på tid och pengar)? På vilket sätt stressar andra personer dig?

3. I vilka arbetssituationer upplever du att stress uppkommer hos dig eller dina projektmedlemmar i dina projekt?

- När och var? Vid vilka händelser eller projektfaser är stress vanligast? I vilka arbetsmoment (t ex projektering, specificering, upphandling, avtalsskrivning, planering, samordning, konstruktion, installation, montering, besiktning, driftsättning, överlämning, betalning/kostnadsreglering)? I vilka relationer (t ex beställare, styrgrupp, chefer och medarbetare inom GE, konsulter, entreprenörer, leverantörer, underleverantörer)? På vilket sätt?

Stresshantering

4. På vilka sätt hanterar du stress i dina projekt?

- Vilka tekniker och alternativ känner du till för att hantera stress?
Upplever du några begränsningar för dig att hantera stress på ett bra sätt?

5. Hur upplever du kulturen (t ex attityder och arbetsvanor) och stödet inom företaget för att hantera stress i projekt?

- Finns det något mer företaget och övriga beslutsfattare kan göra för att minimera eller bättre hantera stress?

Konflikt

6. Förekommer konflikter i dina projekt?

- Genom vilka signaler och tecken identifierar du konflikter i projekten (t ex aggressivitet, nedstämdhet etc)? Hur tyder du dessa? Via din arbetserfarenhet, din utbildning, särskild träning, eller inte alls?

7. Vad orsakar konflikt hos dig eller dina projektmedlemmar i dina projekt?
- Vilka är de främsta orsakerna/konfliktgeneratorerna (t ex otydligheter eller brist på kunskap, kompetens, personal, ansvar, kvalitet)? Tid, pengar och personliga relationer?

8. I vilka arbetssituationer upplever du att konflikter uppkommer hos dig eller dina projektmedlemmar i dina projekt?
- När och var? Vid vilka händelser eller projektfaser är konflikter vanligast? I vilka arbetsmoment (t ex projektering, specificering, upphandling, avtalsskrivning, planering, samordning, konstruktion, installation, montering, besiktning, driftsättning, överlämning, betalning/kostnadsreglering)? I vilka relationer (t ex beställare, styrgrupp, chefer och medarbetare inom GE, konsulter, entreprenörer, leverantörer, underleverantörer)? På vilket sätt?

Konflikthantering

9. Kan du berätta om hur du ser på konflikter i dina projekt?
- Ser du t ex konflikter som något som:
 1. måste kontrolleras och lösas direkt av de berörda
 2. är en utmaning för dig som projektledare och de berörda att försöka hantera under arbetet
 3. hör till jobbet som projektledare och helt enkelt måste uthärdas som en naturlig del av arbetet.

10. På vilka sätt känner du att du som projektledare har möjlighet att hantera konflikter i dina projekt?

- Upplever du att det går att förebygga uppkomsten av konflikter (t ex via aktivt val av grupsammansättning) eller kan det bara hanteras akut? Hur (suppression eller attention-focus)? Upplever du några begränsningar?

Specifika frågor om roller, förtroende kontra kontroll, samt kommunikation

11. Är de olika arbetsrollerna tydligt avgränsade och fördelade på ett sätt som förebygger stress och konflikter?

- Är det tydligt vem som gör vad i projekten? Är det tydligt hur arbetet ska göras? Tar du initiativ till arbete som inte direkt förväntas av dina chefer, dina projektmedlemmar eller enligt din arbetsbeskrivning (intra-role kontra extra-role performance)? Vad?

12. Är det en bra balans mellan visat förtroende och kontroll i projekten som förebygger stress och konflikter?

- Behövs mer visat förtroende eller mer kontroll av arbete i någon mån? T ex i genomförandet och rapporteringen kring dina projekt? På vilket sätt?

13. Sker kommunikationen i projekten på ett sätt som förebygger stress och konflikter?

- På vilka sätt kommunicerar du angående projektet? T ex kommunikationen internt inom projektgruppen och externt gentemot övriga intressenter? Är det en tillfredställande mängd informell (t ex telefonsamtal) och formell (t ex skriftliga rapporter) kommunikation?

Samband mellan stress och konflikt

14. Upplever du att det finns något samband mellan stress och konflikter i dina projekt?

- Kan du ge exempel på samband (t ex angående kravställning)?

15. Har du upplevt att stress eller konflikter har spridit sig inom eller utanför projekt?

- Hur upplever du orsakerna till detta? Kan du ge exempel?

Avslutande frågor

16. Är det något mer du vill tillägga angående stress eller konflikter och dina projekt, som du känner att du inte har fått sagt hittills under intervjun?

17. Får jag citera dina svar på de här intervjufrågorna och referera citaten till din personliga firsiffriga kod i min slutrapport?

8.2 Appendix 2: English translation of interview questions

2007-09-22

Interview questions: English translation

Project background

Can you briefly describe your projects in general terms?

- What is your role in the project? What does the project organisation normally look like? What types of products and services are delivered by your projects? What are usually the different phases of the project?

Stress

18. Does stress occur in your projects?

- Through what signals and signs do you identify stress in the projects? (e.g. insecurity, hyper activity, sleeping problems, low performance etc)? How do you interpret them? Via work experience, your education, special training, or not at all?

19. What causes your own and your team members' stress in the projects?

- What are the primary causes/stressors (e.g. indistinctness or lack of knowledge, competence, personnel, responsibilities, quality)? Time, money and personal relations? Why do you have too much to do and to low budget (alt. lack of time and money)? In what way do other people inflict stress on you?

20. In what work situations in your projects do you or your team members experience stress?

- When and where? At what occurrences or project phases is stress most common? In what work moments (e.g. construction designing, specification, purchase, writing contracts, planning, coordination, construction, installation, assembling, inspection, operational start, hand over, payments/regulating costs)? In what relationships (e.g. orderer, steering committee, managers and co-workers in the company, consultants, entrepreneurs, suppliers, subcontractors)? In what way?

Stress management

21. In what ways do you manage stress in your projects?

- What techniques and alternatives do you know to facilitate stress management? Do you experience any limitations for you to properly deal with stress?

22. How do you experience the culture (e.g. attitudes and work habits) and the support within the company to manage stress in projects?

- Is there anything more the company and other decision makers can do to minimize stress, or to improve its management?

Conflict

23. Does conflicts occur in your projects?

- Through what signals and signs do you identify conflicts in the projects? (e.g. aggressiveness, sadness etc)? How do you interpret them? Via work experience, your education, special training, or not at all?

24. What causes your own and your team members' conflicts in the projects?

What are the primary causes/conflict generators (e.g. indistinctness or lack of knowledge, competence, personnel, responsibilities, quality)?
Time, money and personal relations?

25. In what work situations in your projects do you or your team members experience conflicts?

- When and where? At what occurrences or project phases is stress most common? In what work moments (e.g. construction designing, specification, purchase, writing contracts, planning, coordination, construction, installation, assembling, inspection, operational start, hand over, payments/regulating costs)? In what relationships (e.g. orderer, steering committee, managers and co-workers in the company, consultants, entrepreneurs, suppliers, subcontractors)? In what way?

Conflict management

26. Can you describe how you regard conflicts in your projects?
- Do you regard the conflicts as:
 4. something that must be controlled and settled immediately by the directly involved.
 5. a challenge to you as project manager and the involved to handle during the work
 6. something naturally occurring in the job as project manager that just have to be endured.
27. In what ways do you as a project manager feel that you can manage conflicts in your projects?
- Do you experience that it's possible to prevent conflicts from occurring (e.g. via an active team formation) or can they only be managed acute? How (suppression or attention focus)? Do you experience any limitations?

Specific questions about roles, trust versus control, and communication

28. Are the different work roles clearly delimited and divided in a way that prevents stress and conflicts?
- Is it clear who is doing what in the projects? Is it clear how the work shall be performed? Do you take personal initiative to work that is not directly expected by your managers, your team members, or according to your job description (intra-role versus extra-role performance)? What type?
29. Is it an adequate balance between trust and control in the projects, in a way that prevents stress and conflicts?
- Is there any need for more trust or more control of work? For instance regarding practical tasks or the reporting about your projects? In what way?
30. Does the communication in the projects function in a way that prevents stress and conflicts?
- In what ways do you communicate regarding the projects? For instance the communication internally within your project group or externally towards other stakeholders? Is it a satisfying amount of informal (e.g. phone calls) and formal (e.g. written reports) communication?

Connections between stress and conflicts

31. Do you experience any connection between stress and conflicts in your projects?
 - Can you give any examples of connections (e.g. regarding requirements)?
32. Have you experienced that stress or conflicts have spread within or outside the project?
 - How do you experience the causes of that? Can you give any examples?

Final questions

33. Is there anything more you would like to add regarding stress and conflicts in your projects, that you feel has not already been said so far during this interview?
34. Can I quote your answers to these questions and refer the quotations to you personal four digit code in my final report?

8.3 Appendix 3: Questionnaire; Swedish original

Du får nu svara på några frågor om hur Du har känt Dig under de senaste veckorna. Det gör Du genom att läsa varje ord och ange det svarsalternativ, på raden till höger, som Du tycker stämmer bäst in på Dig.

	Inte alls	Lite	I någon mån	Ganska mycket	Väldigt mycket
1. Engagerad	<input type="checkbox"/>				
2. Förtvivlad	<input type="checkbox"/>				
3. Upprörd	<input type="checkbox"/>				
4. Haft skuld känslor	<input type="checkbox"/>				
5. Rädd	<input type="checkbox"/>				
6. Fientlig	<input type="checkbox"/>				
7. Entusiastisk	<input type="checkbox"/>				
8. Stolt	<input type="checkbox"/>				
9. Retlig	<input type="checkbox"/>				
10. På alerten	<input type="checkbox"/>				
11. Skamsen	<input type="checkbox"/>				
12. Inspirerad	<input type="checkbox"/>				
13. Nervös	<input type="checkbox"/>				
14. Bestämd	<input type="checkbox"/>				
15. Uppmärksam	<input type="checkbox"/>				
16. Pirrig, ängslig	<input type="checkbox"/>				
17. Aktiv	<input type="checkbox"/>				
18. Skrämd	<input type="checkbox"/>				
19. Ivrig	<input type="checkbox"/>				
20. Stark	<input type="checkbox"/>				

Du får nu också svara på några frågor om hur Du har känt dig **den senaste timman**. Svara genom att ange det svarsalternativ som bäst motsvarar hur Du känner Dig. Fyll i snabbt utan att tänka allt för mycket.

	Inte alls	Knappast alls	Något	Ganska mycket	Mycket	Mycket, mycket
1. Avslappnad	<input type="checkbox"/>					
2. Aktiv	<input type="checkbox"/>					
3. Spänd	<input type="checkbox"/>					
4. Slapp	<input type="checkbox"/>					
5. Stressad	<input type="checkbox"/>					
6. Energisk	<input type="checkbox"/>					
7. Ineffektiv	<input type="checkbox"/>					
8. Avspänd	<input type="checkbox"/>					
9. Skärpt	<input type="checkbox"/>					
10. Pressad	<input type="checkbox"/>					
11 Passiv	<input type="checkbox"/>					
12. Lugn	<input type="checkbox"/>					