An Analysis of Work Environmental Characteristics in Criminal Investigation Departments in Norway: the Significance of General and Situational-Specific Instruments

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Abstract

Criminal investigation departments of the 21st century are under pressure due to increasing demands for performance, efficient utilization of resources and quality of police investigation. However, the literature is limited in relation to the assessment of the work environment in criminal investigation departments, and regarding the relationship between the work environment and the quality of police investigation. The current study examined to what extent the general work environment instrument Job Diagnostic Survey and the situational-specific instrument Situational Outlook Questionnaire captured the work environmental characteristics of criminal investigation departments in the Norwegian police force. Additionally, it explored in which degree work environmental features were present in the participants' accounts of the quality of police investigation. Semi-structured, open-ended interviews were conducted on 51 participants, deriving from 16 police districts. In the analysis, 10 386 statements were coded into the scales of the two work environment instruments, as well as on four organizational levels. The results revealed a significant difference between the two work environment instruments, as the situational-specific work environment instrument SOQ captured significant more statements than the general work environment instrument JDS. Further on, the results demonstrated a significant difference in the participants' emphasis on the different organizational levels. The present study is an important contribution to the research area and to the organization in question.

An Analysis of Work Environmental Characteristics in Criminal Investigation Departments in Norway: the Significance of General and Situational-Specific Instruments

Police organizations of the 21st century face huge challenges due to the current social developments. In order to keep pace with changing societies, police organizations have undergone great changes to effectively recognize, relate and assimilate the global shifts, technology and information, as well as changing community expectations (Edwards, 2005). Additionally, the criminality has become even more complex, organized and transboundary. These changes entail greater demands for performance, efficient utilization of resources and not least quality of police services. As the work environment determines the performance of an organization's employees, police organizations need an appropriate work environment wherein employees can devote themselves to work without hesitation (Wu, Chang, & Chen, 2008). The work environment is an arena for development and affirmation of usefulness and responsibility. Consequently, the work environment has an enormous impact on employees' well-being, health and motivation, as well as organizational performance (Amabile & Kramer, 2007; J. R. Hackman & Oldham, 1975; Kuoppala, Lamminpää, Liira, & Vainio, 2008).

The assessment of work environments has a long history of interest given its impact on both psychological and work outcomes. In the measurement of work environments, researchers typically utilize quantitative surveys with presumptions about essential work environmental characteristics (Mazzola, Schonfeld, & Spector, 2011). However, studies have shown that qualitative research may be just as good, as it requires a greater degree of reflection by the employee (Hoff, 2009). The current study explores the work environment in criminal investigation departments in Norway by means of qualitative interviews with open-ended questions. Through a combination of qualitative interviews and quantitative analysis, the study explores to what extent the traditional and generic instrument Job Diagnostic Survey and the modern and situational-specific instrument Situational Outlook Questionnaire capture the work environmental characteristics of criminal investigation departments in Norway. Furthermore, it examines whether employees in criminal investigation departments recognize the work environment as important for the quality of the Norwegian police investigation. The present study contributes to the research area and the organization of interest, as the police literature is limited in relation to the assessment of work environmental characteristics in criminal investigation departments. In this regard, the body of research has primarily emphasized the stressors of police work in general (He, Zhao, & Archbold, 2002;

Shane, 2010; Vila, 2006). Furthermore, a literature check revealed a research gap regarding the relationship between the work environment and the quality of police investigation.

The concept of work environment

Modern work environments have a complex nature given the current organizational landscape. They are associated with numerous characteristics influenced by inter alia global competition, a shift from manufacturing economies to service and knowledge economies, more individual career paths, and information and communication technologies. In this sense, the modern context makes the concept of work environment immense (Parker, Wall, & Cordery, 2001). Consequently, the concept has been subject to numerous interpretations by researchers within work and organizational psychology. The sociotechnical approach, motivational approach, stress research and organizational climate research have all emphasized different aspects of work environments (e.g. Morgeson & Campion, 2003; Sparks & Cooper, 1999; Pattersen, Warr, West, 2010). Furthermore, studies have utilized different concepts like psychosocial work environment (Stansfeld & Candy, 2006), organizational climate (James et al., 2008) and organizational culture (Schein, 1990). Due to the scope of the thesis, it is not possible to present the entire history of work environmental research. In line with the purpose of the study, the paper will focus on the assessment of work environmental characteristics in a modern context. The study will distinguish between traditional and modern, general and situational-specific work environment instruments. The following section will present a brief presentation of the history of work environmental research. The subsequent section concerns the assessment of modern work environments, with an emphasis on the distinction between general and situational-specific work environment instruments.

In 1939, Kurt Lewin introduced a formula about behaviour as a function of both personal and environmental characteristics (Lewin, 1939). In the tradition of Lewin, organizational psychologists have brought along a research interest in the relationship between work environmental characteristics and job outcomes, such as worker satisfaction and performance (Humphrey, Nahrgang, Morgeson, 2007). Accordingly, numerous instruments have been designed in order to explain this relationship. The foremost established and commonly used instrument is the Job Diagnostic Survey (JDS) (Hackman & Oldham, 1975). The JDS has generated considerable amounts of research and received substantial support (Fried & Ferris, 1987). Notwithstanding this support, the instrument has received criticism for several reasons, which has led to the development of a series of alternative

models (van Veldhoven, Taris, De Jonge, & Broersen, 2005). The criticism has concerned its focus on a limited set of motivational work features. This restricted range of work environmental characteristics and outcomes has been seen as insufficient to capture the extent of characteristics in modern work environments (Parker, et al., 2001). Moreover, JDS has received criticism for its general approach assuming that core work environmental characteristics are applicable to a wide range of occupations (Parker et al., 2010).

The assessment of modern work environments

Contextualization has been recognized as important in contemporary organizational research given the extent of international research and the rapidly diversifying nature of work and work settings (Rousseau & Fried, 2001). Whereas general instruments have been criticized for their static and global character, situational-specific instruments have received attention for their dynamic and context-sensitive approach (Bakker & Demerouti, 2007; Parker et al., 2010, Sparks & Cooper, 1999) .

In a study of role stressor antecedents and consequences among two occupational groups, the results indicated that occupational-specific models were significantly more plausible than their generic counterparts (Bacharach & Bamberger, 1992). Similarly, Sparks and Cooper (1999) investigated the influence of seven work environment characteristics on mental and physical health across a range of occupations. The results revealed several differences between the occupational groups, and indicated the necessity of instruments that encompassed work characteristics specific to a particular occupational context. In the development of their theoretical framework, Parker et al. (2010) also emphasized the importance of context-specific work features. The researchers proclaimed that different work characteristics would be salient in different contexts and jobs. Nevertheless, some researchers have found support for the superiority of general models in comparison to situational-specific models. In a study on the relationship between work characteristics and employee health and well-being, general and situational-specific models were examined among 37 291 Dutch employees, in four branches of industries. The results supported the general model, as it provided the best approximation of the relationship among work characteristics, health and well-being. In regard to situational-specific models, comparisons of the patterns among the four industry branches revealed little evidence for the necessity of situational specificity (van Veldhoven et al., 2005).

Furthermore, modern organizations are recognized as integrated systems of multiple levels where phenomena unfold across different organizational levels (Kozlowski & Klein,

2000). Consequently, research on work environments encompasses analysis on several levels. The history presents a development from an individual perspective to a group and organizational perspective (e.g. Hackman & Oldham, 1975; Humphrey et al., 2007; Morgeson & Campion, 2003; Parker et al., 2010). Whereas traditional instruments primarily influenced by the motivational approach emphasized the individual level, the modern context has required elaborated frameworks for assessing work environments. In their meta-analytic review, Humphrey et al. (2007) extended work design theory by integrating social and organizational work environmental characteristics. Similarly, Parker et al. (2001) developed an elaborated framework of work design that incorporated antecedents of work characteristics, an expansion of work environmental characteristics and outcome variables spanning individual, group and organizational level of analysis.

Summing up, the criticism of the generic approach has resulted in the development of situational-specific instruments. Furthermore, the complexity of modern organizations has resulted in instruments that encompass analysis on multiple levels. The following section will present the development and main proportions of the Job Diagnostic Survey (JDS) and the Situational Outlook Questionnaire (SOQ). These two work environment instruments are applied in the current study, as they operationalize work environments in different ways. The two instruments have dissimilar categorizations of work environmental aspects, and different perception about how to assess work environmental features, i.e. through general or situational-specific instruments.

The Job Diagnostic Survey

The Job Diagnostic Survey presents a generic approach to the study of work environments, assuming that five core work environmental characteristics are applicable to a wide range of occupations. It is a well-established and commonly used work environment instrument (Parker et. al., 2010). Notably, the instrument is rooted in the Norwegian Working Environment Act (Thorsrud & Emery, 1970), and is thus an important instrument in the Norwegian context. Due to its wide acceptance and prevalence in the Norwegian working context, the JDS was applied in the current study as one of two work environment instruments.

The Job Diagnostic Survey is one of the most established measurement-tools of work environmental characteristics and the employees' responses to them (Zhao, Thurman & He, 1999; Parker et al., 2001). The survey was developed by Hackman and Oldham in 1975 in order to fill a void in research and action projects involving the redesign of work as a strategy

for organizational change. The instrument was designed to assess both the work environment prior to the redesign of work and the effects of the redesigned jobs. Thus, JDS is both a diagnostic and evaluative tool in the redesign of work (Hackman & Oldham, 1975).

The underlying theory is based on the work of Turner and Lawrence (1965) and Hackman and Lawler (1971). The theory suggests that the presence of three psychological states results in positive personal and organizational outcomes, i.e. internal motivation, work satisfaction, and high quality performance. In order to obtain positive outcomes all three psychological states must be present within the employee. The psychological states are: *meaningfulness of the work, responsibility for the job* and *knowledge about the results.* The first psychological state, *meaningfulness of the work,* concerns the degree to which the employee perceives the job as meaningful and valuable. The second state concerns whether the employee feels personally responsible for the outcomes of the performed work activities, whereas the latter concerns the extent to which the employee obtains feedback from the work, and thus knows and understands how successfully he or she is performing the job (Hackman & Oldham, 1975).

Furthermore, the abovementioned psychological states are created by the presence of five core dimensions by which a work environment can be assessed: *Skill variety, Task identity, Task significance, Autonomy* and *Feedback from the job itself.* The dimensions are defined in the method. The first three dimensions are seen to enhance the perception of how meaningful and valuable the job is for the employee, and thus relates to the first psychological state. The dimension *Autonomy* relates to the second psychological state, as it is seen to enhance the experience of responsibility for the job. The dimension *Feedback from the job itself* is seen to enhance the knowledge about the results of your effort, and thus relates to the third psychological state. Additionally, the Job Diagnostic Survey includes two supplementary dimensions: *Feedback from agents* and *Dealing with others.* These dimensions were included in the instrument as they were helpful in understanding jobs and employees' reactions to them (Hackman & Oldham, 1975). However, these supplementary dimensions were not included in the current study.

The Situational Outlook Questionnaire

In contrast to the JDS, the Situational Outlook Questionnaire (SOQ) presents a situational-specific approach to the study of work environments, assuming that work environmental characteristics are context-specific. In this regard, SOQ was developed in order to assess the work environmental features of knowledge-intensive organizations with innovation as a chief

variable. Furthermore, the Situational Outlook Questionnaire has adequate levels of internal reliability and stability over time (Isaksen & Ekvall, 2007). Due to its modern approach and internal strength, SOQ was applied in the present study as one of two work environment instruments.

The Situational Outlook Questionnaire is an assessment of organizational climates that support change, innovation and creativity. The questionnaire is based on more than 50 years of practice, research and development by Göran Ekvall and colleagues, and was designed in order to contribute to the assessment of climates for creativity and change (Isaksen, 2007). Ekvall defines climate as the perceived and recurring patterns of behaviour, attitudes and feelings that characterize life in organizations (Isaksen, Lauer, & Ekvall, 1999), and exerts influence on organizational and psychological processes (Isaksen, 2007).

The current version of the Situational Outlook Questionnaire encompasses two parts. The first part of the instrument comprises nine dimensions, and 53 items designed to assess the preceding dimensions. The dimensions are: *Challenge/Involvement, Freedom, Trust/Openness, Idea-Time, Playfulness/Humour, Conflict, Idea-Support, Debate and Risk-taking.* All dimensions will be defined in the method. Eight of the nine scales in SOQ relate positively to creativity and change, while *Conflict* is seen to have a negative relation to creativity and change. The second part of the instrument includes three open-ended questions designed to obtain narrative data from the respondents regarding what is hindering or supporting the creativity within their work environment, as well as how they would improve the climate for creativity within the immediate work environment (Isaksen, 2007). The current study incorporates only the first part of the questionnaire. The following two sections present the Norwegian working context and the work environment in criminal investigation departments, respectively. The Norwegian working context is included as it has an impact on the Norwegian public sector, and thus including criminal investigation departments.

The Norwegian Context

The Norwegian working life holds a unique position with an undeniable emphasis on the rights of the employees. The first worker protection legislation came as early as in the end of the 19th century. The legislation aimed primarily at preventing accident and insalubrity in the manufacturing industry. The current Norwegian Working Environment Act was introduced in 1977, and is a result of a thorough revision of the worker protection legislation. It includes all Norwegian employees and represented a huge progress for the workers regarding their work environments. The act comprises regulations on participation, democracy, working hours,

protection against dismissal and so forth. Today, the Norwegian Working Environment Act is strongly rooted in the Norwegian working context. Its purpose is to provide a work environment that lays the foundations for a health-promoting and meaningful work situation. The Act recognizes the work environment as a dynamic concept, which is influenced by technological developments as well as social features, cf. the Norwegian Working Environment Act §1-1 (Lovdata, 2005).

Furthermore, the Norwegian public sector has undergone huge changes from the 90s onwards. In order to make the public sector more efficient, public agencies have been steered through several reforms under the name of New Public Management (NPM). One of the central features of the Norwegian NPM is Management by Objectives and Results (MBOR). This is a performance management system through which the relations between the ministries and subordinated agencies are regulated. Accordingly, the ministries allocate resources and specify goals for the subordinated agencies by means of an annual steering document, whereas the agencies in turn report on performance through formal reports. The idea is to make public managers lead by the use of several means, such as reporting documents, formal control procedures, performance management techniques and steering documents (Lægreid, Roness, & Rubecksen, 2007). In addition, leadership has received great attention in the public management sector through the *Leadership in Norway's Civil Service*. It was designed to develop leaders in the public sector in order to make it more efficient, robust and reliable (Ministry of Government Administration, Reform and Church Affaires, 2008). Altogether, the Norwegian Working Environment Act, NPM reforms and the prevalent emphasis on leadership in the Norwegian public sector constitute central aspects of the Norwegian working context, and have an impact on Norwegian criminal investigation departments.

The work environment in criminal investigation departments

Police organizations play a significant part in every society as the job activities have a substantial impact both within the organization and on the external environment. The primary police tasks are to protect life and property, preserve law and order and prevent and detect crime. The required activities are carried out through both proactive and reactive means (Luen & Al-Hawamdeh, 2001). Criminal investigation is an integral part of the police and the overall criminal justice system, and is under the responsibility of prosecuting authority. Investigation is the police activity concerning the detection of criminals. The investigation process encompasses the gathering, collection and presentation of evidence with the purpose of obtaining convictions (Gottschalck, 2007)

The work activities of knowledge-intensive organizations are of an intellectual nature, and knowledge is considered the main source of competitive advantage (Robertson & Hammersley, 2000). Within the police, knowledge is the foremost important resource. Knowledge is generated through various means, such as strategic planning, staff work, ground activities and feedback. All units within the police generate and examine considerable information of value to the organization and the external environment (Luen and Al-Hawamdeh, 2000). Similarly, the criminal investigation process generates knowledge and creates value through the solving of unique problems (Gottschalk, 2007). With this in mind, police organizations may be perceived as knowledge-intensive organizations. However, police organizations are distinguished from other knowledge-intensive organizations due to their bureaucratic and hierarchical structure. Police organizations are characterised as somewhere between a military organization and a business organization, where authority is seen as an important factor for knowledge sharing (Christensen & Crank, 2001).

The present study

The purpose of the present study is to explore to what extent a traditional and general (JDS), and a modern and situational-specific work environment instrument (SOQ) capture the work environmental characteristics of criminal investigation departments in Norway. In addition, the study investigates whether employees in criminal investigation departments recognize the work environment as important for the quality of the Norwegian police investigation. This is examined by means of a combination of qualitative interviews and quantitative analysis.

Semi-structured interviews with open-ended questions were conducted on experienced employees in order to obtain individual reflections on the work environment in criminal investigation departments. The SWOT framework was utilized as it aims to identify the current strengths, weaknesses, opportunities and threats in the work environment, and is a respected analysis tool for strategic planning in organizations (Helms & Nixon, 2010). The method was applied in order to make the participants reflect freely without intervention from the interviewer. In this way the participants had the opportunity to express what they perceived as important aspects of their work environment. Moreover, the current study encompasses analysis on four different organizational levels: the individual level, group level, leadership level, and organizational level (IGLO). The analytical framework was employed as it enables comparison between the different organizational levels, and may have practical implications for the organization in question. Further on, the framework is consistent with organizational psychology research, as well as the Norwegian context.

As discussed above, general and specific measures of psychological constructs have obtained great interest among researchers in organizational psychology (Judge & Kammeyer-Mueller, 2011). However, there has been debate regarding whether to use general or situational-specific instruments in the assessment of work environments. Thus, hypothesis 1 will test the following:

Hypothesis 1: There will be no significant difference between the general and the situational-specific work environment instrument in capturing the work characteristics of criminal investigation departments in the Norwegian police force.

Research has shown that phenomena unfold across different organizational levels. What is more, individual, group and organizational aspects has shown to influence work environments to a great extent. Consequently, contemporary researchers have integrated individual, group and organizational levels of analysis (e.g. Humphrey et al., 2007; Morgeson & Campion, 2003; Parker et. al., 2010). Furthermore, researchers have recognized the relationship between leadership behaviour and organizational outcomes, such as performance, stress and well-being (House, Javidan, Hanges, & Dorfman, 2002; Kuoppala et al., 2008; McVicar, 2003; Stordeur, D'Hoore, & Vandenberghe, 2001; Taylor, 1911). Similarly, leadership has received great attention in the Norwegian public management sector. Accordingly, the current study encompassed the leadership level in addition to the other three levels of analysis. Based on this, it may be presumed that all the organizational levels of IGLO will be activated in the current study. However, there is likely to be differences between the organizational levels due to their degree of importance to the participants. The following hypothesis will examine this notion:

Hypothesis 2: There will be no significant difference between the number of statements coded on the different organizational levels (IGLO).

Method

The Research Project

The current study takes part of a long-term project between the Department of Work and Organizational Psychology at the University of Oslo, and the Research Department at the National Police Academy. These departments are collaborating with the aim of examining the quality of the criminal investigation work in Norway. The project was founded by the Ministry of Justice and Public Security in 2008, and will continue until at least 2013.

Sample

The current study was carried out within the Norwegian police force. From a total of 27 police districts, a strategic sample of 51 participants derived from 16 police districts. Hence, the sample encompassed more than half of all Norwegian police districts. The police districts were strategically selected based on geography and size of the police district. In this way, the selected police districts comprised small and large districts, ranging from north to south. Qualitative interviews were conducted on three or more employees inn all 16 police districts. The total sample represented three different position levels of the organization: Chief of Police (N=16), Principal Investigator (N=19) and Investigator (N=16). The chiefs of the police districts selected the third level participants, i.e. the Investigator. Nonetheless, the study does not comprise hypothesis related to the position level. Accordingly, this is not included in the statistical analysis. The sample comprised participants who due to their personal experience could contribute with reflections on present and future organizational behaviour and on work environmental characteristics. In order to maintain the anonymity of the participants, additional demographic data were not recorded. Participant attrition was zero, as all the selected employees volunteered in the study.

Measures

Data were obtained by qualitative interviews of semi-structured character, based on the PEACE model. The PEACE acronym refers to five important steps of an interview process: Planning and Preparation, Engage and Explain, Account, Closure, and Evaluation. Moreover, the PEACE model is based on cognitive interview procedures originally developed for police officers conducting investigative interviews (Clarke & Milne, 2001).

The interviews encompassed open-ended questions based on the SWOT format in order to obtain information regarding the participants' reflections on the work environment in the local criminal investigation department. The SWOT acronym refers to strengths, weaknesses, opportunities and threats, and is a respected analyses tool for strategic planning in organizations (Helms & Nixon, 2010). The first two components encourage reflections on the present strengths and weaknesses of the work environment, whereas the last two components encourage reflections on future opportunities and threats (Hoff, Straumsheim, Bjørkli & Bjørklund, 2009). Further on, the SWOT format provides a structure to the participants' reflections, without specifying a particular type of answer. All interviews comprised the following four questions:

1. Please tell us what you think works well regarding the investigative work here in the police district - we call this the strengths of the investigative work.
2. Please tell us what you think does not work well regarding the investigative work here in the police district – we call this the weaknesses of the investigative work.
3. Please tell us what you consider to be opportunities for improving the investigative work here in the police district – we call this the opportunities in the investigative work.
4. Please tell us what you consider to be threats against improving the investigative quality here in the police district - we call this the threats in the investigative work.

The framing of the four main questions derived from a pilot test where three types of phrasings were tested. The current framing generated the most reflections by the participants. Additional information was obtained by supplementary questions related to the four main questions, such as: *"You have mentioned some strengths, is there other strengths related to…?"* and *"Could you specify what you mean by…?* The follow-up questions were asked in order to clarify and elaborate certain issues. Thus, they were only asked when considered necessary.

Procedure

The interviews were carried out between April 2010 and September 2011. Prior to the interview, the participants were given written information about the purpose and format of the interview, as well as the interview questions (see Appendix A). They were informed that participation was voluntary, and that they could withdraw from the study at any time. The participants were asked to permit a tape-recording of the interview that would be erased after the interviews had been transcribed and controlled. During the briefing of the interviews, the

participants were once again given a short introduction to the purpose of the study. Furthermore, they were encouraged to reflect upon strengths, weaknesses, opportunities and threats regarding police investigation in the criminal investigation department. The interviewer emphasized that there were no right or wrong answers, but their experience and reflections that were of interest.

Primarily one interviewer, trained in both the PEACE model and the SWOT approach, conducted the interviews. However, some interviews consisted of two interviewers, i.e. principal interviewer together with a colleague or a research assistant. All interviewers underwent training in the two approaches. This ensured a standardization of the interview with the intention of increasing the reliability of the procedure. Moreover, the length of the interviews ranged from 31m 27s to 131m 40s, with a mean length of 64m 43s. All interviews were conducted in Norwegian, and recorded digitally.

Transcription

The main purpose of transcription is to transform oral conversation to written text in order to facilitate the analyses (Kvale & Brinkmann, 2009). In the current study, tape-records were transferred to a PC for transcription using VLC media player. The files were distributed between several transcribers given the large amount of data collected, i.e. research assistants and four master students (author included). Due to multiple transcribers, procedures for transcription were formulated and followed. The transcriptions were verbatim and thus based on the participants' accurate phrasing with an inclusion of frequent repetitions like mhm, hm and ehm. The transcriptions did not comprise non-verbal expressions like pauses, emphases in intonation, emotional expressions like laughter, sighing or body language, irony or sarcasm of a phrase. Three randomly selected interviews were subjects to a transcriber reliability-test by the four master students in order to increase the reliability of the study. There were no meaningful differences between the four transcribers.

Content analysis

Content analysis is a formal procedure that enables a systematic quantitative description of the qualitative information gained through the interviews. The purpose is to reduce the transcribed interviews to simple categories of a model or instruments, which in turn facilitates comparisons and hypothesis testing (Krippendorff, 2004). Further on, content analysis is a multistep process that requires the development of a coding scheme and a followed code form, extensive training of coders, and statistical analysis of the resultant data

(Neuendorf, 2002). Accordingly, the four master students were extensively trained in three steps of the content analysis process: unitizing, coding on SWOT and IGLO dimensions, and coding on work environment instruments.

Initially, the master students developed a coding scheme comprising established definitions of a statement, SWOT and IGLO dimensions, as well as coding guidelines (See Appendix B). A statement was defined as: "*...a part of a sentence, a whole sentence, or several sentences expressed by the interviewee, that constitutes a coherent, meaningful point of view that describe an aspect of the work environment*" (Hoff et al., p.14). In this regard, information semantically different from the previous would be considered a new statement. In relation to unitizing, the current study used the approach described by Krippendorff (2004, p. 105). According to Krippendorff unitizing consists of dividing the transcriptions into meaningful statements, which in turn are classified into established scales of an instrument.

Given the amount of data, a full time employed research assistant unitized and coded the material on SWOT and IGLO-dimensions from the beginning of the project. The four master students continued this process towards the end. There were identified a total of 12 429 statements. All statements were coded on the SWOT dimensions in order to exclude statements irrelevant for the work environment, i.e. *Residuals*. Residuals are statements regarding the work environment in the past or in other organizations, non-coherent sentences or questions posed by the interviewee. Moreover, the interviews were coded on the IGLO dimensions in order to provide an analytical framework for the analysis. In the analysis, IGLO was used to compare the distribution of statements coded on the different organizational levels of IGLO. Additionally, the framework was used in order to compare the distribution of statements coded on the two work environment instruments to see whether or not it existed an interaction effect between the aggregated instruments and the organizational levels. The following definitions were used in the coding of SWOT and IGLO:

<u>*SWOT:*</u>

Strengths: Positive aspects of the work environment in the present situation.

Weaknesses: Negative aspects of the work environment in the present situation.

Opportunities: Future opportunities for a good working environment.

Threats: Future threats towards a good working environment.

SWOT residuals: Statements that do not fit the presented categories.

<u>*IGLO:*</u>

Individual: Individual perceptions, feelings and opinions.

Group: Interaction and cooperation in work groups, teams and departments.
Leadership: Behaviour of immediate supervisors, other leaders, or the top management.
Organization: Management practices, organizational culture, strategies, organizational goals and values, and the physical environment of the organization.
IGLO External: statements directed towards external matters, e.g. circular letter from the director of public prosecutions.
IGLO residuals: Statements that do not fit the presented categories.

The third step of the content analysis included training and categorization of the statements on the scales of two different work environment instruments, i.e. Job Diagnostic Survey (JDS) and the Situational Outlook Questionnaire (SOQ). All the scales were considered value free. Hence, statements were coded on the scales regardless of its positive or negative feature. The following definitions were used in the coding of JDS and SOQ, respectively (see Appendix C and D for the coding schemes):

Job Diagnostic Survey (Hackman & Oldham, 1975, p. 162):
Skill Variety: The degree to which a job requires a variety of different activities in carrying out the work, which involve the use of a number of different skills and talents of the employee.
Task Identity: The degree to which the job requires completion of a "whole" and identifiable piece of work. Thus, doing a job from beginning to end with a visible outcome.
Task Significant: The degree to which the job has a substantial impact on the lives or work of other people - whether in the immediate organization or in the external environment.
Autonomy: The degree to which the job provides substantial freedom, independence, and discretion to the employee in scheduling the work and in determining the procedures to be used in carrying it out.
Feedback from the task: The degree to which carrying out the work activities required by the job results in the employee obtaining direct and clear information about the effectiveness of his or her performance.
Residuals: Statements that do not fit the presented scales.

Situational outlook Questionnaire (Isaksen, Lauer, Ekvall, & Britz, 2001, p. 175):
Challenge/Involvement: The degree of emotional involvement, commitment and motivation in the operations and goals.
Freedom: The level of autonomy, discretion and initiative in behavior exerted by individuals to acquire information, make decisions etc.
Trust/Openness: The degree of emotional safety and openness found in relationships within the organization.
Idea Time: The amount of time people can use, and do use, for elaborating new ideas.
Playfulness/Humour: The display of spontaneity, ease, good-natured joking and laughter.
Conflict: The presence of personal and emotional tensions or hostilities in the organization.
Idea Support: The degree to which new ideas and suggestions are attended to and treated in a kindly matter.
Debate: The expressing and considering of many different viewpoints, ideas and experiences.

Risk-Taking: The tolerance of uncertainty and ambiguity.
Residuals: Statements that do not fit the presented scales.

Intercoder reliability

In order to increase reliability, two or more coders conducted intercoder reliability-tests in all three steps of the content analysis. Initially three randomly selected interviews were subjects to a unitizing interrater reliability-test. The test revealed no meaningful differences between the four master students. Subsequently, the coders assessed for intercoder reliability of the SWOT and IGLO dimensions in three randomly selected interviews using the ReCal Intercoder Reliability Calculation (Freelon, 2010). Given that a fulltime employed research assistant participated in the process of unitizing and initial coding, the test was assessed in order to reveal the agreement both between the research assistant and the four master students, and between the four students. Between the four master students, the intercoder reability-test of SWOT revealed results that ranged between 67.7% and 88.3%, with a mean of 77.5% in the first interview, 67% and 82.4%, with a mean of 76.4% in the second interview, and 76.8% and 88.9%, with a mean of 82.2% in the third interview (Five coders: means of 75.6%, 74.4% and 83%). Regarding IGLO, the results ranged between 82.4% and 96.9%, with a mean of 86.3% in the first interview, 75.2% and 90.8%, with a mean of 81.8% in the second interview, and 53.5% and 87.9% in the third interview (Five coders: means of 72%, 75.3% and 73.4%).

Three coders (including the author) coded the work environment instrument JDS, while one coder (the author) coded the work environment instrument SOQ. The three coders assessed for intercoder reliability of JDS in two randomly selected interviews, while two coders assessed for intercoder reliability in the work environment instrument SOQ. Regarding JDS, the results ranged between 83.7% and 86.3%, with a mean of 84.9% in the first interview, and 97.5% and 100%, with a mean of 98.3% in the second interview. As regards to SOQ, the results showed a mean of 76% and 86.9%, respectively. Based on the reliability analyses, it may be concluded that sufficient reliability existed regarding the coding on the dimensions of SWOT and IGLO, as well as on the scales of the instruments.

Data treatment and statistics

From the total 12 429 statements, 10 386 statements were used as a basis for the further statistical analysis. This final total remained when the residuals of SWOT and IGLO, as well

as the category *IGLO-external* were excluded. These categories were excluded, as they did not encompass relevant information about the work environment.

All statistical analyses were performed with PASW version 18, software (Predictive analytics software). In order to obtain relevant information about the work environment, the statistical analyses comprised all statements coded on SWOT and IGLO. Further on, the number of statements was aggregated for each informant, as well as on the scales of the work environment instruments. This allowed for Wilks' lambda multivariate tests (MANOVA 2x4 design), which is known to be more robust than ANOVAs (Field, 2009). Partial eta squared was used in order to calculate the effect size. According to Cohen (1988) effect sizes smaller than .01 are classified as a small effect, whereas effect sizes larger than .14 are considered a large effect. Effect sizes between .01 and .06 are considered as moderate effects. Further on, Post-hoc tests were performed both within the work environment instruments JDS and SOQ, respectively, and between the instruments. The total number of Post-hoc tests was 97. Given the large number of post-hoc tests, Bonferroni correction with alpha level .05 was assessed.

Ethics

The current study followed the Norwegian national ethical standard for research on human beings. Informed consent was given both written before the actual interview, and through briefing in the beginning of each interview. All the participants gave their informed consent to participate in the study. In order to provide for confidentiality, the identity of all participants were masked from the very beginning. Moreover, there was a secure storage of recordings and transcripts, as well as all the recordings were erased when they were no longer of use.

Results

Descriptive statistics

From the total 12 429 statements, a final total of 10 386 statements remained when the residuals of SWOT (1385 statements) and IGLO (460 statements), as well as the category IGLO external (197 statements) were excluded. These categories were excluded due to their irrelevance to the work environment. Thus, 10 386 statements were accounted for both by the SWOT-categories (M=409.04, SD=164.51) and the IGLO-categories (M=624.96, SD=272.36).

The distribution of statements coded on the SWOT and IGLO categories is presented in Table 1. As shown in Table 1, the distribution of statements coded on the SWOT categories is not equally distributed. From the total of 10 386 statements, 3981 (38,3%) statements were accounted for by the SWOT category *Strength,* while 3259 (31,4%) statements were captured by the category *Weakness.* Furthermore, 2224 (21,4%) statements were accounted for by the category *Opportunity,* while the category *Threat* captured 922 (8,9%) statements. Moreover, the distribution of statements coded on the IGLO categories is not equally distributed. The *Organizational-level* accounted for the majority of statements with 5316 (51,2%) statements, while the *Leadership-level* captured 2061 (19,8%) statements. Further on, the *Individual-level* accounted for 1590 (15,3%) statements, while 1419 (13,7%) statements were captured by the *Group-level*.

Table 1

Distribution of statements in SWOT and IGLO (N=51, df= 50)

	Strength	Weakness	Opportunity	Threat	Total
Individual	595	568	272	155	1590 (15,3%)
Group	832	292	252	43	1419 (13,7%)
Leadership	765	678	489	129	2061 (19,8%)
Organization	1789	1721	1211	595	5316 (51,2%)
Total	3981 (38,3%)	3259 (31,4%)	2224 (21,4%)	922 (8,9%)	10386 (100%)

The work environment instrument JDS accounted for 1005 (9.7%) statements of the total 10 386 identified statements (M= 19.33, SD= 23.55). The descriptive statistics for this work environment instrument is presented in Table 2. As shown in Table 2, the distribution of statements coded on JDS is not equally distributed. *Feedback from the job itself* captured the highest number of statements with 476 (4.6%) statements. Contrary, *Skill Variety* was the scale that captured the lowest number of statements with 82 (0.8%) statements.

Table 2

Descriptive statistics for the work environment instrument JDS (N=51, df= 50)

	Frequencies	Percentage	M	SD
Skill Variety	82	0.8	1.58	2.74
Task Identity	147	1.4	2.83	3.59
Task Sign	184	1.8	3.54	3.94
Autonomy	116	1.1	2.23	2.62
Feedback	476	4.6	9.15	20.27
Total	1005	9.7	19.33	23.55

Note. Frequencies reveal the total number of statements distributed on the dimensions

The work environment instrument SOQ accounted for 1978 (19%) statements of the total 10 386 identified statements (M= 38.04, SD= 21,57). The descriptive statistics for the instrument is presented in Table 3. As shown in Table 3, the distribution of statements coded on SOQ is not equally distributed. The scales *Challenge/Involvement* and *Idea Time* accounted for the highest numbers of statements with 674 (6.5%) and 553 (5.3%) statements, respectively. Contrary, the two scales *Playfulness/Humour* and *Risk-Taking* accounted for the lowest number of statements, with 7 (0.1%) and 25 (0.2%) statements, respectively.

Table 3

Descriptive statistics for the work environment instrument SOQ (N=51, df= 50)

	Frequencies	Percentage	Mean	SD
Challenge/Involvement	674	6.5	12.96	11.24
Freedom	71	0.7	1.37	1.93
Openness/Trust	105	1.0	2.02	3.1
Idea Time	553	5.3	10.63	8.42
Playfulness/Humour	7	0.1	.13	.69
Conflict	378	3.6	7.27	7.60
Idea Support	74	0.7	1.42	2.71
Debate	91	0.9	1.75	2.90
Risk-Taking	25	0.2	.48	1.20
Total	1978	19	38.04	21.57

Note. Frequencies reveal the total number of statements distributed on the dimensions

Subsequently, the two work environment instruments were aggregated on the different levels of IGLO. The descriptive statistics for the two work environment instruments distributed on the four organizational levels is presented in Table 4. As shown in Table 4, 159 statements covered by the instrument JDS were coded on the *Individual-level*, while 101 JDS-statements were coded on the *Group-level*. Further, 188 JDS-statements were coded on the *Leadership-level*, while 557 JDS-statements were coded on the *Organizational-level*. Furthermore, SOQ, 379 statements covered by the instrument SOQ were coded on the *Individual-level*, while 315 SOQ-statements were coded on the *Group-level*. Further on, 423

SOQ-statements were coded on the *Leadership-level,* while 861 statements covered by SOQ were coded on the *Organizational level.*

Table 4

Descriptive statistics for aggregated work environment instruments at four organizational levels (N=51, df= 50)

	JDS			SOQ		
Organizational level	Frequency	M	SD	Frequency	M	SD
Individual	159	3.12	3.83	379	7.43	7.50
Group	101	1.98	2.55	315	6.16	6.43
Leader	188	3.69	5.77	423	8.29	7.66
Organization	557	10.92	14.82	861	16.88	15.00

Note. Frequencies reveal the total number of statements distributed on the dimensions

Testing the hypotheses

H0-1 predicts that there would be no significant difference between the situational-specific and the general work environment instrument in capturing the work characteristics of criminal investigation departments in the Norwegian police force. The MANOVA-test revealed a significant difference between the work environment instruments in capturing the employees' perceptions of the work environment; Wilks' lambda = .74, $F(1,50) = 17.81$, $p < .05$, Partial eta squared = .26. Thus, H0-1 was rejected. Further on, Post-hoc tests were performed both within the work environment instruments JDS and SOQ, respectively, and between the instruments. The Post-hoc tests within SOQ gave a total of 36 paired t-test combinations, and are presented in Table 5. As shown in table 5, significant differences were found between 21 paired scales. *Challenge/Involvement, Idea Time, Playfulness/ Humour* and *Conflict* were the scales with significant differences from the most scales (6), while *Idea support* and *Risk-Taking* showed a significant difference with the lowest number of scales (3). Moreover, all the other scales were significant different from four of the total nine scales.

Table 5

Paired sample t-test of scales within SOQ (N=51, df= 50)

		Mean	Sd	T	Sign. (2-tailed)
Pair 1	Challenge - Freedom	11.80	10.37	8.13	.000***
Pair 2	Challenge - Trust	11.14	10.88	7.31	.000***
Pair 3	Challenge – Idea T.	2.35	13.44	1.25	.217
Pair 4	Challenge - Humour	13.06	10.87	8.6	.000***
Pair 5	Challenge - Conflict	5.78	14.02	2.95	.005
Pair 6	Challenge – Idea S.	11.75	10.87	7.72	.000***
Pair 7	Challenge – Debate	11.41	11.33	7.19	.000***
Pair 8	Challenge – Risk T.	12.69	11.07	8.18	.000***
Pair 9	Freedom – Trust	-.67	3.47	-1.37	.177
Pair 10	Freedom – Idea Time	-9.45	8.79	-7.68	.000***
Pair 11	Freedom – Humour	1.25	1.79	5.02	.000***
Pair 12	Freedom – Conflict	-6.02	8.48	-5.07	.000***
Pair 13	Freedom – Idea S.	-.06	3.26	-.13	.898
Pair 14	Freedom – Debate	-.39	3.83	-.73	.468
Pair 15	Freedom – RiskT.	.88	2.41	2.62	.012
Pair 16	Trust – Idea Time	-8.78	9.12	-6.88	.000***
Pair 17	Trust - Humour	1.92	3.19	4.31	.000***
Pair 18	Trust - Conflict	-5.35	7.87	-4.86	.000***
Pair 19	Trust - Idea S.	.61	3.92	1.11	.273
Pair 20	Trust - Debate	.27	4.05	.48	.630
Pair 21	Trust - Risk Taking	1.55	3.32	3.33	.002
Pair 22	Idea Time - Humour	10.71	8.44	9.06	.000***
Pair 23	Idea Time - Conflict	3.43	9.09	2.7	.010
Pair 24	Idea Time - Idea S.	9.39	8.64	7.76	.000***
Pair 25	Idea Time - Debate	9.06	8.65	7.48	.000***
Pair 26	Idea Time - Risk T.	10.33	8.25	8.95	.000***
Pair 27	Humour - Conflict	-7.27	7.75	-6.70	.000***
Pair 28	Humour - Idea S.	-1.31	2.85	-3.3	.002
Pair 29	Humour - Debate	-1.65	3.03	-3.89	.000***
Pair 30	Humour - Risk T.	-.37	1.5	-1.78	.081
Pair 31	Conflict - Idea S.	5.96	7.86	5.41	.000***
Pair 32	Conflict - Debate	5.63	7.29	5.52	.000***
Pair 33	Conflict - Risk T.	6.90	7.23	6.82	.000***
Pair 34	Idea S. - Debate	-.33	2.06	-1.16	.252
Pair 35	Idea S. - Risk T.	.94	2.73	2.46	.017
Pair 36	Debate - Risk T.	1.27	2.79	3.27	.002

Note. *** $p <$. 0016 (Bonferroni-correction)

Post-hoc analyses were performed within the work environment instrument JDS, giving a total of 10 paired sample t-test combinations. The post-hoc tests are presented in Table 6. As shown in Table 6, there was only one significant difference within JDS; between *Skill Variety* and *Task Significance*, with $t(50) = -3.26$, $p < .005$.

Table 6

Paired sample t-test of scales within JDS (N=51, df=50)

		M	SD	t	Sig. (2-tailed)
Pair 1	Skill Variety – Task Identity	-1.27	4.41	-2.06	.044
Pair 2	Skill Variety – Task Significance	-2.00	4.38	-3.26	.002***
Pair 3	Skill Variety – Autonomy	-.67	3.19	-1.49	.141
Pair 4	Skill Variety – Feedback	-7.73	19.9	-2.76	.008
Pair 5	Task identity – Task Significance	-.73	5.05	-1.02	.310
Pair 6	Task identity – Autonomy	.608	4.36	.99	.324
Pair 7	Task identity – Feedback	-6.45	20.1	-2.29	.026
Pair 8	Task Significance – Autonomy	1.33	5.25	1.81	.076
Pair 9	Task Significance – Feedback	-5.73	20.5	-1.99	.052
Pair 10	Autonomy – Feedback	-7.06	19.93	-2.53	.015

Note. *** $p <$. 005 (Bonferroni-correction)

Further on, Post-hoc analyses were performed between the work environment instrument JDS and SOQ, giving a total of 45 paired sample t-test combinations. Table 7 presents the results. As presented in Table 7, there were significant differences between 17 paired scales. The scales *Task Significance* and *Autonomy* (JDS) obtained the most significant differences with significant differences from five of the SOQ-scales. Contrary, four scales obtained none significant differences, i.e. *Feedback from the job itself (JDS), Trust/Openness, Idea support and Debate (SOQ).*

Table 7

Paired sample t-test between the instruments JDS and SOQ (N=51, df= 50)

		Mean	Sd	T	Sign. (2-tailed)
Pair 1	Skill V. - Challenge	-11.59	11.32	-7.31	.000***
Pair 2	Skill V. - Freedom	.22	3.65	.42	.674
Pair 3	Skill V. - Trust	-.45	4.39	-.73	.467
Pair 4	Skill V. - Idea T.	-9.24	8.38	-7.9	.000***
Pair 5	Skill V. - Humour	1.47	2.89	3.63	.001
Pair 6	Skill V. - Conflict	-5.80	7.78	-5.33	.000***
Pair 7	Skill V. - Idea S.	.16	3.61	.311	.757
Pair 8	Skill V. - Debate	-.18	3.49	-.36	.719
Pair 9	Skill V. – Risk T.	1.1	3.23	2.43	.019
Pair 10	Task I - Challenge	-10.31	11.71	-6.29	.000***
Pair 11	Task I. - Freedom	1.49	4.27	2.49	.016
Pair 12	Task I. - Trust	.82	4.98	1.18	.243
Pair 13	Task I. - Idea T.	-7.96	9.50	-5.99	.000***
Pair 14	Task I. - Humour	2.75	3.71	5.28	.000***
Pair 15	Task I. - Conflict	-4.53	8.87	-3.65	.001
Pair 16	Task I. - Idea S.	1.43	4.78	2.14	.037
Pair 17	Task I. - Debate	1.09	5.08	1.54	.129
Pair 18	Task I. – Risk T.	2.37	3.74	4.54	.000***
Pair 19	Task S. - Challenge	-9.59	10.65	-6.43	.000***
Pair 20	Task S. - Freedom	2.22	4.22	3.75	.000***
Pair 21	Task S. - Trust	1.55	5.02	2.20	.032
Pair 22	Task S. - Idea T.	-7.24	8.86	-5.84	.000***
Pair 23	Task S. - Humour	3.47	3.81	6.50	.000***
Pair 24	Task S. - Conflict	-3.80	9.35	-2.91	.005
Pair 25	Task S. - Idea S.	2.16	4.99	3.09	.003
Pair 26	Task S. - Debate	1.82	4.89	2.66	.010
Pair 27	Task S. – Risk T.	3.10	4.26	5.19	.000***
Pair 28	Autonomy-Challenge	-10.92	11.37	-6.86	.000***
Pair 29	Autonomy - Freedom	.88	3.15	2.00	.051
Pair 30	Autonomy - Trust	.22	3.89	.40	.694
Pair 31	Autonomy - Idea T.	-8.57	8.44	-7.25	.000***
Pair 32	Autonomy - Humour	2.14	2.70	5.66	.000***
Pair 33	Autonomy - Conflict	-5.14	8.14	-4.50	.000***
Pair 34	Autonomy - Idea S.	.82	3.93	1.50	.141
Pair 35	Autonomy - Debate	.49	3.99	.88	.384
Pair 36	Autonomy – Risk T.	1.76	2.95	4.27	.000***
Pair 37	Feedback - Challenge	-3.86	23.11	-1.19	.238
Pair 38	Feedback - Freedom	7.94	20.58	2.76	.008
Pair 39	Feedback – Trust	7.27	20.56	2.53	.015
Pair 40	Feedback - Idea T.	-1.51	23.02	-.47	.642
Pair 41	Feedback – Humour	9.20	20.41	3.22	.002
Pair 42	Feedback - Conflict	1.92	22.58	.61	.546
Pair 43	Feedback - Idea S.	7.88	20.55	2.74	.009
Pair 44	Feedback – Debate	7.55	20.54	2.62	.011
Pair 45	Feedback – Risk T.	8.82	20.49	3.08	.003

Note. *** $p <$ .001 (Bonferroni correction).

H0-2 predicts that there would be no significant difference between the numbers of statements coded on the different organizational levels (IGLO). The MANOVA-test revealed

a significant difference, with Wilks' lambda = .58, $F(3,50) = 11.74$, $p < .05$, Partial eta squared = .42. Thus, H0-2 was rejected. Further on, Post-hoc analyses were performed between the organizational levels, giving a total of six paired t-test combinations. Table 8 presents the post-hoc results. As shown in Table 8, there were significant differences between three of the total six paired tests: *Individual-Organization, Group-Organization and Leadership-Organization.* Thus, the *Organizational-level* was significantly different from all the other organizational levels.

Table 8

Paired sample t-tests between the organizational levels of IGLO (N=51, df= 50)

		M	SD	T	Sig. (2-tailed)
Pair 1	Individual-Group	3.31	21.65	1.09	.280
Pair 2	Individual-Leadership	-9.33	31.03	-2.15	.037
Pair 3	Individual-Organization	-73.02	71.47	-7.3	.000***
Pair 4	Group-Leadership	-12.65	36.47	-2.48	.017
Pair 5	Group-Organization	-76.33	68.28	-7.98	.000***
Pair 6	Leadership-Organization	-63.69	70.8	-6.42	.000***

Note. ***p <. 008 (Bonferroni correction)

The current study did not reveal a significant interaction effect between the aggregated instruments and the organizational levels (IGLO), with Wilks' lambda = .99, $F(3,50) = .162$, $p > .05$, Partial eta squared = .010.

In order to examine the results even further, a correlation analysis between the two work environment instruments were performed. The results are shown in Table 9. Out of 105 possible correlations, there were significant correlations in 12 cases: between *Skill variety* and *Autonomy, Challenge* and *Task significance, Challenge* and *Freedom, Challenge* and *Playfulness/Humour, Playfulness/Humour* and *Task significance, Playfulness/Humour* and *Freedom, Conflict* and *Freedom, Conflict* and *Idea time, Conflict* and *Risk-taking, Conflict and Debate, Debate* and *Idea Support, Debate and Risk-taking.* The scale with the most correlations was *Conflict* (4), while *Feedback, Task Identity* and *Trust/openness* were the categories with the least correlations (0).

Table 9

Correlation between the categories of the two work environment instruments, JDS and SOQ. Note. * $p <.001$, ** $p <.005$

	Skill Variety	Task Identity	Task Significance	Autonomy	Feedback	Challenge	Freedom	Trust/Openness	Idea Time	Playfulness /Humour	Conflict	Idea S.	Debate	Risk T.
Skill Variety	1	.056	.18	.30*	.22	.09	-.18	-.11	.16	-.08	.12	.14	.25	-.15
Task Identity	.06	1	.11	.05	.17	.02	-.11	-.09	-.12	-.07	-.14	-.12	-.21	.08
Task Significance	.18	.11	1	-.24	.07	.32*	.1	.01	.11	.28*	-.24	-.09	.01	-.08
Autonomy	.30*	.05	-.24	1	.25	.06	.08	.1	.13	.03	-.04	-.07	-.03	-.01
Feedback	.22	.17	.07	.25	1	.02	-.03	.03	-.13	.04	-.11	.02	.03	-.01
Challenge	.09	.02	.32*	.06	.02	1	.51**	.25	.08	.57**	-.07	.25	.09	.17
Freedom	-.18	-.11	.1	.08	-.03	.51**	1	.12	-.11	.39**	-.35*	.05	-.22	-.06
Trust/Openness	-.11	-.09	.01	.1	.03	.25	.12	1	-.07	.02	.12	.11	.10	.06
Idea Time	.16	-.12	.11	.13	-.13	.08	-.11	-.07	1	-.07	.36*	.06	.08	.17
Playfulness/ Humour	-.08	-.07	.28*	.03	.04	.57**	.39**	.02	-.07	1	-.17	-.04	-.04	-.01
Conflict	.12	-.14	-.24	-.04	-.11	-.07	-.35*	.12	.36*	-.17	1	.08	.3*	.36**
Idea Support	.14	-.12	-.09	-.07	.02	.25	.05	.11	.06	-.04	.08	1	.74**	.24
Debate	.25	-.21	.01	-.03	.03	.09	-.22	.10	.08	-.04	.3*	.74**	1	.32*
Risk Taking	-.15	.08	-.08	-.01	-.01	.17	-.06	.06	.17	-.01	.36**	.24	.32*	1

Discussion

The current study aims to examine to what extent a traditional and general (JDS) and a modern and situational-specific work environment instrument (SOQ) capture the work characteristics of criminal investigation departments in the Norwegian police force. Additionally, the study explores in which degree employees in criminal investigation departments recognize the work environment as important for the quality of the investigation work. The two instruments are applied in a top-down analysis to test whether the themes touched upon in the interviews were related to the scales in the respective instruments. The purpose of using two different work environment instruments is to explore whether one of the instruments captures more information about the perceived work environmental characteristics in the current organization.

From a total of 12 429 statements, SWOT and IGLO accounted for as much as 10 386 statements. Furthermore, the traditional and general work environment instrument JDS, captured 1005 (9,7 %) of the total statements, whereas the modern and situational-specific work environment instrument accounted for 1978 (19 %). Hypothesis 1 predicted that there would be a significant difference between the traditional and general, and the modern and situational-specific work environment instrument in capturing the work characteristics of criminal investigation departments in the Norwegian police force. As presented above, the results show that the modern and situational-specific work environment instrument SOQ captured a significantly higher degree of the participants' statements than the traditional and general work environment instrument JDS. Thus, Hypothesis 1 was supported.

Hypothesis 2 predicted that there would be significant differences between the number of statements coded on the different organizational levels (IGLO). As presented in Table 1, the statements were not equally distributed. The organizational-level accounted for the most statements with 51,2 % statements, whereas the group-level captured the least statements with 13,7 % of the total statements. The analysis showed a significant difference between the different organizational levels. Thus, Hypothesis 2 was supported.

General discussion

As portrayed in the introduction, the concept of work environment has a complex nature with numerous interpretations by researchers within work and organizational psychology, e.g. the motivational approach, the sociotechnical approach, stress research, organizational climate literature and so on (e.g. Morgenson & Campion, 2003; Sparks & Cooper, 1999; Patterson,

Warr & West, 2004). What are the outcomes of this complexity? Research reveals that the complexity results in the development of a range of different approaches (van Veldhoven et al., 2005), and a following variety of assessment-tools (Humphrey et al., 2007; Isaksen, 2007; Parker et al., 2001). Notably, contemporary work environment instruments underscore different work environmental characteristics, which cause a fragmented research area. Notwithstanding this fragmentation, the diversity provides an opportunity to describe and assess the range of different organizations, i.e. inter alia innovative organizations, public management agencies, and manufactory plants. Whilst some organizations require instruments that underscore social work environmental characteristics, other organizations necessitate instruments with an accentuation of organizational work environmental aspects.

The difference between the two work environment instruments. The results of the current study require a retrospective glance to the preliminary discussion about how to measure work environments in a modern context. Although the Job Diagnostic Survey is one of the most established instruments in the assessment of work environmental characteristics, it has received criticism for several important aspects. JDS has received criticism for its narrow focus on a limited set of motivational work environmental characteristics, as well as for neglecting essential aspects of modern work environmental features. Contemporary research shows that work environment instruments designed for the modern context should incorporate a wider range of work characteristics, such as motivational work characteristics, social work characteristics and physical work characteristics (Humphrey et al., 2007; Humphrey & Morgeson, 2006; Morgeson & Campion, 2003; Parker et al., 2001). Moreover, researchers recognize situational-specific instruments as highly effective in order to measure the work environment within a modern context (Sparks & Cooper, 1999; Parker et al., 2010). Such instruments have been developed in order to capture situational-specific work characteristics and provide assessment tools specifically designed for a dynamic work environment (Sparks & Cooper, 1999; Parker et al., 2010).

The following section provides explanations for the results of Hypothesis 1. The significant difference between the two work environment instruments may be explained by at least four arguments. The results follow the logic of the preliminary discussion about traditional versus modern, and general versus situational-specific instruments, as SOQ captured almost twice as much of the total data set then the traditional and general instrument JDS, i.e. 19 % coverage versus 9,7 % coverage. There may be several explanations for these results. First, it must be kept in mind that SOQ was developed particularly for the assessment

of work environments in knowledge-intensive organizations (Isaksen, 2007), while JDS was designed based on manufactory work (Parker et al., 2010). As the process of criminal investigation may be categorized as knowledge-intensive (Gottschalk, 2007; Luen and Al-Hawamdeh, 2000), there is reason to believe that the scales of SOQ are better fit to describe the organization than the scales of JDS. In regard to this, considering the two instruments together reveals that the scale *Idea Time* (SOQ) captured the second most statements with 553 statements. This scale is particularly designed for the assessment of knowledge-intensive organizations as it relates positively to innovation, which is an essential aspect of knowledge-intensive work (Kelloway & Barling, 2000).

Second, SOQ underscores the social characteristics of work environments as six of the scales have a social emphasis, i.e. *Idea time, Conflict, Trust/Openness, Debate, Idea support* and *Playfulness/humour.* Together these scales captured 1208 statements of the total statements, and may thus be argued to have an impact on the current work environment. This finding supports modern research, which increasingly has incorporated the social aspect of work environments (Hackman & Oldham, 2010; Humphrey et al., 2007; Humphrey & Morgeson, 2006; Morgeson & Campion, 2003; Parker et al., 2001). Research shows that social and relational aspects are important features in the work environment of knowledge-intensive organizations (Cabrera & Cabrera, 2005). More specifically, the social aspect is essential in the work environment of police organizations and criminal investigation departments in particular, as the employees spend nearly all their time interacting in the solving of cases. Notably, peer relations are important as the employees spend little time interacting with supervisors or top administration (Shane, 2010). Contrary, the original version of JDS applied in the present study does not encompass social characteristics of work environments, and falls short in the attempt to assess the work environment in criminal investigation departments.

Thirdly, it should be highlighted how SOQ comprises more scales than JDS, i.e. nine versus five scales. Subsequently, SOQ accounts for a broader range of work environmental characteristics and may thus be argued to grasp a greater part of the work environment in criminal investigation departments in Norway. This is consistent with contemporary research, where it is argued that modern instruments should incorporate a larger range of work environmental characteristics in order to capture the complex nature of modern work environments (Humphrey et al., 2007; Humphrey & Morgeson, 2006; Morgeson & Campion, 2003; Parker et al., 2001). Consequently, JDS's restricted range of work environmental characteristics falls short in the attempt to capture the work features of modern work (Parker

et al., 2001). Considered simultaneously, the seven most prominent scales include four of the scales of JDS and three of the scales of SOQ. Furthermore, *Skill variety* was the scale that captured the least statements of all the scales of JDS. However, four of the scales of SOQ captured fewer statements than *Skill variety,* i.e. *Idea Support, Freedom, Risk-Taking and Playfulness/Humour.* Although each of these scales accounted for rather few statements, they did account for some degree of the perceived work environmental characteristics, i.e. in total 177 statements. Nevertheless, SOQ captured a significant higher degree of the perceived work environment, as it accounted for a larger range of work environmental characteristics. Accordingly, it may be assumed that JDS would have captured a higher degree if it comprised additional work environmental features.

Fourth, viewing the two instruments together reveals how SOQ comprises three out of the four most prominent scales. It encompasses two of the scales that in total captured the most of the perceived work environment in criminal departments in Norway, i.e. *Challenge/Involvement* and *Idea Time.* The first scale accounted for 674 statements, while the latter captured 553 statements. The stressful nature of policing may be an explanation for the extent of statements relating the emotional involvement, motivation and commitment to the organization, the operations and goals. Subsequently, there is reason to believe that a motivated and committed work force is of great significance for the work environment, as the work has such a substantial impact on lives both within the immediate organization and in the external environment. The latter scale, *Idea Time,* is important for the work environment as the generation of ideas and action plans is a key process in criminal investigation (Glomseth, Gottschalk, & Solli-Sæther, 2007). Furthermore, *Feedback* (JDS) and *Conflict* (SOQ) constitute the third and fourth most important scales in the current study. Since the quality and quantity of the evidence decide whether or not an identified offender will be charged in a court of law, evaluation of investigative steps and measurement of the problem-solving process are essential aspects of police investigation (Glomseth et al., 2007). This may be an explanation for the degree of feedback-related themes in the interviews. However, although *Feedback* has an impact on the work environment in criminal investigation departments, the scale consisted of a high standard deviation (20.27). In this regard, *Feedback* has been perceived as an essential aspect of the work environment for some participants, while not that important for other participants. This was further demonstrated in the post-hoc tests, as the scale obtained no significant differences whether within JDS or in relation to the SOQ-scales. Altogether the above discussion serves to indicate why the situational-specific instrument

(SOQ) captured a higher degree of the total statements than the general work environment instrument (JDS).

The unequal emphasis on the organizational levels. Research has shown that the work environment is important on several levels in an organization. Therefore, the modern context has required elaborated models for assessing work environments, and has integrated individual, group and organizational levels of analysis (e.g. Humphrey et al., 2007; Morgeson & Campion, 2003; Parker et. al., 2010). Furthermore, the relationship between leadership behaviour and organizational outcomes such as performance, stress and well-being has been widely recognized in the literature (House et al., 2002; McVicar et al., 2003; Kuoppala et al., 2008). In line with this, the current study comprised analysis on individual, group, leadership and organizational levels (IGLO).

The following section concerns the findings of Hypothesis 2. The section is structured around seven arguments, which serve as explanations for the unequal distribution of IGLO statements. Firstly, four arguments are presented and discussed regarding the high focus on the organizational level and concurrent low focus on the group and individual level. Following this, two arguments are presented as explanations for the relatively high emphasis on the leadership level. As presented in Table 1, all organizational levels were activated. However, there were significant differences in the participants' emphasis on the different organizational levels. The results show that the participants clearly emphasized the organizational-level with 51.2 % coverage, whereas the group and individual level only captured a small degree of the perceived work environment with 13,7 % and 15,3 %, respectively. There may be several reasons for this. First, it may be assumed that there is a tendency to emphasize the organizational level in modern working life. This is consistent with earlier research. A study by Hoff, Straumsheim, Bjørkli, and Bjørklund (2009) found similar results in their attempt to validate two established surveys for assessing psychological work environments, i.e. QPSNordic and OCM. The study conducted in a financial institution revealed a clear focus on the organizational level (189 statements out of 354) and a small focus on the group level (31 statements). Accordingly, the history of work environmental research shows a development from an individual perspective (J. R. Hackman & Oldham, 1975; Herzeberg, 1968) to an emphasis on organizational aspects (James et al., 2008; Parker et al., 2001). This development is particularly present in organizational climate research where organizational climate derives from the aggregation of psychological climates (James et al., 2008).

Second, an explanation for the findings may be the prevalent emphasis of the performance management system (MBOR) in the Norwegian public sector. This indicates an incorporated focus on performance and results, and might be a reason for the high degree of organizational-related statements and concurrent low degree of group and individual-related statements in the current study. Thirdly, the Norwegian model of labor relations and unions may affect these results. The employees of the Norwegian police force are represented in a labor union, which deals with the rights' of the employees and cooperates with the authorities about central work environmental features such as salary, staff resources and working hours. This might in turn affect the employees' perceptions about central work environmental characteristics, and result in the clear focus on the organizational level. Fourth, the Working Environment Act may have an impact on these results. The Act was designed primarily to protect the workers rights, and provides a superior emphasis on the organizational features that lead to a health-promoting and meaningful working situation, e.g. working hours, physical working conditions, the establishing of working environment committees, obligations for both employer and employee and so forth (Lovdata, 2005).

Fifth, the results may be caused by a sample consisting of a majority of leaders. An assumption is that leaders tend to emphasize the organizational level given its central role in organizational strategy and development. On a related note, it may be assumed that the more distance a person has to the original work, i.e. work activities performed by investigators, the more abstract the reflections become. In this regard, it would be interesting to see whether group and individual levels would be more important for newly employed investigators. Additionally, police organizations are often characterized by a hierarchical organizational structure managed by autocratic leaders. This often results in a lack of leadership support, and a restricted contact between leaders and subordinates (Shane, 2010), which again might lead to a reduced focus on the group and individual level and an increased focus on the organizational level.

In addition to an individual, group and organizational level of analysis, the current study encompasses analysis on the leadership level. Although research has shown that this level is an important aspect of psychological and work outcomes, the leadership level is typically not included in the analysis levels when assessing work environments. However, the inclusion of the leadership level in the current study is supported, as it accounts for the second most statements with 19, 8 %. There may be several explanations for these results. First, leaders play an important role in any organization as their main responsibility concerns the organizational performance, development, and adaptation to external changes.

Consequently, favourable or unfavourable impressions of leaders or supervisors may affect the work environment to a great extent. For example, if an organization reveals weak results, leaders are often blamed both within the organization and by the external environment. In police organizations, the role of the leader may be even more critical given the high degree of control and low degree of support. Consequently, the participants accentuate the leadership level. A second explanation for the extent of leadership-related statements may be the prevalent emphasis on leadership in the Norwegian public management sector. The NPM reforms have entailed an increased focus on effective leadership (Lægreid et al., 2007), e.g. *Leadership in Norway's Civil Service*. This might in turn shape the participants' reflections around leadership as an important aspect of work environments. Altogether, the above discussion provides explanations for the unequal distribution of IGLO statements.

The study revealed no significant interaction effect. This indicates that SOQ captured more statements than JDS at all organizational levels, but to a similar extent on every level. As Table 4 shows, both JDS and SOQ captured an increasingly higher extent of statements on each organizational level, i.e. group level (101 versus 315), individual level (159 versus 379), leadership level (188 versus 423) and organizational level (557 versus 861). Thus, the instruments did not interact as neither changed the current pattern. The following section provides plausible explanations for the rather small degree of coverage by the two instruments.

Each instrument viewed separately: why did they account for only a small degree of the total statements? The current study demonstrates that the employees in criminal investigation departments recognize the work environment as important for the quality of the Norwegian police investigation, as work environmental features are present when the participants speak about the quality of criminal investigation work. However, the results reveal that the instruments applied captured a rather small degree of the perceived work environment, i.e. 9,7 % and 19 %. This indicates that the instruments have difficulties in assessing the work environment in criminal investigation departments in Norway. Accordingly, this section will discuss plausible reasons for these results. The section begins with a discussion of the weak results of JDS, followed by a discussion of SOQ.

Despite its general acceptance and well-established status within the Norwegian context, the current study found JDS to capture a relatively small degree of the work environmental characteristics in criminal investigation departments in Norway. The instrument accounts for few aspects with importance for the participants when performing

police investigation. These results are similar to a related study conducted in the university sector. This study measured work environmental characteristics in the university sector based on the same method, i.e. semi-structured qualitative interviews based on the SWOT approach. The results revealed that JDS captured only nine percent of the total statements (Anderssen, 2011). Given that all units within the police in general, and in criminal investigation in particular, may be seen as knowledge-intensive (Gottschalk, 2007; Luen and Al-Hawamdeh, 2000), the results indicate that JDS has difficulties in describing the work environment in knowledge-intensive organizations. Furthermore, these results follow the discussion depicting JDS as an out-dated instrument that should be reconsidered when measuring the work environment of modern organizations. It is important to highlight how JDS was developed in a different work context, based on studies on male manufactory workers. Since then, it has been dramatically changes in the work context, the composition of the work force, and the flexibility and educational background of employees (Parker et al., 2010).

The Situational Outlook Questionnaire was applied in the present study given its modern and situational-specific character and its adequate levels of internal reliability and stability over time (Isaksen & Ekvall, 2007). Although SOQ accounted for a significant higher degree of statements than JDS, it captured only 19 % of the overall data material. There are several possible explanations for this result. First, the scales of SOQ conceptually seem to have an individual and social emphasis rather than an emphasis on organizational and structural aspects. However, as shown in Table 1, the organizational level captured as much as 51,2 % of the participants' statements. This entails a clearly focus on organizational and structural features of the work environment, and may be a reason for the rather low degree of coverage. These findings indicate that a work environment instrument that underscores organizational aspects is better fit to describe the organization in question.

Although criminal investigation may be seen as a knowledge-intensive process, the police organization is characterized as bureaucratic with a hierarchical culture (Shane, 2010). This may explain the results of the present study, as reduced emphasis on psychological and social features may be caused by bureaucratic organizations. What is more, the bureaucratic model characterized by its rigidity and control, excessive formalities and routine impedes a positive climate for creativity and change (Damanpour, 1996). Notably, SOQ does not include a scale relating to organizational resources, although this has proven to be an important aspect of work environments in knowledge-intensive organizations (Amabile, Conti, Coon, Lazenby, & Herron, 1996; Gillespie, Walsh, Winefield, Dua, & Stough, 2001;

Kinman & Jones, 2003). Not surprisingly, this was a frequent theme in the interviews of the current organization. With resources as an added scale, SOQ would have captured a higher extent of the perceived work environment in criminal investigation departments.

Limitations

This section will be structured around four matters that may have an impact on the current results, i.e. the method, the sample, qualitative interviews and content analysis. Each matter includes several possible limitations by which the study might have been affected.

In contrast to the majority of similar studies, the current study measured the work environment by conducting semi-structured qualitative interviews with open-ended questions. This method was applied in order to make the participants reflect freely without leading the participants in a specific direction. The methodology has proven to be successful in order to measure work environmental characteristics, given the high degree of work environmental themes (10 386). However, the integrated use of qualitative research interviews and quantitative data entails some limitations that may have been affecting the study. First, the method is extremely time-consuming considering the qualitative interviews, the following transcriptions, as well as all the steps of the content analysis. However, the method was preferred given the amount of information gained. Alternatively, a quantitative survey would have accounted for only a small degree of the total statements. In addition, a quantitative survey may result in common method biases as consistency and priming (Morgeson & Campion, 2003). The method of the current study diminishes the possibility of these biases.

The current study encompassed 51 strategically selected participants, deriving from 16 out of 27 police districts. Thus, the sample comprised more than half of all Norwegian police districts. The sample size is rather high compared to other qualitative studies, which tend to consist of 10 ± 15 participants (Robson, 2002). However, the high standard deviation on the Feedback-scale in JDS reveals that some results have been influenced by the size of the sample. Further, the sample size is relatively small when compared to the overall organization. Cautions must therefore be made when generalizing the results. Importantly, qualitative studies are not designed to be representative in terms of generalizability. They gain little from a huge sample size except a time-consuming process and a complex analysis (Pope, Ziebland, & Mays, 2000). Due to the scope of the thesis, the sample could not be larger. Additionally, the transcriptions revealed a certain degree of data saturation as the central themes were present in all interviews. Thus, the sample size is perceived as satisfactory concerning the scope of the study.

The participants of the current study derived from three levels of the organization: Chief of the police (N=16), Principal investigator (N=19) and Investigator (N=16). This may entail several limitations. First, the sample might be perceived as an emphasis of leaders and their reflections, as two of the three position levels are leaders. However, the three levels were chosen in order to better represent the organization by analysing the reflections of representatives from the different hierarchical levels. Second, the sample consisted of an experienced group of employees. These employees were selected in order to increase the validity of the study, as they due to their personal experience could contribute with reflections on present and future organizational behaviour and on work environmental characteristics. However, there is a possibility of different results if the participants consisted of employees with less experience. Thirdly, the first two levels were strategically selected while the Chiefs of the police districts selected the third level. Given this, there is a chance that the investigators may have been selected in a biased way, which in turn might influence the results. However, this form for selection was preferred considering the time and resources of gathering all the investigators.

The qualitative research interview is a flexible method that aims to obtain qualitative and rich descriptions about a specified theme. Nevertheless, the quality of a study is dependent on the quality of the interviews in which the interviewer plays a significant role (Kvale & Brinkmann, 2009). However, the interviewers of the current study were adequately trained in both the PEACE model and the SWOT approach in order to reduce limitations regarding the interviewers behaviour. Moreover, it entails a standardization of the interview with the intention of increasing the reliability of the interview procedure. Importantly, the interview questions were developed in order to let the participants freely reflect upon their work environment. Thus, in the briefing of the interviews the interviewer emphasized that the participants own experience and reflections were of interest, and that there were no right or wrong answers. However, the fact that the questions were based on the SWOT-categories, and thus comprised only four general questions may have influenced the results. Consequently, all interviews comprised a certain degree of repetition of central themes. However, the phrasing of the questions derived from a pilot test where the current phrasing generated the most reflections by the participants. Further on, the high degree of statements accounted for by the SWOT and IGLO categories (83,6 %) reflect that the participants understood the logic behind the questions, and that they were able to reflect upon it. The participants mastered the technique without including a lot of contextual information.

Given the amount of information in the current study, content analysis was preferred in order to reduce the information obtained in the interviews. However, the analysis entails some limitations that may affect the results. The first limitation concerns unitizing: the reduction of text into meaningful statements. The results are to a great extent depended upon the operationalization of a statement, and the following unitizing. However, this process is based on subjective judgement from the researcher. Hence, there is a possibility that other researchers would have defined a statement differently and thus unitized differently. Moreover, the process of unitizing affects how the statements are coded into categories or scales of an instrument. The process of coding is also a subjective judgement from the researcher. However, coding schemes, original definitions of scales and the extended use of interrater reliability-tests was included in the analysis in order to reduce these limitations and make more reliable results.

The above discussion reviews potential limitations by which the study may have been affected. However, given the systematic methodology and the high focus on interrater agreement, the findings might be seen as reasonably reliable and valid.

Implications and suggestions for further research

There are relatively few studies on the work environment in criminal investigation departments. Critically, there is a research gap regarding the relationship between the work environment and the quality of police investigation. This makes the current study an important contribution to the research area, as well as to the organization. First, the current study has implications for research on how to measure work environments in a modern context, and particularly in criminal investigation departments. The methodology, i.e. open-ended qualitative interviews based on SWOT, demonstrated a successful way to assess work environmental characteristics, as it resulted in a high degree of work environmental themes. Furthermore, although the results show that both instruments accounted for a rather small degree of the perceived work environment in 16 criminal investigation departments in Norway, they are consistent with the current debate, i.e. the necessity for modern and more situational-specific instruments. As the organizational landscape is undergoing continual change, the instruments designed to measure work environmental characteristics must adapt to this change. Thus, the results imply that modern instruments should incorporate modern work environmental features, include a greater range of characteristics, and more situational-specific features.

Second, the current study may have some practical implications for the organization in which the study is conducted. The analysis based on the SWOT framework might be useful for the organization, as it contributes with important information about the organizational focus on present versus future dimensions (S&W vs. O&T) and positive versus negative dimensions (S vs. W, O vs. T). In the current study the participants clearly focused on the present and internal dimensions *Strengths and Weaknesses.* In addition, the analysis based on the IGLO framework is important for the organization, as it provides information about which organizational level the organization is geared towards, i.e. the individual, group, leadership or organizational level. In the current study the participants clearly emphasized the organizational level. A combination of the two frameworks can provide additional information. In this case the organization focused on present dimensions of SWOT, primarily on the organizational level. However, an organization should also pay attention to the future dimensions in SWOT (O & T), as well as the other organizational levels (e.g. individual level, group level and leadership level). As discussed earlier, the modern context of work has brought along an emphasis on inter alia the social aspects of work environments. Yet, the current organization has a relative limited focus on the social aspects as the group level accounted for the smallest amount of statements.

The work environment instruments applied in the current study did only account for a small degree of the perceived work environment in the 16 criminal investigation departments in Norway, i.e. 9,7 % and 19% respectively. This implies that a great deal of the work environment in the studied criminal investigation departments is uncovered. Given the amount of information (10 386 statements) and the scope of the thesis, the current study does not include a residual analysis. In order to make the results more applicable for the current organization and the research area, further research should incorporate such an analysis. A bottom-up residual analysis would contribute as an exploration of the specific work environment of criminal investigation departments in Norway. In this sense, it is possible to develop a situational-specific work environment instrument for this particular work context. Furthermore, further research may aggregate the analysis on position levels to see whether or not there is a significant difference in the reflections of the different hierarchical levels. This may provide valuable information about the specific perceptions and needs in the different levels of the organization. Finally, further research should explore the quality of situational-specific instruments, which in turn may expand the knowledge about the work environment of modern organizations.

Conclusion

The current study demonstrates a relation between the work environment and the quality of Norwegian police investigation, as work environmental features are present in the participants' accounts of the quality of police investigation. The results reveal a significant difference between the two work environment instruments regarding the extent to which they capture the perceived work environmental characteristics in 16 criminal investigation departments in Norway. The results support the value of modern and situational-specific instruments when assessing work environment features in a modern context, as SOQ accounted for almost twice as much than JDS. Notably, the analysis of the organizational levels (IGLO) displays an organisation with a clear emphasis on the organizational level and a minor focus on the individual and group level. The results of the current study have implications for the measurement of work environments in a modern context, as they show the importance of a method that captures the complexity of employees' perceptions of their work environment. Significantly, the results may have practical implications for the organization in question, as they present the organizational focus and work environmental characteristics based on experienced employees from three different position levels of the organization. Nevertheless, further research should incorporate a bottom-up residual analysis in order to develop a situational-specific work environment instrument specifically for the assessment of Norwegian criminal investigation departments.

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Appendix A

Information consent (Norwegian and English versions)

POLITIHØGSKOLEN

Politimesteren i
XXX politidistrikt
Postboks XXXX

NORWEGIAN POLICE UNIVERSITY COLLEGE

Deres referanse: Vår referanse: Sted, Dato

PROSJEKT ETTERFORSKNING
Vi viser til tidligere presentasjon på Politisjefsmøtet. Som vi gjorde rede for har Politidirektoratet gitt Politihøgskolen i oppdrag å gjennomføre et prosjekt med sikte på å undersøke organiseringen av politiets etterforskningsarbeid i Norge.

Fra Politihøgskolen består prosjektgruppen av:

- Professor Tor-Geir Myhrer.
- Professor Johannes Knutsson.
- Politiinspektør Trond Myklebust.

I tillegg har vi et formelt samarbeid med faggruppen for arbeids- og organisasjonspsykologi ved Psykologisk institutt, Universitetet i Oslo.

Vi vil kontakte politimesteren i hvert politidistrikt med forespørsel om deltakelse i prosjektet. Prosjektet vil samle inn informasjon ved å ha intervjuer med:

i) Politimester/vise-politimester
ii) Etterforskningsleder
iii) Etterforsker

Det er frivillig å være med og hver deltaker har mulighet til å trekke seg når som helst underveis, uten å måtte begrunne dette nærmere. Dersom en deltaker trekker seg vil alle innsamlede data fra personen bli anonymisert. Opplysningene vil bli behandlet konfidensielt,

og ingen enkeltpersoner vil kunne gjenkjennes i prosjektets skrevne sluttprodukt (rapporter/artikler).

Undertegnede vil en av de nærmeste dagene ta kontakt med deg for å avtale tidspunkt for et eventuelt intervju med deg eller vise-politimester. I tillegg ber jeg deg å velge ut aktuell etterforskningsleder og etterforsker for prosjektet, slik at jeg kan ta direkte kontakt med disse for informasjon om prosjektet samt avtale om tid og sted for eventuelt intervju.

Intervjuene vil være strukturert etter en såkalt SWOT-tilnærming og består av følgende fire tema/spørsmål:

I. Fortell om det som i dag fungerer godt ved etterforskningsarbeidet her i politidistriktet – vi kaller dette styrken i etterforskningsarbeidet.
II. Fortell om det som i dag ikke fungerer godt ved etterforskningsarbeidet her i politidistriktet – vi kaller dette svakheten i etterforskningsarbeidet.
III. Fortell om det du i dag ser som muligheter for å forbedre kvaliteten i etterforskningen her i politidistriktet – vi kaller dette for mulighetene i etterforskningsarbeidet.
IV. Fortell om det du i dag ser som truslene for å forbedre kvaliteten i etterforskningen her i politidistriktet – vi kaller dette for truslene i etterforskningsarbeidet.

Vi ønsker primært lyd- og billedopptak av intervjuet, men dersom i praksis kun lydopptak lar seg gjennomføre, ønsker vi å ta opp intervjuet i MP3 format. Lengden på intervjuet vil variere ut i fra informantens mengde med informasjon. Fra tidligere prosjekt vil denne type intervju ta omlag 90 minutter.

Intervjuet vil bli anonymisert slik at navn og personopplysninger om den intervjuede ikke transkriberes og blir følgelig ikke tatt med i analysene.

Vi takker for at ditt politidistrikt på Politisjefsmøtet har sagt seg positiv til dette prosjektet. Eventuelle spørsmål eller kommentarer til prosjektet bes rettet direkte til undertegnede (e-mail: trond.myklebust@phs.no , tlf. direkte 23 19 98 55, tlf. sentralbord 23 19 99 00).

Med hilsen,
Trond Myklebust
Politiinspektør/PhD

POLITIHØGSKOLEN

Chief of Police
XXX police-district
Po.Box. XXXX

NORWEGIAN POLICE UNIVERSITY COLLEGE

Your reference: Our reference: Place, Date

PROJECT POLICE INVESTIGATION
We hereby refer to the previous presentation at the national meeting for the Chief of Police. As we explained, the National Police Directorate has given the Norwegian Police University College the task of carrying out a project aiming to assess the organization of police investigative work in Norway.

The project group from the Norwegian Police University College consist of:

- Professor Tor-Geir Myhrer.
- Professor Johannes Knutsson.
- Police inspector Trond Myklebust.

In addition we have a formal cooperation with the professional group at Centre for Applied Positive Work-psychology at the University of Oslo.

We will contact the Chief of Police in each police district requesting participation in the project.
Data will be gathered through interviewing:

i) Chief of police / Deputy Chief of Police
ii) Senior Investigating Officer
iii) Detective/Investigator

Participation in the project is voluntary. Interviewees may withdraw their participation at any given time without providing any explanation for their choice. If a participant withdraws, all responses from him/her will be made anonymous. The data will be treated with

confidentiality, and personal identifying information will not be included in the written outputs from the project (i.e. reports/articles)

Signatory will in the upcoming days contact you to schedule the interview with yourself or the Deputy Chief Police. Additionally, I request that you select one Senior Investigating Officer and one Detective/Investigator for the project. I will contact them directly, providing them with information about the project and scheduling a time- and place for the potential interviews.

The interviews will be structured according to the so-called SWOT approach and will include four themes / questions:

I. Please tell us what you think works well regarding the investigative work here in the police district - we call this the strength of the investigative work.
II. Please tell us what you think does not work well regarding the investigative work here in the police district – we call this the weakness of the investigative work.
III. Please tell us what you consider to be opportunities for improving the investigative work here in the police district – we call this the opportunities in the investigative work.
IV. Please tell us what you consider to be threats against improving the investigative quality here in the police district - we call this the threats in the investigative work.

We primarily request to tape- and video record the interviews, but if for practical reasons only tape recording is accomplishable, we wish to record interviews in the MP3 format. The duration of interviews will vary according to the amount of information given by the respondent. Experiences with this type of interviews from other projects indicate an average duration of approximately 90 minutes.

Interviews will be made anonymous such that names and personal information will not be transcribed or included in the analyses.

We want to express our appreciation for your police district conveying a positive attitude towards the current project.
Questions or comments to the project may be addressed to the signatory.
(e-mail: trond.myklebust@phs.no , tlf direct 23 19 98 55, tlf switchboard 23 19 99 00).

Best regards
Trond Myklebust
Detective Chief Superintendent
PhD Psych

Appendix B

Coding Scheme 1

Procedure for transcription

The are three core guidelines for the transcription procedure:

1. Adaption: the transcriptions should be adapted to the purpose of the study
2. Consistency: transcriptions should be consistent from time to time and between transcribers
3. Openness: the procedures for transcription should be described in the study

Transcriptions for the current study were performed according to these instructions:

- Interviews will be transcribed into ¨bokmål¨ regardless of respondents dialect
- All verbal content will be transcribed, word for word
- Full stop and comma is included according to the natural breaks in the interview
- Repetitions are included
- Verbal fillers such as ¨Mmm¨and ¨Eh¨ are included
- If the recording is unclear, the transcriber will try to make out the content by re-listening to the section of interest. If unable to identify the verbal content this is marked in the transcription as: **¨unclear, time…¨** in bold.
    - Transcribers refrain from guessing the content when it is unclear
    - When more than one person speaks at once this is marked as unclear if transcriber is unable to hear what is being
- Interviewer is identified as **Int.** (and **Int 1. ; Int 2.** In the case of multiple interviewers) and then followed by indent
- Respondent is identified according to their title (i.e. chief investigator /etterforskningsleder is identified as **EFL**) and then followed by indent
- Pauses, and other verbal fillers such as laughter, coughing etc. are not included in the transcription. These are considered irrelevant as they do not contain content central to the the purpose of the study

Unitizing

The definition of a unit:

- In the content analysis, a unit is an identifiable message or message component (Neuendorf, 2002, p. 71)
- Units can be words, characters, themes, time periods, interactions, or any other result of "breaking up a 'communication' into bits" (Carney, 1971, p 52, cited in Neuendorf, 2002)
- Generally, units are wholes that analysts distinguish and treat as independent elements. For example, in the operation of counting, the objects that are counted must be distinct- conceptually or logically, if not physically- otherwise the numerical outcome would not make sense. The counting of meanings is problematic unless it is possible to distinguish among meanings and ensure that one does not depend on another (Krippendorff, 2004 p. 97).

The definition of a statement:
A statement was defined as the smallest meaningful unit that reflects the informant's experience and understanding of the topic of interest (Hoff, et al., 2009, p. 7) A statement is a part of a sentence, a whole sentence, or several sentences expressed by the interviewee, that constitute a coherent, meaningful point of view that describe an aspect of the work environment (Hoff, Straumsheim et al., 2009, p 14). A change from positive to negative or a change in topic may indicate a new statement.

The SWOT categories
Statements derived from the transcription will be coded on SWOT, i.e. strengths weaknesses, opportunities and threats. Statements that do not fit the SWOT categories will be coded as residuals.

The SWOT categories

- **Strengths:** Positive aspects of the work environment in the present situation
- **Weaknesses:** Negative aspects of the work environment in the present situation
- **Opportunities:** Future opportunities for a good working environment
- **Threats:** Future threats towards a good working environment
- **SWOT residuals:** Statements that do not fit the presented categories

The context in which each statement appears is taken into consideration during the coding procedure. If the context does not provide enough information regarding appropriate code, the SWOT question preceding the statement is taken into consideration.
Example: "We have many days with internal training". The preceding question and context may provide information regarding appropriate code for this statement.

Examples of statements coded on the four categories + residual:

- **Strenghts:** *"There is competition for every vacancy, which results in a highly competent staff"*
- **Weaknesses: "***We get more cases than we can handle"*
- **Opportunities:** *"A higher degree of flexibility would enhance the organizational performance"*
- **Threats:** *"We face the threat that there is a tendency to choose operative work over investigative work, because it provides a higher income"*
- **Residual:** *"Sorry, I have to take this phone call"*

The IGLO categories

- **The individual level:** Individual perceptions, feelings and opinions
- **The group level:** Interaction and cooperation in work groups, teams and departments
- **The leadership level:** Behaviour of immediate supervisors, other leaders or the top management
- **The organizational level:** Management practices, organizational culture, strategies, organizational goals and values, and the physical environment of the organization
- **IGLO External:** Statements directed towards external matter, e.g. circular letter from the director of public prosecutions
- **The IGLO residuals:** Statements that did not fit the categories above

Procedure:

1. Unitize statements without predispositions
2. Statements are coded on the SWOT categories + residuals
3. Statements are coded on the IGLO categories + the external category and residual

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Appendix C

Coding scheme 2: Job diagnostic Survey (Hackman & Oldham, 1975, p. 161).

The five core job dimensions are defined as follows:

1. Skill variety*:* the degree to which the job requires a variety of different activities in carrying out the work, which involve the use of a number of different skills and talents of the employee

2. Task Identity: The degree to which the job requires completion of a ¨whole¨ and identifiable piece of work, i.e., doing a job from beginning to end with a visible outcome

3. Task Significance*:* The degree to which the job has a substantial impact on the lives or work of other people – whether in the immediate organization or in the external environment

4. Autonomy: The degree to which the job provides substantial freedom, independence and discretion to the employee in scheduling the work and in determining the procedures to be used in carrying it out.

5. Feedback from the job itself*:* The degree to which carrying out the work activities required by the job results in the employee obtaining direct and clear information about the effectiveness of his or her or her performance

Appendix D

Coding scheme 3: Situational Outlook Questionnaire (Isaksen et al., 2001, p.175).

1. Challenge and Involvement: Degree to which people are involved in daily operations, long-term goals, and visions. When there is a high degree of challenge and involvement, people feel motivated and committed to making contributions. The climate is dynamic, electric, and inspiring. People find joy and meaningfulness in their work. In the opposite situation, people are not engaged, and feelings of alienation and apathy are present. Individuals lack interest in their work and interpersonal interactions are dull and listless.

2. Freedom: Independence in behavior exerted by the people in the organization. In a climate with much freedom, people are given the autonomy and resources to define much of their work. They exercise discretion in their day-to-day activities. Individuals are provided the opportunity and take the initiative to acquire and share information about their work. In the opposite climate, people work within strict guidelines and roles. They carry out their work in prescribed ways with little room to redefine their tasks.

3. Trust/Openness: Emotional safety in relationships. When there is a high degree of trust, individuals can be genuinely open and frank with one another. People count on each other for professional and personal support. People have a sincere respect for one another and give credit where credit is due. Where trust is missing, people are suspicious of each other, and therefore, they closely guard themselves, their plans, and their ideas. In these situations, people find it extremely difficult to openly communicate with each other.

4. Idea Time: Amount of time people can use (and do use) for elaborating new ideas. In the high idea-time situation, possibilities exist to discuss and test suggestions not included in the task assignment. There are opportunities to take the time to explore and develop new ideas. Flexible timelines permit people to explore new avenues and alternatives. In the reverse case, every minute is booked and specified. The time pressure makes thinking outside the instructions and planned routines impossible.

5. Playfulness/Humor: Spontaneity and ease displayed within the workplace. A professional yet relaxed atmosphere where good-natured jokes and laughter occur often is indicative of this dimension. People can be seen having fun at work. The climate is seen as easy-going and light-hearted. The opposite climate is characterized by gravity and seriousness. The atmosphere is stiff, gloomy, and cumbrous. Jokes and laughter are regarded as improper and intolerable.

6. Conflict: Presence of personal and emotional tensions in the organization. When the level of conflict is high, groups and individuals dislike and may even hate each other. The climate can be characterized by “interpersonal warfare.” Plots, traps, power, and territory struggles are usual elements of organizational life. Personal differences yield gossip and slander. In the opposite case, people behave in a more mature manner; they have psychological insight and control of impulses. People accept and deal effectively with diversity.

7. Idea Support: Ways new ideas are treated. In the supportive climate, ideas and suggestions are received in an attentive and professional way by bosses, peers, and subordinates. People listen to each other and encourage initiatives. Possibilities for trying out new ideas are

created. The atmosphere is constructive and positive when considering new ideas. When idea support is low, the automatic "no" is prevailing. Fault-finding and obstacle-raising are the usual styles of responding to ideas.

8. Debate: Occurrence of encounters and disagreements between viewpoints, ideas, and differing experiences and knowledge. In the debating organization, many voices are heard and people are keen on putting forward their ideas for consideration and review. People can often be seen discussing opposing opinions and sharing a diversity of perspectives. Where debate is missing, people follow authoritarian patterns without questioning them.

9. Risk-Taking: Tolerance of uncertainty and ambiguity in the workplace. In the high risk-taking case, bold initiatives can be taken even when the outcomes are unknown. People feel as though they can "take a gamble" on their ideas. People will often "go out on a limb" to put an idea forward. In a risk-avoiding climate, there is a cautious, hesitant mentality. People try to be on the "safe side" and often "sleep on the matter." They set up committees, and they cover themselves in many ways.