



DEPARTMENT OF PSYCHOLOGY

**Creative Potential, Expertise, Social
Desirability and Group Climate – Their
relation in work teams dedicated to creativity
and innovation.**

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Abstract

Relationships between personal factors creative potential, expertise, social desirability, and the factor group climate studied in real life work teams dedicated to creativity and innovation. Sample of four groups, three with five members ($n = 5$), one with three members ($n = 3$), in total eighteen people ($N = 18$); nine women ($n = 9$), nine men ($n = 9$). Prominent instruments used: for creative potential, the Creative Functioning Test (CFT) (Smith & Carlsson, 1990a, 1990b); for expertise, a self-report questionnaire based on the Generalized Expertise Measure (GEM) (Germain & Tejada, 2009); for social desirability, the Strahan-Gerbasi 20-item social desirability scale (Strahan & Gerbasi, 1972); for group climate, the Creative Climate Questionnaire (CCQ) (Ekvall, 1990). CFT measures according to CFT manual (Smith & Carlsson, 1990a), questionnaires answered via a survey server. Statistical calculations made using correlations, t-tests, ANOVA and ANCOVA. Three work teams judged having innovative climate, one as having a climate between innovative and stagnating. Significant correlation between creative function and social desirability ($r = -.434$, $N = 18$, $p = .036$, *one-tailed*). No significant influence on group climate by any personal factors. Results explained by small sample and larger influence on group climate by other factors. Future research could include development of the expertise questionnaire and a wider range of work teams.

Keywords: creativity, creative potential, expertise, social desirability, group climate, creative climate, Creative Functioning Test, CFT, Generalized Expertise Measure, GEM, Creative Climate Questionnaire, CCQ

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Creative Potential, Expertise, Social Desirability and Group Climate – Their relation in work teams dedicated to creativity and innovation.

“Creativity: The capacity to produce new art, ideas, techniques, or other products which are useful, aesthetically appealing, meaningful, and correct within a particular field.” (Matsumoto, 2009, p. 141).

After spending several hours being absorbed by the literature of creativity, I came to the conclusion that creativity goes hand-in-hand with the history of the development of mankind. Every artefact created by man has its origin in some creative thinking, from the production of the idea, to the innovating process to make the idea into the artefact. Every song, every story has its origin in an idea that has been developed into something meaningful. Creativity is an important part of all our lives in one way or the other. To be able to capture the creativity that is in our society and to make new innovating progress is a crucial thing for the development of new products and the growth companies behind them. These companies need knowledge about creative people and how to attract them to continue the innovation of new products. Some researcher take this even further and claim that the development of cities and regions depends on how well they can attract creative people, and that they should transform the centres of their towns accordingly (Florida, 2002). This is a view that have met some critique among other researchers in the field of regional growth (Glaeser, 2005), but there seems to be a conclusions among researcher, that creativity is becoming an important part of the economy, that the industry tries to adapt to the importance of idea-generation, and that the market value of creative people is increasing (ibid.)

A way companies and organisations try to get as much creativity out of their employees as possible, is often by putting them together in groups and use different kind of techniques to trigger the start of the creative process. Creative work done by people working alone in their offices is not a very common way to work, even though research shows that this way of working gives better results than working in groups (Diehl & Stroebe, 1987; Lamm & Trommsdorff, 1973). This research project objective was to try to learn more about how creativity works in work teams in companies and organisations. It aimed at studying everyday creativity, in commercial companies, in real work group, i.e. not special groups that are formed for idea-generation, using some creative technique, trying to produce as many ideas as possible, often during a limited amount of time.

Several factors are in play when it comes to how real work groups work and how they are composed. This research project was looking at four of these factors and how they interact with each other: the creative potential of the members in the group, the degree of

expertise of the members in the group, the degree of social desirability of the members in the group, and the creative climate in the group.

Creative potential

The creative potential of a person was once believed to be closely related with intelligence; so the IQ measure of a person would have a great correlation with that person's creative potential. This is not the case, although an intelligent person in general can be considered more creative than the average (Haensly & Reynolds, 1989; Simonton, 1984). Threshold theory (Runco, 2007; Sligh, Connors, & Roskos-Evoldsen, 2005) also shows a relation between creativity and intelligence. People considered to have intelligence in the lower span, have creativity measures in the lower span, while people with intelligence in the higher span, have creativity measures in both the lower and higher span. There is an intelligence threshold one must pass before one can reach a high creative potential, although high intelligence is not a predictor of high creative potential. There are some different theories making suggestion on how intelligence and creativity relate to each other, but Sternberg (1999) makes the conclusion that this is an open research question that needs to be explained.

The possibility to have access to one's cognitive resources is prevalent among creative people and it gives them a cognitive style of their own (Simonton, 1999). Guilford (1967) makes the distinction between convergent and divergent thinking styles. The convergent style is aiming at finding one solution for a problem, while a divergent style is aiming at finding several solutions. The divergent thinking style has been connected to creative personalities and used in several creativity tests (Michael & Wright, 1989; Torrance, 1988). Eysenck (2003) puts divergent and convergent thinking styles as two extremes on a continuous scale, as both types of thinking are necessary for idea generation and problem solving. To have access to rich cognitive resources, gives the creative person more possibilities to make associations within different domains. This is one condition that increases the possibility to generate new ideas (Runco, 2007; Simonton, 1999).

The tolerance for ambiguities is one quality that characterizes the creative person (Simonton, 1999), which makes them more suitable for solving problems that may have several solutions (Runco, 2007). They also have a higher tolerance of people considered to be unconventional, making it easier for them to collaborate with others with different perspectives than themselves; and to tolerate their own odd mixture of traits. Creative people can have a diversity of traits that some call paradox personalities (Barron & Harrington, 1981; Csikszentmihalyi, 1996; Runco, 2007).

Creative people are open to new experiences; it can be considered a consequence of their tolerance of ambiguities (McCrae, 1987) and their tendency to seek order where others only find disorder (Barron F. X., 1963). A creative person is more likely

to have several fields of interests, both in their occupations and in their free time, all in different stages from to be finished (Root-Bernstein, Bernstein, & Garnier, 1993, 1995). Creative people have a tendency for reading a lot within different domains, which gives them the possibility to contribute with border-crossing ideas (Simonton, 1976, 1984).

A strong motivation to perform is a feature of the creative person (Roe, 1953; Simonton, 1999). Their persistence to a task sometimes makes outsiders to classify them as workaholics (Helmreich, Spence, & Pred, 1988; Matthews, Helmreich, Bean, & Lucker, 1980; Runco, 2007). Their persistent behaviour is compensated by their ability to think divergently, and by having several projects running at the same time, they have the possibility to put an unsolved problem aside, and work on another one, and return with new ideas later (Hargens, 1978; Root-Bernstein et al., 1993; Simon, 1974).

The introvert personality trait has often been attributed to the creative person (Eysenck, 1995; Roe, 1953), others mean that the correlation is low (Runco, 2007); the difference can be explained by research made in different domains. The stereotype bias of the creative person can also affect how creative persons are perceived (Runco, 2007). A highly motivated and concentrated person might be interpreted as introvert. A different view of creative people is to regard them as people promoting their ideas, which will render them more extravert than introvert (Kasof, 1995; Runco, 1995).

To people working with highly creative persons, they can be perceived as odd, as they often appear to be more independent and challenging than the average. They break the reigning norms and question the leading authorities. The phenomena have been described as “contrarianism”; to go against the establishment (Runco, 2007).

Cultural aspects of how creative ideas grow within organisations have been the base in the research made by Shane, Venkataraman and MacMillan (1995). They were looking at the concept of innovation champions; persons within an organisation willing to challenge established norms of innovation, putting their personal success at stake. Three of Hofstede’s (Hofstede, Hofstede, & Minkov, 2010) cultural dimensions were used to categorise the cultures in the organisations: Individualism vs. Collectivism, how a culture emphasise the individual person versus the group; Power Distance, how a culture emphasise that influence is not equal; and Uncertainty Avoidance, how a culture emphasise the use of established processes to handle ambiguities. With a sample from 30 countries, Shane et al. (1995) came to a conclusion regarding the role of innovation champions in the three cultural dimensions: with a larger degree of collectivism in a culture, people choose to let the innovation champions communicate and sell their ideas to different functions in the organisation; with a larger degree of power distance in a culture, people choose to let the innovation champions communicate and sell their ideas to the authorities in the organisation,

prior to finding wider acceptance within the organisation; and with a larger degree of uncertainty avoidance in a culture, people choose to let the innovation champions use established processes within the organisation to communicate and sell their ideas. The conclusion from this research project was that in a cultural diverse innovation environment, managers must have these differences in mind (ibid.).

Measure creativity

For many people creativity probably means an ability to produce unique and novel products. One way of measuring creativity, is to look up eminent and productive scientists and describe their personality characteristics (Roe, 1953). These eminent scientists' personality characteristics could then be matched against "ordinary" people's characteristics to find out the "ordinary" people's creative potential. Measuring "ordinary" people's creative products and match them against eminent scientists' products could be another way to find peoples degree of creativity. This way of measuring requires some kind of standardised way of evaluating products, how creative they are. Measuring productivity makes it difficult or even impossible to measure creative potential. Some people have creative potential without the evidence of any product, and some are very productive and eminent without being creative (Ryhammar, 1996).

A popular way of measuring the creative potential is to measure the divergent thinking abilities (Guilford, 1967). Different types of instrument have been developed, e.g. Torrance Test of Creative Thinking (TTCT) (Torrance, 1988). Critiques against the divergent testing techniques mean that creativity is a much more complex then to be condensed down to only divergent thinking (Brown, 1989). Divergent thinking tests have been suffering from the same type of critique that has been against the intelligence tests (Ryhammar, 1996).

Another way of measuring creativity is to look up eminent and productive scientists and describe their personality characteristics (Roe, 1953). By using trait theories, some traits have been found to correlate with creativity according to other measures, e.g. the introvert personality type (Eysenck, 1995; Roe, 1953). Using personality tests, these eminent scientists personality traits can then be matched against traits found in other people, and by that find out their creative potential.

Measures of creativity can also be done using methods based on percept-genetic theories. These theories have raised critique against the trait theories and the cognitive testing traditions (Smith & Carlsson, 1990b). By using the percept-genetic testing techniques, there is the possibility to find out the creative potential without looking at the creative production (Ryhammar, 1996). The theory behind the connection between creative potential, and the percept-genetic viewpoint, is that there is a connection between a person's perception process, called the percept-genesis, and the personality; they are regarded as one unit (Ryhammar,

1996). The test procedures used for studying percept-geneses, in brief mean that the test person makes interpretations of pictures shown in a tachistoscope. One percept-genetic method developed at the University of Lund, Sweden, is the Creative Functioning Test (CFT) (Ryhammar, 1996; Smith & Carlsson, 1990a, 1990b). The CFT measures the creative potential part of the personality, the creative functioning, and it has been shown to correlate with other ways of measuring creativity and creative potential (Smith & Carlsson, 1990a, 1990b). Ryhammar (1996) made several studies to find out how well CFT could be used to match personality traits against organisational aspects of creativity, and these studies came out in positive directions. For some, the percept-genetic theories are controversial, as they are based on psychodynamic theories and traditions (ibid.).

For a Creative Functioning Test, a computer based tachistoscope is used, for the exposure of pictures in a controlled way. During the first part of the test, called the P-phase, the selected picture is shown during very short exposure times, and ends with the possibility to see the correct picture, called the C-phase. At the C-phase, the test subject can describe the picture correctly, and this part of the test is stopped. This procedure is called the straight percept genesis (Smith & Carlsson, 1990b). Then the test is done in an inverted manner, starting at the place where the correct description of the picture is done, with that exposure time, and ending at the shortest exposure time of the picture. During both the straight and the inverted percept-geneses, the test subject will be asked to give a description of what is shown for each exposure time, i.e. the test subject's personal description of what have been perceived. The personal descriptions is according to the percept-genetic theories, a description of that person's perception process, which is connected with the personality of the test subject, and by that connected to the creative functioning of the test subject. With data from several CFT studies, correlation studies have been done with other ways of measuring creativity, and ways of estimating personal creativity (Smith & Carlsson, 1990a, 1990b). The inverted percept-geneses have been shown to have the highest correlation and match with other creativity measures (ibid.).

Expertise

The role of expertise in relation to creativity is in away a paradox; there is a threshold level of competence needed to be able to generate new ideas within a specific field (Amabile, 1997), but the more that one have invested in the competence within a field of interest, the more difficult it becomes to think outside of that field, i.e. to generate new breaking ideas (Runco, 2007). There is also research that have showed that there is a tendency to be less creative as one becomes older (ibid.), so a real expert with many years of experience from a specific field of interest might inhibit a group's creative performance.

According to Rubenson and Runco (1995), one can expect that after some time, an expert tries to protect ones investment in ones expertise. Resources will be used to oppose threats to that expertise from inside the work group as well as outside the work group. Using psychoeconomical terminology (*ibid.*), the cost for this protection will end up in less creative activities by the expert, which will affect the creative work climate in the group.

The effect of involving domain expertise in creative problem solving tasks has been investigated by Wiley (1998). Based on research regarding the specific cognitive styles and behaviours of experts within different fields of knowledge, Wiley (*ibid.*) made a research construction to find out how knowledge within a field can negatively affect the creative way of finding a solution to a problem. The conclusion is that higher than average knowledge within a domain act as a mind set for the possessor of that knowledge, that supports a fixation during the creative problem solving attempts. The results of this research project shows that more knowledge within a field will inhibit the problem solving process, if the solution of the problem seems to be within the field of knowledge but actually is not; the problem itself have in a way been contaminated by domain specific nomenclature, which leads to the fixation to the domain, although the solution to the problem is outside the domain. This domain related fixation seems to be hardwired and very difficult to prevent, not even with incubation time between tests, or by telling the subjects within what field they should not look for a solution to the problem. One practical concerns regarding problem solving involving expertise that is the outcome of Wiley's (*ibid.*) research project, is that incubation time between problem solving is beneficial for non-experts, but have no effect on experts; they have a better problem solving performance if they can work continuously on a task without breaks. This seems to give them an opportunity to suppress the fixation to the domain and find solutions outside their field of knowledge.

Critique against the view that expertise impairs creative problem solving has been raised in two related studies of expertise and problem solving. (Ormerod, Fritz, & Ridgway, 1999; Ormerod & Ridgway, 1999). Research made that support the view of expertise impairment in problem solving is according to these studies based on research constructions that either have been supporting novice ways of problem solving or have had a priming factor involved that have disturbed the expertise problem solving skills. There is also critique against reports in literature of a more or less static conceptual knowledge among experts. These studies (*ibid.*) have used methods where different aspects of expertise within a field of knowledge have been investigated. According to the results of these studies, experts have several layers and aspects of domain knowledge, and the awareness when and when not to use them, if the problem context is realistic and fits their role as experts. Experts have the possibility to suppress any knowledge-based constraints related to task to be able to find

original ideas, which is contrary to Wiley's (1998) findings that expert problem solving can be inhibited by fixation to the domain of expertise.

The importance of context in getting the best problem solving performance from experts is present in the studies by Ormerod et al. (1999) and Ormerod & Ridgway (1999), and there is also some evidence of how context plays a role looking at Wiley's (1998) findings when it comes to how incubation time affect expertise versus novice problem solving results. It makes the blending of novices and experts in groups for problem solving tasks and the preparation of the optimal environment and context a delicate mission.

The definition of expertise have traditionally been related to number of years or time spent in a profession, to build up a performance that by others is regarded as skills of an expert. An early study of skilled telegraphers (Bryan & Harter, 1899) came to the conclusion that 10 years in the profession was required to reach skills regarded as those of an expert. A study of chess players (Chase & Simon, 1973) came to the conclusion that chess masters have ways of using their cognitive capacities that outperform beginner and lower class players. Studies in the field of education (Bloom & Sosniak, 1981; Sosniak, 1999) reveals that the development of excellence in various fields, like concert pianists, sculptors, swimmers, tennis players, mathematicians and neurologists require several years of commitment and training. The concluding results of studies of expertise is that to become an expert requires at least 10 years or 10,000 hours of dedicated training (Ericsson, Prietula, & Cokely, 2007). A person's time in a profession seems to be crucial when judging that persons degree of expertise; however, some people just learn their profession up to a level where they can manage their work tasks in an acceptable way, so work years in a profession does not predict level of expertise (Ericsson & Lehmann, 1996; Ericsson, Krampe, & Tesch-Römer, 1993).

In a study of companies and organisations in USA, Germain and Tejada (2009) came to the conclusion that the items that constitute a common description of expertise are divided into two categories, that they call "Evidence-Based Expertise" and "Self-Enhancement Based Expertise". The "Evidence-Based Expertise" category includes five what they call objectively measureable items that reference to the persons knowledge, education and training within their field of expertise. The "Self-Enhancement Based Expertise" category includes eleven what they call behavioural factors, not objectively measureable but based on how a person is being perceived by others. Germain and Tejada (ibid.) note that some people can use the "Self-Enhancement Based" items to be perceived as experts by others, which in some cases might be an illusion with no objective back-up.

Germain and Ruiz (2009) have made a cross-national investigation on how the features of expertise are made up in 11 European countries compared with the features found in the US study (Germain & Tejada, 2009). After compiling the themes described by 36

human resource developers in 11 west European countries, they came to the conclusion that the European-US definition of expertise in a specific domain is a combination of knowledge, experience and skills.

Measure expertise

A measure of expertise, the Generalized Expertise Measure (GEM) has been developed and validated for use of expertise assessment (Germain & Tejada, 2009). The GEM is developed based on data from USA, and might be culturally biased compared with a Swedish definition of expertise. Germain and Ruiz (2009) come to the conclusion that there are quite good conformation when comparing the European and the US definition of expertise, and this is an argument for using the GEM as a tool measuring expertise in a west European study. The items in the GEM are intended to be used by an outside observer to rate a person's degree of expertise.

Group climate

Ekvall (1996) describes climate in an organisation as an independent characteristic of an organisation, an accumulation of behaviours, attitudes and feelings that is part of the organisational life. The organisational climate works as a moderator of the organisations resources, like people, know-how and material, affecting other parts of an organisation, like quality, innovation and productivity. In a study by Ekvall and Ryhammar (1999), factors that are likely to affect the creativity in the organisation are described: There must be challenging and meaningful tasks. There must be opportunities and initiative for the employees; communication is important and should be without restrictions and formality. New ideas must be encouraged, supported and rewarded. There must be a low sense of risk taking by the organisation members; they must feel that they are trusted by management. Debate and discussions are permitted and a natural part of the organisation; without any hostility. Taking risks have high tolerance in the organisation; real experiments are preferred before overanalysing. The conclusion is that how the creativity in a work group will prosper depends on the creative climate in the group and in the organisation (e.g. Amabile, 1997; Ekvall, 1990).

Creative people in organisations do not always believe that a good organisational climate will lead to an output of job satisfaction. Not everybody likes to work in teams, even though they may have the skills, the expertise and the creative potential. Runco (1995) made a research study among industrial artist working in teams. They were judged to have a quite high creative potential, but they preferred to be independent and work alone; to be social and work in a team was not part of their vision on how an artist should be working.

Ford's (1996) theory of what triggers creativity adds the dimension of selecting between habitual and creative actions. Ford (ibid.) describes these as competing responses to

a problem where several other factors are involved. The role of previous knowledge is essential, as the triggering of well-known schemas for solving a problem is a decision point on what path to select; the habitual way of solving a similar problem or a creative way, trying to find new and for the specific domain different ways of solution to a given problem. These competing responses are moderated by other factors, internal as well as external, where the external factors are similar as the ones described by Ekvall (1990). The competition between the habitual and the creative response is like a struggle between the expertise and the creative ability of a work team. Ford (1996) discusses how work groups are being socialised into certain directions over time, the team composition is moving from heterogeneity to homogeneity. In teams working together for a long time, the preferred response could be either habitual or creative.

Measure group climate

A thoroughly designed self-report questionnaire for accessing the creative environment in an organisation is the Work Environment Inventory (WEI) (Amabile & Gryskiewicz, 1989). The theoretical background to the design of the questionnaire is based on three components: “Skills in innovation management”, how management supports innovation at all levels in the organisation; “Motivation to innovate”, how the organisation promotes creativity and innovation; “Resources in the task domain”, every resource that is available for tasks in a domain. Investigating these three components in different organisations, have generated scales that facilitates and inhibits creativity in an organisation. The eight facilitating scales are called “Environmental Stimulants to Creativity”: “Freedom”, the feeling of control at work; “Challenge”, the feeling of working with important tasks; “Resources”, necessary resources are available; “Supervisor”, how managers sets goals and support the work team; “Coworkers”, the variety of skills in the work team necessary to support the task; “Recognition”, the feed-back and rewards for work done; “Unity and Cooperation”, how ideas are communicated in the organisation; “Creativity Supports”, how new ideas are supported in the organisation. The four inhibiting scales are called “Environmental Obstacles to Creativity”: “Time pressure”, shortage of time for work tasks; “Evaluation”, assessment of work in unappreciative ways; “Status Quo”, staying with established procedures; “Political Problems”, obstruction based on home range mentality. The WEI also includes two assessment scales: “Creativity”, people’s perception of the organisation as creative; “Productivity”, people’s perception of the organisation as productive. In total the WEI consists of 100 items, and uses a frequency response scale with four positions.

A further development of the WEI scale has ended up in the refined version called “KEYS: Assessing the Climate for Creativity” (KEYS) (Amabile, 1997). KEYS consists of six facilitating scales named “Creativity Stimulant Scales”: “Organizational

Encouragement”, a culture in the organisation that promote creativity; “Supervisory Encouragement”, how managers sets goals and support the work team; “Work Group Supports”, the variety of skills in the work team necessary to support the task; “Sufficient resources”, necessary resources are available; “Challenging work”, the feeling of working with important tasks; “Freedom”, the feeling of control at work, and two inhibiting scales called “Creativity Obstacles Scales”: “Organisational Impediments”, obstruction based on home range mentality, assessment of work in unappreciative ways and staying with established procedures; “Workload Pressure”, shortage of time for work tasks and interference of the creative work tasks. KEYS also have two scales named “Criterion Scales”: “Creativity”, people’s perception of the organisation as creative; “Productivity”, people’s perception of the organisation as productive. Compared to WEI, the items in KEYS have been reduced down to 78.

Ekvall (1990; 1996) has developed a questionnaire that is used for assessment of the group climate, and especially the creative climate in a company. The questionnaire is called Creative Climate Questionnaire (CCQ), and consists of 50 questions that compiles into 10 dimension of the creative climate in the organisation: “Challenge/Motivation”, motivation and engagement in the organisations goals; “Freedom”, the independence of the people in the organisation; “Idea-support”, how new ideas are treated in the organisation; “Trust/Openness”, the emotional security in the organisation; “Dynamism/Liveliness”, rapid change of ideas and thoughts; “Playfulness/Humour”, humour and easygoingness in the organisation; “Debates”, constructive discussions about different ideas and view points; “Conflict”, emotional tensions between people in the organisation; “Risk Taking”, the organisational tolerance of insecurity; “Idea Time”, time available to test and develop new ideas. The CCQ have mainly been used in larger companies and organisations. The use of it in groups and organisations smaller than 50 persons requires careful handling of the data. For smaller organisations, with 10 persons or less, it is necessary try to get all people in the group to participate in the study, and to make sure that the spread of ratings made by the participants is noted, so that extreme tendencies for any of the including categories don’t have a critical impact on the mean value of the measure. The Swedish version of CCQ is named GEFA (Ekvall, 1990).

An English version of CCQ has been developed, The Situational Outlook Questionnaire (Isaksen, Lauer, & Ekvall, 1999), which is adjusted to fit English speaking cultures. During the development of this questionnaire, it was found that the dimension “Dynamism/Liveliness” was not a separate dimension using the data from the English questionnaire, which rendered a redefinition of the “Challenge/Motivation” dimension, that with added “Dynamism/Liveliness” items was renamed “Challenge and Involvement”. The

result is that The Situational Outlook Questionnaire consists of 9 dimensions compared to CCQ's 10 dimensions.

In an exploratory study aiming at finding a suitable assessment tool for the organisational climate in organisations dedicated to creativity, Moultrie and Young (2009) used the KEYS (Amabile, 1997) and the CCQ (Ekvall, 1996). Looking at companies in the United Kingdom, they found the KEYS to be too specific and it do not provide generality, while the CCQ is too broad to get a deeper understanding of the creativity in the organisation. Their conclusion is that a combination of both questionnaires is a better way of assessing today's companies' creative climate.

Social desirability

Social desirability refers to the fact that some people have a tendency to answer questionnaires in a manner that makes them look more favourable viewed by others, which will be bias in the research results (Crowne & Marlowe, 1960). As Germain and Tejada (2009) have identified a behavioural factor regarding the appearance of expertise, one can expect that some people have built up an, as Germain and Tejada (ibid.) calls it, illusion of being an expert in ones field and domain, without holding the objective measures of expertise, like education and long experience. This inflated perception of expertise needs to be controlled for in some manor, and a way of doing this, is to control for the degree of social desirability by adding questions to the questionnaire that measure the social desirability. Controlling for social desirability when it comes to group climate factors reported by participants in the study can also be valuable.

Social desirability also have a relation to creativity, as some research have shown indications that creative people are less prone to show a social desirable side of themselves and are more honest describing themselves (Runco, 2007).

Measure social desirability

Crowen and Marlowe (1960) developed the Marlowe-Crowne Social Desirability Scale – M-C SDS with the intention to measure social desirability without any influence of psychopathology. It contains 33 statements, which the test person answers with true or false. The M-C SDS, or parts of it, has been used in several studies over the years (e.g. Abe & Zane, 1990; Andersson, 2007; Carnrike, McCracken, & Aikens, 1996; Marlowe & Crowne, 1961). During the first decade using the scale, desire was raised to shorten down the number of items (Strahan & Gerbasi, 1972), to make it more useful, and to remove items not shown to contribute to the overall measure. The 33 items have been shortened down to a 10-item list and a 20-item list by Strahan-Gerbasi (ibid.). The use of the 10-item scale have met some critique when used in a study of senior managers (Thompson & Phua, 2005), as the M-C SDS (Crowne & Marlowe, 1960) as well as the 10 and 20 item Strahan-Gerbasi (1972)

scales have been developed using students and not developed in a business context (Thompson & Phua, 2005). Another research study (Ray, 1984), where they are using the short type of social desirability scales in general populations, shows that short types of social desirability scales can be reliable when the wording in the questionnaire are taking into consideration.

Previous research

In a study made by Bunce & West (1995), they wanted to find out what predicts individual innovation; the personality factors of the individual or how the climate in the work group was perceived. It was a three stage longitudinal study with health-care professionals and the data collection was made by questionnaires for the personality factors as well as for the group factors. The definition of innovation in this study was the intentional change in the daily work, a new, better way of doing something then before, introduced by the test persons themselves and also their rate of how effective this change was compared to the previous solution. The result of the study was that personality factors predicted the innovative outcome significant, while the perceived group climate factor was not a significant predictor. Over time, people with an innovative behaviour will produce personal innovative solutions as long as the group climate is good enough for them to do it. Bunce & West (ibid.) conclude that there is a difference between individual innovation in groups, and group innovation, and that group climate factors may not have the impact on personal innovation as previous research suggest.

Taggar (2002) made a study involving 480 students from a Canadian university, taking the same introduction course. Personality factors, individual creativity, and domain knowledge where factors set in relation to group creativity. In this study, the individual creativity is measured by peers in the team, i.e. creativity is regarded as overt behaviours leading to creative performance. The group level creativity is measured as the performance of the tasks performed by the group during the study. The personality factors are regarded as a base for individual creativity, moderated by individual behaviours. The individual creativity was regarded as the base for the group's creativity, moderated by processes at group level. The domain knowledge was measured by exams taken during the course. The conclusion from the study is that individual creativity is moderated by group level processes and is related to group creativity. The domain knowledge was not related to the group creativity in this study, only to personal factors. Taggar (ibid.) suggests that group processes is the key to group creativity and that improving the social climate in the group will improve group creativity, and that future research should be done in company work teams.

Choi (2004) made a study of how psychological processes mediate the role of individual and group factors of a work group's creative performance. The participants in the

study were 430 students at a North American business school. Several different types or parts of creativity was involved in this study: Creative personality, i.e. traits that are characteristic for people described as creative; creative ability, i.e. the competence and skills one needs to produce a creative outcome, e.g. come up with new ideas and view things from different perspectives; creative performance, i.e. behaviours that are resulting from creative personality and creative ability, e.g. introduce new ideas in a discussion, present solutions of a problem from different perspectives; creative self-efficacy, i.e. the personal belief that using creative behaviour will have a positive outcome in a specific situation; creativity intension, i.e. how motivated a person is to use a creative behaviour in a specific situation. This study shows the complexity of creativity and the resulting model reveals significant interrelationship; the creative personality and the creative ability are related to creative performance, where creative self-efficacy and creativity intention act as moderators. The model includes a significant relation between the group climate factor and creative self-efficacy, where Choi (2004) conclude that the group climate affects the creative self-efficacy. The study's intention is not to find out how creativity factors affect the group climate, but the author suggests that future studies should look into how the group composition affects the creative performance at group level.

Ekvall (1993) made a longitudinal research study in an industrial setting, which he describes as a success from a creative viewpoint, but from a business and a project management point of view, it should be regarded as a failure. In this study, there is a decline in the measure of some of the creative climate factors after three years of project work, which can be derived from how the project management have been acting in relation to the people involved in the project, and how the project goals shifted during project progress. Ekvall (1993) describes how the project manager at an early stage of the project put effort into giving the project team freedom to work without restraining administration. As Ekvall (ibid.) also conclude, that is not according to good project management practice, so in principle the project manager is ignoring an outside factor that would have affected the creative climate, in favour of his (according to Ekvall (ibid.) all members in the project are men) own idea about how a project manager should affect the creative climate. The project manager is by this an inside factor affecting the creative climate, instead of an outside factor, implementing the companies wishes on how to run a development project. Ekvall (ibid.) also makes the conclusion that some of the climate factors, like playfulness/humor are high because of the fact that there are young and newly graduated engineers working with the project, and they have brought the playfulness into the project from their recent student experiences. This is another inside factor, affecting the creative climate. After some time, the company management reacts on the project management style, which gives poor economical

performance. The project members answer to the increased level of administration and control is by expressing dislike and some members leave the company. This makes the company to ones again change the project manager, to another with a more communicative style. The creative climate measures are getting better; the project team members acted in a way that more or less forced the company management to change the project management style; project members have taken actions to change the creative climate in their group.

This research project

From the research project done by Ekvall (1993), I would like to draw the conclusion that the right people are needed for the right type of project goals. In other words, the recruitment of personnel to creative work tasks is critical for success for work teams dedicated to creative work and the implementation of the ideas generated.

The creative potential that the members in the work team have, and its relation to the creative climate, is one personal factor that this research project will explore. If it is according to Ekvalls (1993) conclusion, that creative people dislike administration, fixed goals etc, than it might be that a work team with a good creative climate have it because it is the demands from the creative people in the work team that have driven the development of the creative climate in that direction; and if the outside factors wants more administration and control of the work team, than the creative people will leave, and the less creative people are left. Maybe one can expect to find more creative people in organisations with low creative climate during a regression economy than during a flourishing economy, because of the difficulties leaving for a new job during a regression.

The level of expertise that the members in the work team have, and its relation to the creative climate, is another personal factor that this research project will explore. Expertise, and by that competence, is a factor needed to be able to create new ideas, and not ones already known (Amabile, 1997). Expertise normally also means that a person has been investing time and other resources to be able to reach that level of expertise (Rubenson & Runco, 1995). This investment must in some way be protected against new ideas, which would affect the creative climate in a negative direction.

I believe that it is not only the person with the level of expertise that have made investments to reach expertise levels, it can also be an investment made by the company or organisation. The expertise status could be part of the company's strategy for attaching expert knowledge to its organisation. This means that the expert can affect the management in the company, and can have strong influence on the company culture. If the company management get the feeling that there is a risk of losing the expert to another company, a competitor maybe, the expert have a strong position in influencing the organisational climate. The expert might have a strong position in dictating on how the group should work; who should be part

of it, whose standpoints is of most value and so on. This will be an inside factor affecting the creative climate.

Social desirability is a factor known to influence how people answer in questionnaires, and in this research project it will be used as a control factor of the answers to other parts of the questionnaires.

This research projects tries to find out if there are any relation between the work team members personal factors creative function, expertise and social desirability, and the creative climate in the work team.

Research hypothesis

Using CFT as an instrument to measure the creative potential, and looking at data from the inverted percept-genesis, the high creative group will consist of persons rated “XX”, “X” and “(X)”. According to Ryhammar (1996) and Smith & Carlsson (1990b) one can expect that for professional people, most in the group high creative will have the rating “X”, and a smaller part “XX” or “(X)”.

First hypothesis: Based on the whole sample, in the high creative group, a majority of the test subjects will be rated “X” on the CFT, using the inverted percept-genesis.

According to Ryhammar (1996), there is low or no correlation between CFT and organisational climate factors. For people dedicated for creative work, I believe this might be different, because there is demands from within the group and from outside stakeholders that the members have to be creative, and the expectations will give the members greater influence of their work situation and by that the creative climate in the group.

Second hypothesis: Based on the whole sample, there is a correlation between the creative function of the people in the work group and the creative climate in the group.

If one considers the creative potential measured by CFT as a stable trait, not changed by age or life experience (Soldz & Vaillant, 1999), and the fact that expertise is something one can increase over time, there should be no relation between creative potential and degree of expertise.

Third hypothesis: Based on the whole sample, there is no correlation between the creative function measured by CFT and the degree of expertise.

The social desirability bias is acting on the self-report of expertise, as some people have a tendency to inflate their roles and their value (Germain & Tejada, 2009). Social desirability also have a relation to creativity, as some research have shown indications that creative people are less prone to show a social desirable side of themselves and are more honest describing themselves (Runco, 2007). The reports of the working climate might as well be affected by the social desirability bias.

Forth hypothesis: Based on the whole sample, there is a significant negative correlation between creativity and social desirability.

Fifth hypothesis: Based on the whole sample, there is a significant positive correlation between degree of expertise and social desirability.

Sixth hypothesis: Based on the whole sample, there is a significant positive correlation between the reported creative climate and social desirability.

As the work teams have been selected to be involved in creative and innovative work tasks, the creative climate in the work teams should match the creative climate in an innovative organisation more than a stagnating organisation, based on previous research by Ekvall (1990).

Seventh hypothesis: Based on the different work team's creative climate dimensions, there should be a better match with an innovative organisation than with a stagnating organisation.

One research hypothesis is that the creative function and the expertise of the members in the group affect the creative climate. If there is a significant difference between groups on the creative climate mean, this can in some part be explained by the creative function and the expertise in the group.

Eights hypothesis: A difference between work team groups regarding their creative climate is reflected as a difference between work team groups in the personal factors creative function, expertise and social desirability.

Method

Participants

To find work teams suitable for the study, companies with a suitable profile, i.e. companies with an image of being creative and innovative was contacted. The companies also have to be of a suitable size, making it likely that they are working in teams. In all 61 companies in diverse areas as advertising agencies (13), telecom (1), electronics (3), web development (8), industrial engineering (5), software development (11), architect office (14), media (1), entertainment (1) and management (4). Out of these companies, 4 companies accepted to be part of the study, one working team from each company.

The total sample consists of 18 persons ($N = 18$), 9 males and 9 females, with a mean age of 36.3 years ($SD = 8.6$).

Company A is a software implementation company and the work team consists of five people ($n = 5$), three women and two men. Their mean age are 34.0 years ($SD = 6.4$), their mean time in the business are 9 years, 2 months and 2 week ($SD = 5$ years, 0 months, 3 weeks. $Min.$ = 2 years, 10 months, 1 weeks, $Max.$ = 15 years, 5 months, 0 weeks), their mean

time in the company are 0 years, 6 months, 3 weeks ($SD = 0$ years, 4 months, 0 weeks. *Min.* = 0 years, 1 months, 2 weeks, *Max.* = 0 years, 11 months, 0 weeks) and their mean time in the group are 0 years, 5 months and 2 weeks ($SD = 0$ years, 4 months, 3 weeks. *Min.* = 0 years, 1 months, 0 weeks, *Max.* = 0 years, 11 months, 0 weeks). A frequency analysis revealed their preferences for team work; Alone (0), in pair (1), in a group of 3-5 people (2), in a group of 6-10 people (2), in a group with more than 10 people (0), and for where they get the best ideas to solve job related problems; At work (5), During leisure time (0).

Company B is a web development company and the work team consists of five people ($n = 5$), one woman and four men. Their mean age are 29.6 years ($SD = 5.4$), their mean time in the business are 6 years, 0 months and 1 week ($SD = 5$ years, 10 months, 3 weeks. *Min.* = 0 years, 10 months, 1 weeks, *Max.* = 15 years, 2 months, 3 weeks), their mean time in the company are 2 years, 9 months and 1 week ($SD = 1$ year, 11 months, 3 weeks. *Min.* = 0 year, 10 months, 1 weeks, *Max.* = 4 year, 11 months, 3 weeks) and their mean time in the group are 2 years, 9 months and 1 weeks ($SD = 1$ year, 11 months, 3 weeks. *Min.* = 0 years, 10 months, 1 week, *Max.* = 4 years, 11 months, 3 weeks). A frequency analysis revealed their preferences for team work; Alone (0), in pair (2), in a group of 3-5 people (3), in a group of 6-10 people (0), in a group with more than 10 people (0), and for where they get the best ideas to solve job related problems; At work (2), During leisure time (3).

Company C is an advertising agency and the work team consists of five people ($n = 5$), three women and two men. Their mean age are 46.4 years ($SD = 6.3$), their mean time in the business are 15 years, 4 months and 1 weeks ($SD = 5$ years, 0 months, 1 weeks. *Min.* = 11 years, 0 months, 4 weeks, *Max.* = 22 years, 8 months, 3 weeks), their mean time in the company are 8 years, 8 months and 0 weeks ($SD = 4$ years, 7 months, 2 weeks. *Min.* = 2 years, 11 months, 1 weeks, *Max.* = 13 years, 4 months, 0 weeks) and their mean time in the group are 3 years, 1 month and 3 weeks ($SD = 4$ years, 5 months, 4 weeks. *Min.* = 0 years, 2 months, 0 weeks, *Max.* = 11 years, 0 months, 4 weeks). A frequency analysis revealed their preferences for team work; Alone (0), in pair (1), in a group of 3-5 people (4), in a group of 6-10 people (0), in a group with more than 10 people (0), and for where they get the best ideas to solve job related problems; At work (3), During leisure time (2).

Company D is an architect office and the work team consists of three people ($n = 3$), two women and one man. Their mean age are 34.7 years ($SD = 5.1$), their mean time in the business are 9 years, 8 months and 1 week ($SD = 4$ years, 11 months, 1 weeks. *Min.* = 4 years, 3 months, 2 weeks, *Max.* = 13 years, 11 months, 3 weeks), their mean time in the company are 2 year, 5 months and 1 weeks ($SD = 1$ year, 9 months, 2 weeks. *Min.* = 0 years, 4 months, 3 weeks, *Max.* = 3 years, 9 months, 3 weeks) and their mean time in the group are 0 years, 9 months and 2 weeks ($SD = 0$ years, 6 months, 1 weeks. *Min.* = 0 years, 3 months, 3

weeks, *Max.* = 1 years, 4 months, 1 weeks). A frequency analysis revealed their preferences for team work; Alone (0), in pair (1), in a group of 3-5 people (2), in a group of 6-10 people (0), in a group with more than 10 people (0), and for where they get the best ideas to solve job related problems; At work (2), During leisure time (1).

No person in any of the teams was considered to be newly employed and by that removed from the calculation of the creative climate in the work team (Ekvall, 1990).

Materials and apparatus

To measure creative potential, the Creative Functional Test – CFT (Smith & Carlsson, 1990a, 1990b), was used. Procedures and set-up was done according to the description in the CFT manual (Smith & Carlsson, 1990a). The participants from company A, B and C made the test in a physics laboratory at Malmö Högskola, Orkanen building. The participants from company D made the test in a conference room in their office. The same portable CFT equipment was used for all tests and the light conditions was measured and adjusted with the same lux meter and lamp.

To measure the creative climate, Ekvall's (1996) creative climate self-report questionnaire GEFA/CCQ was used, the Swedish version (Ekvall, 1990).

To measure the level of expertise, a self-report questionnaire based on Germans (Germain & Tejada, 2009) 16 expertise factors was developed, in Swedish (Appendix A). The response scale was made up of four points, i.e. “disagree”, “slightly agree”, “agree” and “strongly agree”. A reliability analysis for the current sample ($N = 18$) revealed a Cronbach's alpha of .815 ($M = 42.06$, $SD = 9.25$, $N = 16$).

To measure social desirability, the Strahan-Gerbasi (1972) 20-item scale, based on the Marlowe-Crowne social desirability scale (Crowne & Marlowe, 1960) was used. The Swedish translation is based on the translation made by Andersson (2007), with smaller adjustments, taking a business like context into consideration (Appendix B).

To find out general information about the participants, a questionnaire was made with questions about year of birth and sex, time in the business, company and the team, time working with the same work tasks, preference for size of work team, and also a question when they get the best ideas for work related problems, at work or at their free time (Appendix C).

All the questionnaires were placed on a survey server on the Internet, accessible via a web browser.

Procedure

For each company that was regarded as suitable to be part of the study, an e-mail was sent to a person regarded as the best to give an answer if there was an interest to participate in the study, usually a person at high management level for small companies, or connected to the HR department for larger companies. The content of the e-mail did not

reveal the purpose of the study in detail; it was described as a study to find out how work teams experience their work situation. It was pointed out that the participation in the study had to be voluntary, that the data was to be handled with confidentiality and that neither the company, the work team or individual team members was to be identifiable in the final report.

After contact was established with a contact person at a company willing to participate in the study, each person in the work team that had accepted to be part of the study was booked via e-mail for a perception exercise, described as a session where one look at pictures. For those of the contact persons more curious about the study, this was described as a session where the participants look at pictures and that the pictures are not unpleasant. The purpose of the CFT was never revealed to the participants in the study prior to the CFT itself or the answering of the questionnaire, to avoid any kind of priming.

The CFT was carried out for each participant according to procedures described in the CFT manual (Smith & Carlsson, 1990a).

After the CFT, the participants were asked not to reveal the exact procedures at the session for their colleges. They were also informed that the second part of the study was a questionnaire that was placed on the Internet and that a link to the survey would be sent to them by e-mail later during the same day.

The result of the CFT was evaluated according to the CFT manual (*ibid.*). Each participant in the study was rated “XX”, “X”, “(X)”, “O”, “S” and “-“, and these scorings, a Creative Function score, was given numerical values, i.e. “XX” = 6, “X” = 5, “(X)” = 4, “O” = 3, “S” = 2 and “-“ = 1.

The first part of the questionnaire contains general questions about the participant; preferences for idea-generation, time of birth, sex, time in the business, company and the team, preference for size of work team, and where they get the best ideas for work related problems, at work or at their free time.

The second part of the questionnaire was the expertise questionnaire, based on the Generalized Expertise Measure-GEM (Germain & Tejada, 2009). The answers was rated according to principle that the most extreme self-report answer was given a higher rating to make it a greater impact on the summary, i.e. “disagree” = 0, “slightly agree” = 1, “agree” = 2, “strongly agree” = 4. A total expertise mean value score was calculated, Summary Expertise, using all of the 16 items in the GEM scale, as well as an “Evidence-Based Expertise” score, Objective Expertise, based on the mean value of the first five items in the GEM scale and a “Self-Enhancement Based Expertise” score, Subjective Expertise, based on the mean value of the remaining 11 items of the GEM scale.

The third part of the questionnaire was the CCQ/ CEFA (Ekvall, 1990, 1996). It was evaluated according to procedures in the GEFA manual (Ekvall, 1990). As all groups

contains less than 10 people, outliers were taken into consideration for the mean values of the different climate factors. A compiled Total Climate factor was calculated, omitting the factor Conflicts (ibid.). The different groups were compared with dimension figures of a stagnating organisation and an innovative organisation, based on Ekvall's (ibid.) previous research. A difference between organisations in the different climate dimension mean values in the range of at least 0.25-0.35 is considered to reflect real difference between organisations (ibid.), but in this study statistical methods are used.

The last part of the questionnaire was the social desirability questionnaire, using the Strahan-Gerbasi 20 item scale (Strahan & Gerbasi, 1972) based on the Marlowe-Crown Social Desirability Scale (Crowne & Marlowe, 1960). It was evaluated and each participant was given a Social desirability score based on their answers (ibid.).

Statistical calculations were made, investigating the hypothesis.

Results

Before making any analysis, the variables are checked for normality, using Shapiro-Wilk's test of normality. The test revealed non-significance for the variables Objective Expertise ($p = .470$), Subjective Expertise ($p = .372$), Summary Expertise ($p = .777$), Summary Social Desirability ($p = .094$) and Total Climate factor ($p = .324$). The test revealed significance for the variable Creative Function ($p = .038$) and descriptive data revealed skewness (.317) and kurtosis (-1.303). A square root, log and inverse transformation of the variable Creative Function is made. The square root transformation gave the best result; Shapiro-Wilk's test of normality was still significant ($p = .039$), skewness reduced (.009), but kurtosis still high (-1.456). A Box-Cox transformation (Osborne, 2010) of the variable Creative Function was made; Shapiro-Wilk's test of normality is still significant ($p = .043$), skewness lower (.196), but kurtosis still high (-1.385). Non-parametric test methods are used where applicable.

To test the first hypothesis, a frequency analysis is made on the CFT-result on the total sample ($N = 18$). The high creative group, consisting of test persons with the CFT score "XX", "X" and "(X)", is in total seven persons ($n = 7$). Two persons ($n = 2$) have a CFT score of "(X)", three persons ($n = 3$) have a CFT score of "X", and two persons ($n = 2$) have a CFT score of "XX". In the high creative group four persons ($n = 4$) are rated "(X)" or "XX", compared to three persons ($n = 3$) rated "X". Persons rated "X" on their CFT score is not in majority in the high creative group.

To test the second hypothesis, a correlation analysis is made, with the variable Creative Function and the climate dimensions and the Total Climate factor. Using a nonparametric test of correlations, Spearman's ρ , no significant correlations are found; Creative Function – Challenge/Motivation ($r = .120$, $N = 18$, $p = .636$), Creative Function –

Freedom ($r = -.200$, $N = 18$, $p = .426$), Creative Function – Idea-support ($r = -.330$, $N = 18$, $p = .182$), Creative Function – Trust/Openness ($r = -.200$, $N = 18$, $p = .426$), Creative Function – Dynamism/Liveliness ($r = -.171$, $N = 18$, $p = .498$), Creative Function – Playfulness/Humour ($r = -.325$, $N = 18$, $p = .188$), Creative Function – Debates ($r = -.259$, $N = 18$, $p = .300$), Creative Function – Conflicts ($r = .096$, $N = 18$, $p = .705$), Creative Function – Risk-taking ($r = -.031$, $N = 18$, $p = .904$), Creative Function – Idea-time ($r = -.310$, $N = 18$, $p = .210$), Creative Function – Total Climate factor ($r = -.171$, $N = 18$, $p = .497$).

To test the third hypothesis, a correlation analysis is made, with the variable Creative function and the objective expertise, the subjective expertise and the summary expertise. Using a nonparametric test of correlations, Spearman's ρ , no significant correlations are found; Creative Function – Objective Expertise ($r = -.060$, $N = 18$, $p = .814$), Creative Function – Subjective Expertise ($r = -.004$, $N = 18$, $p = .988$), Creative Function – Summary Expertise ($r = -.102$, $N = 18$, $p = .686$).

To test the fourth hypothesis, a correlation analysis is made, with the variable Creative Function and Social desirability. Using a nonparametric test of correlations, Spearman's ρ , a significant negative correlation is found ($r = -.434$, $N = 18$, $p = .036$, *one-tailed*). It is a fairly moderate correlation, where 18.8% of the variation is explained.

To test the fifth hypothesis, a correlation analysis is made, with the variable Social desirability and the Objective Expertise, the Subjective Expertise and the Summary Expertise. Using a parametric test of correlations, Pearson's r , no significant correlations was found; Social desirability – Objective Expertise ($r = .096$, $N = 18$, $p = .705$), Social desirability – Subjective Expertise ($r = .070$, $N = 18$, $p = .783$), Social desirability – Summary Expertise ($r = .088$, $N = 18$, $p = .729$).

To test the sixth hypothesis, a correlation analysis is made, with the variable Social desirability, the climate dimensions and the Total Climate factor. Using a parametric test of correlations, Pearson's r , significant positive correlations are found; Social desirability – Freedom ($r = .707$, $N = 18$, $p = .001$, *one-tailed*), Social desirability – Playfulness/Humour ($r = .756$, $N = 18$, $p < .000$, *one-tailed*), Social desirability – Debates ($r = .521$, $N = 18$, $p = .013$, *one-tailed*), Social desirability – Risk-taking ($r = .640$, $N = 18$, $p = .002$, *one-tailed*), Social desirability – Idea-time ($r = .486$, $N = 18$, $p = .020$, *one-tailed*), Social desirability – Total Climate factor ($r = .537$, $N = 18$, $p = .011$, *one-tailed*). The correlation between Social desirability and the Total Climate factor is a moderate correlation, where 28.8% of the variation is explained.

To test the seventh hypothesis, the mean values of the different dimensions for each company work team are calculated.

Shapiro-Wilk's test of normality for the different dimensions revealed the following significant results: Company A ($n = 5$); Conflicts ($df = 5, p = .007$) Idea-time ($df = 5, p = .032$). Company B ($n = 5$); Freedom ($df = 5, p > .001$), Trust/Openness ($df = 5, p = .032$). Company C ($n = 5$); Playfulness/Humour ($df = 5, p = .032$). Company D ($n = 3$); Challenge/Motivation ($df = 3, p = < .001$), Trust/Openness ($df = 3, p < .001$). As the comparison with the data from Ekvall (1990) was only to show tendencies, no transformations of data were performed.

The standard deviation is considered to be reasonable for all work teams (see table 1-8).

The mean values for each work team dimensions are compared with the figures of a stagnating and an innovative organisation, using a one sample t-test.

Comparing the work team from company A ($n = 5$) with a stagnating organisation (see table 1) shows a significant difference in the dimensions Challenge/Motivation ($M\ diff. = .73, t = 3.982, df = 4, p = .016$), Idea-support ($M\ diff. = .92, t = 2.909, df = 4, p = .044$), Dynamism/Liveliness ($M\ diff. = .96, t = 4.496, df = 4, p = .011$), Playfulness/Humour ($M\ diff. = 1.04, t = 6.500, df = 4, p = .003$), Risk-taking ($M\ diff. = 1.35, t = 5.788, df = 4, p = .004$) and Total Climate factor ($M\ diff. = .81, t = 3.461, df = 4, p = .026$). Comparing the work team from company A ($n = 5$) with an innovative organisation (see table 2) shows no significant difference in any dimension or the Total Climate factor. The results and a review of the figures (see table 1 and 2) shows a tendency that the company A work team has a creative climate that is more innovative than stagnating.

Comparing the work team from company B ($n = 5$) with a stagnating organisation (see table 3) shows a significant difference in the dimensions Challenge/Motivation ($M\ diff. = .81, t = 6.946, df = 4, p = .002$), Freedom ($M\ diff. = .51, t = 3.187, df = 4, p = .033$), Idea-support ($M\ diff. = 1.32, t = 9.334, df = 4, p = .001$), Trust/Openness ($M\ diff. = 1.00, t = 3.571, df = 4, p = .023$), Dynamism/Liveliness ($M\ diff. = .96, t = 5.580, df = 4, p = .005$), Playfulness/Humour ($M\ diff. = .92, t = 3.807, df = 4, p = .019$), Debates ($M\ diff. = 1.19, t = 5.573, df = 4, p = .005$), Conflicts ($M\ diff. = -1.12, t = -7.483, df = 4, p = .002$), Risk-taking ($M\ diff. = 1.31, t = 5.278, df = 4, p = .006$) and Total Climate factor ($M\ diff. = .94, t = 6.201, df = 4, p = .003$). Comparing the work team from company B ($n = 5$) with an innovative organisation (see table 4) shows a significant difference in the dimensions Idea-support ($M\ diff. = 0.57, t = 4.031, df = 4, p = .016$), Debates ($M\ diff. = .66, t = 3.091, df = 4, p = .037$) and Conflicts ($M\ diff. = -.50, t = -3.341, df = 4, p = .029$). The results and a review of the figures (see table 3 and 4) shows a strong tendency that the company B work team has a creative climate that is more innovative than stagnating.

Comparing the work team from company C ($n = 5$) with a stagnating organisation (see table 5) shows a significant difference in the dimensions Idea-support ($M \text{ diff.} = .60, t = 3.693, df = 4, p = .021$), Playfulness/Humour ($M \text{ diff.} = .68, t = 3.900, df = 4, p = .018$), Debates ($M \text{ diff.} = .59, t = 3.429, df = 4, p = .027$), Conflicts ($M \text{ diff.} = -.92, t = -3.373, df = 4, p = .028$), Risk-taking ($M \text{ diff.} = .75, t = 4.044, df = 4, p = .016$) and Total Climate factor ($M \text{ diff.} = .37, t = 3.169, df = 4, p = .034$). Comparing the work team from company C ($n = 5$) with an innovative organisation (see table 6) shows a significant difference in the dimensions Challenge/Motivation ($M \text{ diff.} = -.90, t = -1.002, df = 4, p = .004$), Dynamism/Liveliness ($M \text{ diff.} = -.76, t = -2.881, df = 4, p = .045$), Risk-taking ($M \text{ diff.} = -.67, t = -3.612, df = 4, p = .023$) and Total Climate factor ($M \text{ diff.} = -.38, t = -3.216, df = 4, p = .032$). The results and a review of the figures (see table 5 and 6) shows a tendency that the company C work team has a creative climate that is somewhere between stagnating and innovative.

Comparing the work team from company D ($n = 3$) with a stagnating organisation (see table 7) shows a significant difference in the dimensions Challenge/Motivation ($M \text{ diff.} = 1.10, t = 16.550, df = 2, p = .004$), Idea-support ($M \text{ diff.} = 1.05, t = 5.972, df = 2, p = .027$), Trust/Openness ($M \text{ diff.} = 1.19, t = 8.900, df = 2, p = .012$), and Conflicts ($M \text{ diff.} = -1.07, t = -4.438, df = 2, p = .047$). Comparing the work team from company D ($n = 3$) with an innovative organisation (see table 8) shows a significant difference in the dimensions Challenge/Motivation ($M \text{ diff.} = .35, t = 5.300, df = 2, p = .034$) and Trust/Openness ($M \text{ diff.} = .69, t = 5.150, df = 2, p = .036$). The results and a review of the figures (see table 7 and 8) shows a tendency that the company D work team has a creative climate that is more innovative than stagnating.

To test the eight hypotheses, a one-way between-subject ANOVA is done, using the Total Climate factor as the dependent variable and the groups as the between-subject factor. Levene's test of equality of error variances shows that the data do not violate the assumption of error variances ($F(3,14) = 1.132, p = .370$). The mean values and standard deviation was calculated for each group; Company A ($M = 2.02, SD = .52, n = 5$), Company B ($M = 2.15, SD = .34, n = 5$), Company C ($M = 1.58, SD = .26, n = 5$), Company D ($M = 1.93, SD = .33, n = 3$). No significant effect of the different group conditions was found ($F(3,14) = 2.028, p = .156, \text{partial } \eta^2 = .30$).

To control for the influence of social desirability, a one-way between-subject ANCOVA is done, using the Total Climate factor as the dependent variable, the groups as the between-subject factor and the Social desirability as a covariate. The check for homogeneity of regression showed no significant interaction ($F(3,10) = 1.774, p = .215, \text{partial } \eta^2 = .35$).

Levene's test of equality of error variances shows that the data do not violate the assumption of error variances ($F(3,14) = .191, p = .901$).

Adjusted means of the Total Climate factor was calculated; Company A ($M = 1.89, 95\% \text{ CI}[1.67, 2.10]$), Company B ($M = 2.16, 95\% \text{ CI}[1.94, 2.37]$), Company C ($M = 1.48, 95\% \text{ CI}[1.26, 1.70]$), Company D ($M = 2.31, 95\% \text{ CI}[1.99, 2.62]$). After adjusting the for the influence of social desirability, there is an significant effect of the between-subjects factor group, ($F(3,13) = 10.161, p = .001, \text{partial } \eta^2 = .70$). The adjusted mean scores suggest that there is a difference in the Total Climate factor between the Company C work team and the Company D work team.

To find out if there is any difference between work teams in the variable Creative Function, a Kruskal-Wallis one-way between-subjects calculation is made, with the variable Creative Function as the dependent variable and the company work teams as the grouping variable. Mean ranks was calculated for the different groups; Company A ($M = 10.50, n = 5$), Company B ($M = 10.60, n = 5$), Company C ($M = 6.00, n = 5$), Company D ($M = 11.83, n = 3$). The result reveals no significant effect of the group condition: $\chi^2(3, N = 18) = 3.223, p = .358$.

To find out if there is any difference between work teams in the variable Summary Expertise, a one-way between-subject ANOVA is done, using the Summary Expertise as the dependent variable and the groups as the between-subject factor. Levene's test of equality of error variances shows that the data do not violate the assumption of error variances ($F(3,14) = .484, p = .699$). The mean values and standard deviation was calculated for each group; Company A ($M = 2.79, SD = .74, n = 5$), Company B ($M = 2.71, SD = .55, n = 5$), Company C ($M = 2.30, SD = .47, n = 5$), Company D ($M = 2.77, SD = .56, n = 5$). No significant effect of the different group conditions was found ($F(3,14) = .723, p = .555, \text{partial } \eta^2 = .13$).

To control for the influence of social desirability, a one-way between-subject ANCOVA is done, using the Summary Expertise as the dependent variable, the groups as the between-subject factor and the Social desirability as a covariate. The check for homogeneity of regression showed no significant interaction ($F(3,10) = 1.301, p = .327, \text{partial } \eta^2 = .28$). Levene's test of equality of error variances shows that the data do not violate the assumption of error variances ($F(3,14) = .655, p = .593$). Adjusted means of the Total Climate factor was calculated; Company A ($M = 1.74, 95\% \text{ CI} [2.14, 3.34]$), Company B ($M = 2.71, 95\% \text{ CI} [2.13, 3.34]$), Company C ($M = 2.26, 95\% \text{ CI} [1.67, 2.86]$), Company D ($M = 2.91, 95\% \text{ CI} [2.05, 3.77]$). After adjusting the for the influence of social desirability, there is no significant effect of the between-subjects factor group, ($F(3,13) = .837, p = .498, \text{partial } \eta^2 = .16$).

To find out if there is any difference between work teams in the variable Social desirability, a one-way between-subject ANOVA is done, using the Social desirability as the dependent variable and the groups as the between-subject factor. Levene's test of equality of error variances shows that the data do not violate the assumption of error variances ($F(3,14) = .881, p = .475$). The mean values and standard deviation was calculated for each group; Company A ($M = .74, SD = .11, n = 5$), Company B ($M = .69, SD = .11, n = 5$), Company C ($M = .73, SD = .08, n = 5$), Company D ($M = .55, SD = .18, n = 3$). No significant effect of the different group conditions was found ($F(3,14) = 1.877, p = .180, partial \eta^2 = .29$).

Discussion

The first hypothesis is rejected, as the difference in the high creative group according to previous research (Ryhammar, 1996; Smith & Carlsson, 1990b) is not confirmed. As the sample in this study is quite smaller than the ones the hypothesis is based on, it cannot be regarded as a surprise outcome. A study with a larger sample would most likely come to the same conclusion as previous research, as the result in this research project shows that there all three types of ratings in the high creative group. On the other hand, the aim in this research project is to find groups working explicitly with creativity and innovation. A larger research project aiming at the same direction might get another distribution of ratings in the high creative group.

The second hypothesis is rejected, and the outcome confirms previous research (Ryhammar, 1996). The sample in this study might be too small to find any trace of correlation and a larger study, with more work teams involved in creative innovative work, might come to another conclusion. Another explanation might be that high creative people rate the creative climate lower in general and that low creative people, working in a team with high creative people, rate the creative climate higher, even out the "actual" creative climate. This needs to be studied in a larger research project with several work teams.

The third hypothesis is accepted, and confirms the view of the creative function as a stable trait, unrelated to the intelligence needed to be able to reach a level of expertise. I believe the result must be regarded as indicative, as the sample is small and that this is the first time, to my knowledge, the GEM (Germain & Tejada, 2009) was translated to Swedish and used as a self-report questionnaire. Further development of the expertise questionnaire and the use of other ways of measuring expertise are needed to come to a better conclusion regarding the relation between CFT and expertise.

The fourth hypothesis is accepted, and confirms previous research about the relation between creativity and social desirability (Runco, 2007). Although the correlation is fairly moderate, social desirability measures might be useful as an indicator of a person's creative function. In some cases, it might not be possible to make a CFT measure, or the

person can be familiar with the test. Different ways of capturing the dimensions of social desirability with self-report questionnaires, interviews and observations, and a correlation study with the creative function as the other variable, might find a higher correlation, valid for assessment measures in the industry, where they seem to have a fondness for questionnaires.

The fifth hypothesis is rejected, and the result did not confirm the expectations made by Germain & Tejada (2009) that the behavioural part of the expertise items are inflated in some cases and by that, able to be tracked by social desirability measures. As discussed under the third hypothesis, the questionnaire used in this study might not capture the expertise we are interested in, or is not sensitive enough, and it needs further development.

The sixth hypothesis is accepted, and the result confirms previous research that social desirability is a factor to take into consideration when people are answering questionnaires. The GEFA/CCQ and the social desirability questionnaire are well developed, and the result is no surprise.

The seventh hypothesis I think can be regarded as partly accepted, as none of the groups are clearly regarded as having a stagnating creative climate, although the results for Company C place their creative climate somewhere in between stagnating and innovative. The GEFA/CCQ is not developed for assessment of smaller organisations, and caution should be taken when evaluating organisations with less than 10 people (Ekvall, 1990). This weakens the results from this study, as these are smaller teams, with less than 6 people. Looking at what types of work teams willing to participate in this study, and the team member's preference for team size, it seems like this is the size of teams that companies and organisations form when working on creative and innovative work tasks. This might be a very rough generalisation, but this needs to be investigated further; size of work teams dedicated for creative work and innovation and how they can be assessed when it comes to organisation climate in a valid and reliable way. The assumption that the work teams really are dedicated to creative work and innovation is based on the fact that the companies and group willing to take part in the study are being judged as such by my selection of companies to contact and the judgement made by the contact person at the companies willing to participate. In an expanded study of different teams, several factors about the groups actual work tasks should be evaluated and categorized, to separate low risk administrative work teams from teams with creative and innovative work tasks, with insecurity of the outcome of their production as a major ingredient. A categorisation of work teams will give a better understanding of their composition and by that, a better way of understanding how an ultimate team have to look like for creative and innovative tasks.

The eight hypotheses are rejected, as the significant difference found between the creative climates between the work team in Company C and Company D is not reflected

as a significant difference between the work teams on the variables Creative Function, Summary Expertise or Social desirability. Reviewing the mean scores for the three variables shows that for the Creative Functions measures, the largest difference is between Company C and Company D (*Mean rank value difference* = 5.83), for the Summary Expertise measures, the largest difference is between Company C and Company D (*Adjusted mean difference* = .65), and for Social desirability between Company A and Company D (*Mean difference* = -.19), with the mean difference between Company C and Company D not close behind (*Mean difference* = -.18). The role of expertise as a damper of the creative climate, do not seem to have made any impact on the work teams in this study, as the highest mean level of creative climate is in the same team as the highest mean level of expertise, but as there is no significant difference between the groups, maybe the expertise measure is not sensitive enough. Another explanation is that the kind of work performed in these work teams are more of a habitual type than a creative type (Ford, 1996), i.e. as the work team tasks are not reaching a complexity enough to force them into using their creativity in a more strenuous way, they rely on their expertise to get the work done. The creative climate in these work teams facilitates habitual responses as well as creative responses (Ford, 1996). According to Amabile and Gryskiewicz (1989), is the WEI scales that relates to environmental factors a predictor for both creativity and productivity, which would mean that creative as well as habitual behaviours (Ford, 1996) are supported by a good creative climate in an organisation. From a different perspective, the creative climate figures for the work teams might be a reflection of how well they are able to use their expertise skills in their work instead of a reflection of how well they are able to use their creative skills. A third explanation can be that these natural settings act according to the studies by Ormerod et al. (1999), and Ormerod and Ridgway (1999), i.e. the problem solving context is realistic and by that the experts in the teams can make use of their creative skills in a natural way; there is no expertise impairment of the creative performance. A fourth explanation is that increased level of expertise also mean increased level of creative skills and abilities, i.e. up to a certain level, the expertise measured by the questionnaire also includes creative skills and by that an increased level of expertise will facilitate a high level of group climate, as described by Taggar (2002) and Choi (2004).

According to Ford (1996), anxiety is a factor that constrains the use of your creativity. It is not known how the workload was in the work teams in this study, and if this was causing stress and anxiety, but this might be one factor that have made them to rely more on their habitual problem solving methods than their creative skills. The connection between anxiety and the creative function (Smith & Carlsson, 1990a, 1990b) might also have an impact on the use of the creative skills, if the anxiety was severe enough, which I believe is

unlikely but not impossible. The use of a control instrument for perceived stress level might help to control for anxiety in future research.

Future research, with a clever design and a larger sample with more difference between the work team's creative climate scores, might give a better explanation on how the composition of creative function, expertise and the role of social desirability in a work team affect the creative climate in those teams. Future research should also include development of the expertise questionnaire to assure that the right type of expertise is measured, i.e. the type of expertise that earlier studies (Rubenson & Runco, 1995; Runco, 2007; Wiley, 1998) claim affects the creative performance.

In future studies considerations must be taken regarding cultural aspects of the use of different types of assessment tools, as one can expect to find differences in the interpretation of the items in the different questionnaires, as the ones found in CCQ (Isaksen et al., 1999). In work teams today, it is not unlikely to find people origin from other countries, and this might in some cases give a skew view as a result. This is maybe especially important in smaller groups, where every piece of data is valuable and removing a case is the same as removing 25% of the data.

This study shows no significant result of how the creative potential, the grade of expertise and the social desirability relate to the creative climate in a work team, but could maybe raise some questions regarding group composition and its affect on the creative climate; how the company or organisation needs to act to assure that the work team group have the right creative climate for the company's or organisation's goals and objectives; not the goals and the objectives made up explicit or implicit by the group itself.

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Tables

Table 1 - Comparison of creative climate dimensions with a stagnating organisation – Company A.

	Company A		Stagnating		<i>t</i>	<i>df</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>M diff.</i>			
Challenge/Motivation	2.36	.41	1.63	.73	3.982	4	.016 ^b
Freedom	2.04	.57	1.53	.51	1.991	4	.117
Idea-support	2.00	.71	1.08	.92	2.909	4	.044 ^b
Trust/Openness	1.80	.76	1.28	.52	1.527	4	.202
Dynamism/Liveliness	2.36	.48	1.40	.96	4.496	4	.011 ^b
Playfulness/Humour	2.44	.36	1.40	1.04	6.500	4	.003 ^b
Debates	1.84	.74	1.05	.79	2.386	4	.075
Conflicts ^a	.64	.78	1.40	-.76	-2.179	4	.095
Risk-taking	1.88	.52	.53	1.35	5.788	4	.004 ^b
Idea-time ^a	1.44	.78	.97	.47	1.348	4	.249
Total Climate factor ^c	2.02	.52	1.21	.81	3.461	4	.026 ^b

Note. Stagnating organisation dimension data from Ekvall (1990).

a. Shapiro-Wilk's test of normality, $p < .05$.

b. Significant difference, $p < .05$

c. Total Climate factor not including the dimension Conflicts.

Table 2 - Comparison of creative climate dimensions with an innovative organisation – Company A.

	Company A		Innovative		<i>t</i>	<i>df</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>M diff.</i>			
Challenge/Motivation	2.36	.41	2.38	-.02	-.109	4	.918
Freedom	2.04	.57	2.10	-.06	-.234	4	.826
Idea-support	2.00	.71	1.83	.17	.538	4	.619
Trust/Openness	1.80	.76	1.78	.02	.059	4	.956
Dynamism/Liveliness	2.36	.48	2.20	.16	.749	4	.495
Playfulness/Humour	2.44	.36	2.30	.14	.875	4	.431
Debates	1.84	.74	1.58	.26	.785	4	.476
Conflicts ^a	.64	.78	.78	-.14	-.401	4	.709
Risk-taking	1.88	.52	1.95	-.07	-.300	4	.779
Idea-time ^a	1.44	.78	1.48	-.04	-.115	4	.914
Total Climate factor ^c	2.02	.52	1.96	.06	.246	4	.818

Note. Innovative organisation dimension data from Ekvall (1990).

a. Shapiro-Wilk's test of normality, $p < .05$.

b. Significant difference, $p < .05$

c. Total Climate factor not including the dimension Conflicts.

Table 3 - Comparison of creative climate dimensions with a stagnating organisation – Company B.

	Company B		Stagnating		<i>t</i>	<i>df</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>M diff.</i>			
Challenge/Motivation	2.44	.26	1.63	.81	6.946	4	.002 ^b
Freedom ^a	2.04	.36	1.53	.51	3.187	4	.033 ^b
Idea-support	2.40	.32	1.08	1.32	9.334	4	.001 ^b
Trust/Openness ^a	2.28	.63	1.28	1.00	3.571	4	.023 ^b
Dynamism/Liveliness	2.36	.38	1.40	.96	5.580	4	.005 ^b
Playfulness/Humour	2.32	.54	1.40	.92	3.807	4	.019 ^b
Debates	2.24	.48	1.05	1.19	5.573	4	.005 ^b
Conflicts	.28	.33	1.40	-1.12	-7.483	4	.002 ^b
Risk-taking	1.84	.55	.53	1.31	5.278	4	.006 ^b
Idea-time	1.44	.62	.97	.47	2.369	4	.077
Total Climate factor ^c	2.15	.34	1.21	.94	6.201	4	.003 ^b

Note. Stagnating organisation dimension data from Ekvall (1990).

a. Shapiro-Wilk's test of normality, $p < .05$.

b. Significant difference, $p < .05$

c. Total Climate factor not including the dimension Conflicts.

Table 4 - Comparison of creative climate dimensions with an innovative organisation – Company B.

	Company B		Innovative		<i>t</i>	<i>df</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>M diff.</i>			
Challenge/Motivation	2.44	.26	2.38	.06	.514	4	.634
Freedom ^a	2.04	.36	2.10	-.06	-.375	4	.727
Idea-support	2.40	.32	1.83	.57	4.031	4	.016 ^b
Trust/Openness ^a	2.28	.63	1.78	.50	1.786	4	.149
Dynamism/Liveliness	2.36	.38	2.20	.16	.930	4	.405
Playfulness/Humour	2.32	.54	2.30	.02	.083	4	.938
Debates	2.24	.48	1.58	.66	3.091	4	.037 ^b
Conflicts	.28	.33	.78	-.50	-3.341	4	.029 ^b
Risk-taking	1.84	.55	1.95	-.11	-.443	4	.681
Idea-time	1.44	.62	1.48	-.04	-.144	4	.893
Total Climate factor ^c	2.15	.34	1.96	.19	1.259	4	.276

Note. Innovative organisation dimension data from Ekvall (1990).

a. Shapiro-Wilk's test of normality, $p < .05$.

b. Significant difference, $p < .05$.

c. Total Climate factor not including the dimension Conflicts.

Table 5 - Comparison of creative climate dimensions with a stagnating organisation – Company C.

	Company C		Stagnating		<i>t</i>	<i>df</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>M diff.</i>			
Challenge/Motivation	1.48	.33	1.63	-.15	-1.002	4	.373
Freedom	1.68	.46	1.53	.15	.728	4	.507
Idea-support	1.68	.36	1.08	.60	3.693	4	.021 ^b
Trust/Openness	1.68	.39	1.28	.40	2.294	4	.083
Dynamism/Liveliness	1.44	.59	1.40	.04	.152	4	.887
Playfulness/Humour ^a	2.08	.39	1.40	.68	3.900	4	.018 ^b
Debates	1.64	.39	1.05	.59	3.429	4	.027 ^b
Conflicts	.48	.61	1.40	-.92	-3.373	4	.028 ^b
Risk-taking	1.28	.41	.53	.75	4.044	4	.016 ^b
Idea-time	1.28	.30	.97	.31	2.285	4	.084
Total Climate factor ^c	1.58	.26	1.21	.37	3.169	4	.034 ^b

Note. Stagnating organisation dimension data from Ekvall (1990).

a. Shapiro-Wilk's test of normality, $p < .05$.

b. Significant difference, $p < .05$

c. Total Climate factor not including the dimension Conflicts.

Table 6 - Comparison of creative climate dimensions with an innovative organisation – Company C.

	Company C		Innovative		<i>t</i>	<i>df</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>M diff.</i>			
Challenge/Motivation	1.48	.33	2.38	-.90	-6.013	4	.004 ^b
Freedom	1.68	.46	2.10	-.42	-2.040	4	.111
Idea-support	1.68	.36	1.83	-.15	-.923	4	.408
Trust/Openness	1.68	.39	1.78	-.10	-.574	4	.597
Dynamism/Liveliness	1.44	.59	2.20	-.76	-2.881	4	.045 ^b
Playfulness/Humour ^a	2.08	.39	2.30	-.22	-1.262	4	.276
Debates	1.64	.39	1.58	.06	.349	4	.745
Conflicts	.48	.61	.78	-.30	-1.100	4	.333
Risk-taking	1.28	.41	1.95	-.67	-3.612	4	.023 ^b
Idea-time	1.28	.30	1.48	-.20	-1.474	4	.214
Total Climate factor ^c	1.58	.26	1.96	-.38	-3.216	4	.032 ^b

Note. Innovative organisation dimension data from Ekvall (1990).

a. Shapiro-Wilk's test of normality, $p < .05$.

b. Significant difference, $p < .05$.

c. Total Climate factor not including the dimension Conflicts.

Table 7 - Comparison of creative climate dimensions with a stagnating organisation – Company D.

	Company D		Stagnating		<i>t</i>	<i>df</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>M diff.</i>			
Challenge/Motivation ^a	2.73	.12	1.63	1.10	16.550	2	.004 ^b
Freedom	1.73	.31	1.53	.20	1.153	2	.368
Idea-support	2.13	.31	1.08	1.05	5.972	2	.027 ^b
Trust/Openness ^a	2.47	.23	1.28	1.19	8.900	2	.012 ^b
Dynamism/Liveliness	2.00	.53	1.40	.60	1.964	2	.188
Playfulness/Humour	1.60	.87	1.40	.20	.397	2	.729
Debates	1.67	.31	1.05	.62	3.496	2	.073
Conflicts	.33	.42	1.40	-1.07	-4.438	2	.047 ^b
Risk-taking	1.53	.61	.53	1.00	2.844	2	.105
Idea-time	1.47	.42	.97	.50	2.066	2	.175
Total Climate factor ^c	1.93	.32	1.21	.72	3.812	2	.062

Note. Stagnating organisation dimension data from Ekvall (1990).

a. Shapiro-Wilk's test of normality, $p < .05$.

b. Significant difference, $p < .05$

c. Total Climate factor not including the dimension Conflicts.

Table 8 - Comparison of creative climate dimensions with an innovative organisation – Company D.

	Company D		Innovative		<i>t</i>	<i>df</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>M diff.</i>			
Challenge/Motivation ^a	2.73	.12	2.38	.35	5.300	2	.034 ^b
Freedom	1.73	.31	2.10	-.37	-2.079	2	.173
Idea-support	2.13	.31	1.83	.30	1.720	2	.228
Trust/Openness ^a	2.47	.23	1.78	.69	5.150	2	.036 ^b
Dynamism/Liveliness	2.00	.53	2.20	-.20	-.655	2	.580
Playfulness/Humour	1.60	.87	2.30	-.70	-1.391	2	.299
Debates	1.67	.31	1.58	.09	.491	2	.672
Conflicts	.33	.42	.78	-.45	-1.858	2	.204
Risk-taking	1.53	.61	1.95	-.42	-1.181	2	.359
Idea-time	1.47	.42	1.48	-.01	-.055	2	.961
Total Climate factor ^c	1.93	.32	1.96	-.03	-.181	2	.873

Note. Innovative organisation dimension data from Ekvall (1990).

a. Shapiro-Wilk's test of normality, $p < .05$.

b. Significant difference, $p < .05$.

c. Total Climate factor not including the dimension Conflicts.

Appendices

Appendix A - Expertise questionnaire

1. This person has knowledge that is specific to his or her field of work.

Swedish translation: Denna person har kunskaper som är specifika för hans eller hennes arbetsområde.

Questionnaire item: Jag har kunskaper som är specifika för mitt arbetsområde.

2. This person shows that they have the education necessary to be an expert in their field.

Swedish translation: Den här personen visar att de har den utbildning som krävs för att vara expert inom sitt område.

Questionnaire item: Jag har den utbildning som krävs för att kunna bli expert inom mitt område.

3. This person has knowledge about their field.

Swedish translation: Denna person har kunskap om sitt område.

Questionnaire item: Jag har kunskaper om mitt arbetsområde.

4. This person has the qualifications required to be an expert in their field.

Swedish translation: Denna person har de nödvändiga kvalifikationerna för att vara expert inom sitt område.

Questionnaire item: Jag har de nödvändiga kvalifikationerna för att vara expert inom mitt område.

5. This person has been trained in his or her area of expertise.

Swedish translation: Denna person har utbildats i hans eller hennes kompetensområde.

Questionnaire item: Jag har den utbildning som krävs inom mitt kompetensområde.

6. This person is ambitious about their work in the company.

Swedish translation: Denna person är ambitiös om deras arbete i företaget.

Questionnaire item: Jag är ambitiös i mitt arbete.

7. This person can assess whether a work-related situation is important or not.

Swedish translation: Denna person kan bedöma om en arbetsrelaterad situation är viktig eller inte.

Questionnaire item: Jag kan bedöma om en arbetsrelaterad situation är viktig eller inte.

8. This person is capable of improving himself or herself.

Swedish translation: Denna person kan förbättra sig själv.

Questionnaire item: Jag har förmågan att bli bättre på det jag gör.

9. This person is charismatic.

Swedish translation: Denna person är karismatisk.

Questionnaire item: Jag anses vara karismatisk.

10. This person can deduce things from work-related situations easily.

Swedish translation: Denna person kan härleda saker från arbetsrelaterade situationer lätt.

Questionnaire item: Jag har lätt för att dra slutsatser i arbetsrelaterade situationer.

11. This person is intuitive in their job.

Swedish translation: Denna person är intuitiv i sitt jobb.

Questionnaire item: Jag är intuitiv i mitt arbete.

12. This person is able to judge what things are important in their job.

Swedish translation: Denna person kan avgöra vad saker är viktiga i deras arbete.

Questionnaire item: Jag kan avgöra vilka saker som är viktiga i mitt arbete.

13. This person has the drive to become what he or she is capable of becoming in their field.

Swedish translation: Denna person har satsningen på att bli vad han eller hon kan bli på sitt område.

Questionnaire item: Jag har drivkraften att uppnå min utvecklingspotential inom mitt arbetsområde.

14. This person is self-assured.

Swedish translation: Denna person är självsäker.

Questionnaire item: Jag är en självsäker person.

15. This person has self-confidence.

Swedish translation: Den här personen har självförtroende.

Questionnaire item: Jag är en person med självförtroende.

16. This person is an expert who is outgoing.

Swedish translation: Denna person är en expert som är utåtriktad.

Questionnaire item: Jag är en utåtriktad person.

Appendix B - Social desirability questionnaire

De här påståendena handlar om hur du brukar vara i allmänhet. Välj Sant om du tycker att påståendet passar in på dig, och Falskt om du inte tycker att det passar in.

1. Jag tvekar inte att gå åt sidan för att hjälpa någon som har problem.

Välj bara en av följande:

Sant Falskt

2. Jag har aldrig intensivt ogillat någon person.

Välj bara en av följande:

Sant Falskt

3. Jag känner mig bitter ibland när jag inte får min vilja igenom.

Välj bara en av följande:

Sant Falskt

4. Jag gillar att skvallra lite ibland.

Välj bara en av följande:

Sant Falskt

5. Det har funnits stunder då jag känt för att opponera mig mot personer i ansvarig ställning trots att jag visste att de hade rätt.

Välj bara en av följande:

Sant Falskt

6. Jag kan komma ihåg tillfällen då jag har spelat sjuk för att slippa undan något.

Välj bara en av följande:

Sant Falskt

7. Det har funnits tillfällen då jag har utnyttjat någon.

Välj bara en av följande:

Sant Falskt

8. Jag är alltid villig att erkänna om jag har gjort ett misstag.

Välj bara en av följande:

Sant Falskt

9. Jag försöker alltid leva som jag lär.

Välj bara en av följande:

Sant Falskt

10. Jag försöker ibland hämnas hellre än att förlåta och glömma.

Välj bara en av följande:

Sant Falskt

11. När jag inte vet någonting har jag inget emot att erkänna det.

Välj bara en av följande:

Sant Falskt

12. Jag är alltid artig, även mot personer som är obehagliga.

Välj bara en av följande:

Sant Falskt

13. Vid några tillfällen har jag verkligen krävt att få igenom min vilja.

Välj bara en av följande:

Sant Falskt

14. Det har funnits tillfällen då jag känt för att slå sönder saker.

Välj bara en av följande:

Sant Falskt

15. Jag skulle aldrig kunna låta någon annan straffas för fel som jag har gjort.

Välj bara en av följande:

Sant Falskt

16. Jag blir aldrig uppretad då någon begär att jag skall återgälda en tjänst.

Välj bara en av följande:

Sant Falskt

17. Jag har aldrig provocerats av att människor uttryckt idéer som skiljer sig från mina.

Välj bara en av följande:

Sant Falskt

18. Det har funnits gånger då jag har varit ganska avundsjuk på andra personers lycka.

Välj bara en av följande:

Sant Falskt

19. Ibland är jag irriterad på personer som begär mina tjänster.

Välj bara en av följande:

Sant Falskt

20. Jag har aldrig medvetet sagt något som sårat andras känslor.

Välj bara en av följande:

Sant Falskt

Appendix C - General information about the participants

De här frågorna handlar om dig och den tid du arbetat med det du arbetar med just nu.

1. Jag är född...

Fyll i datum:

2. Jag är...

Välj bara en av följande:

Kvinna Man

3. Jag har arbetat i branschen sedan... (Ange ungefärligt datum.)

Fyll i datum:

4. Jag har arbetat i företaget sedan... (Ange ungefärligt datum.)

Fyll i datum:

5. Jag har arbetat i gruppen sedan... (Ange ungefärligt datum.)

Fyll i datum:

6. Den sammanlagda tid som jag arbetat med den typ av arbetsuppgifter jag har nu är...

Välj bara en av följande:

mindre än 1 år.

mellan 1 och 2 år.

mellan 2 och 4 år.

mellan 4 och 7 år.

mellan 7 och 10 år.

mer än 10 år.

7. Jag föredrar att arbeta...

Välj bara en av följande:

ensam.

i par.

i grupp med 3-5 personer.

i grupp med 6-10 personer.

i grupp med fler än 10 personer.

8. De bästa idéerna för att lösa problem i mitt jobb får jag...

Välj bara en av följande:

på jobbet.

på min fritid.