

USER'S GUIDE FOR THE QPS_{NORDIC}

GENERAL NORDIC QUESTIONNAIRE FOR PSYCHOLOGICAL
AND SOCIAL FACTORS AT WORK

User's Guide for the QPSNordic

General Nordic Questionnaire for Psychological and Social Factors at Work

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Nordic Co-operation on Working Environment

is based on The Nordic Convention on working environment, which entered into force on the 24th of March 1990. It is designed to strengthen and develop Nordic co-operation and to promote progressively better working environment in all the Nordic countries. The co-ordination of stipulations and rules governing the working environment is part of this work as well as research and training programmes. The agreement is also designed to promote a common Nordic standpoint in matters of the working environment treated by international organizations and in other international contexts.

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Foreword

Questionnaires have been important tools in research on psychological and social factors at work in the Nordic countries, where large samples have been used to conduct extensive nationwide surveys of the work environment. Furthermore, questionnaires are common tools in organizational development at the worksite level.

In 1994, the Nordic Council of Ministers launched a project to improve the scientific quality and comparability of data collected during interventions on the conditions of the psychological, social, and organizational work environment. The project group was given the task of developing and testing a General Nordic Questionnaire (QPS_{Nordic}) encompassing the most fundamental psychological and social factors at work, a questionnaire which should be applicable for interventions at various workplaces, as well as for research purposes. The project group comprised researchers from four Nordic countries.

The first part of the project evaluated existing Nordic questionnaires which addressed factors inherent in the psychological and social work environment. The second part of the project described the conceptual and theoretical background of topics selected for the QPS_{Nordic}. In the final phase of the project, the reliability and validity of the new Nordic questionnaire available in four Nordic languages was tested.

This User's Guide is a description of the General Nordic Questionnaire (QPS_{Nordic}), its contents, measurement characteristics and its potential use as a research tool and especially as a survey instrument in a survey feedback process. The QPS_{Nordic} can be applied as a research method or as a survey feedback instrument in organization development.

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Summary

User's Guide for the QPS_{Nordic} - General Nordic Questionnaire for Psychological and Social Factors at Work

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The General Nordic Questionnaire (QPS_{Nordic}) is designed for the assessment of psychological, social, and organizational working conditions:

- 1) to provide a basis for implementing organizational development and interventions,
- 2) for documentation of changes in working conditions, and
- 3) for research into associations between work and health.

The QPS_{Nordic} consists of multiple choice questions relating to the following psychological and social factors at work: job demands and control, role expectations, predictability and mastery of work, social interaction with coworkers and clients, leadership, organizational climate, interaction between work and private life, work centrality, organizational commitment and work motives.

This User's Guide is a description of the General Nordic Questionnaire (QPS_{Nordic}), its contents, measurement characteristics and its potential use as a research tool, and especially as a survey instrument in a survey feedback process. The QPS_{Nordic} can be applied as a research method or as a survey feedback instrument in organization development.

The usefulness of the QPS_{Nordic} in participatory interventions for the improvement of the psychological and social work environment has been borne in mind when constructing the method. The respondents' appraisal of survey feedback with the QPS_{Nordic} was investigated as part of the validation process. This will strengthen the participative tradition of work life improvement in the Nordic countries and also elsewhere.

Sammanfattning

Användarmanual för QPSNordic - ett nordiskt frågeformulär om psykologiska och sociala faktorer i arbetslivet

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QPSNordic är konstruerat för att användas som instrument för att undersöka psykologiska, sociala och organisatoriska arbetsförhållanden:

- 1) vid organisationsutveckling och interventioner,
- 2) för dokumentation av förändringar i arbetsförhållanden och
- 3) vid forskning om samband mellan arbete och hälsa.

Det nya QPSNordic består av flervälsfrågor om följande psykologiska och sociala faktorer i arbetet: arbetskrav och kontroll, förutsägbarhet och skicklighet (mastery) i arbetet, social interaktion, ledarskap, organisationskultur, interaktion mellan arbete och privatliv, arbetets centralitet, engagemang (commitment) i organisationen och arbetsmotivation.

Denna användarmanual är en beskrivning av frågeformuläret QPSNordic, dess innehåll, mätgenskaper och användbarhet som forskningsinstrument och speciellt dess användbarhet som instrument i en "survey feedback" -undersökning. QPSNordic kan användas såväl som en forskningsmetod som ett "survey feedback" -instrument vid organisationsutveckling.

Vid konstruktionen av metoden har man beaktat att QPSNordic skall kunna användas vid interventioner, där de anställda aktivt medverkar till förbättringar av den psykologiska och sociala miljön. Respondenternas värdering av "survey-feedback" med QPSNordic ingick som en del av valideringsprocessen. Detta kommer att stärka traditionen av att de anställda medverkar i arbetslivsförbättringar såväl i de nordiska länderna som på andra ställen.

Yhteenveto

QPSNordic -käsikirja - Pohjoismainen työn psyykkisten ja sosiaalisten tekijöiden yleiskysely

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Tämä pohjoismainen kysely on tarkoitettu apuvälineeksi mitattaessa työn psyykkisiä, sosiaalisia ja organisatorisia tekijöitä

- 1) organisaatioiden kehittämishankkeissa,
- 2) selvitettyä työoloissa tapahtuvia muutoksia, ja
- 3) työn ja terveyden välistä suhdetta koskevissa tutkimuksissa.

Pohjoismainen kyselylomake koostuu monivalintakysymyksistä, jotka käsittelevät seuraavia työn psyykkisiä ja sosiaalisia osa-alueita: työn vaatimukset, vaikutusmahdollisuudet, työn ennustettavuus ja hallinta, sosiaalinen tuki, johtajuus, työilmapiiri, perheen ja työn välinen suhde, työn merkitys ja organisaatioon sitoutuminen sekä työmotiivit.

Tämä QPSNordic -käsikirja kuvaa Pohjoismaisen työn psyykkisten ja sosiaalisten tekijöiden yleiskyselyn sisältöä, mittausominaisuuksia ja sen käyttömahdollisuuksia tieteellisenä tutkimusvälineenä ja kysely-palauteprosessissa. QPSNordic -kyselyä voi käyttää työn ja organisaatioiden tieteellisessä tutkimuksessa ja käytännön kehitystyössä.

Menetelmän kehittämisen tavoitteena on ollut kyselyn käyttökelpoisuus työn psyykkisten ja sosiaalisten tekijöiden osallistuvassa kehittämisessä. Menetelmän toimivuutta kysely-palautemenetelmänä on testattu käytännössä osana sen kehittämisprosessia. Tällainen kyselyn käyttö toivottavasti vahvistaa työyhteisöjen osallistuvaa kehittämisperinnettä pohjoismaissa ja muualla.

1. Introduction

It is important to recognize those psychological and social factors of work, work organization, and the environment that are potential contributors to the health and well-being of individual workers, working groups, and the whole organization. Such factors contribute to work motivation, organizational learning and efficiency.

In 1994, the Nordic Council of Ministers launched a project with the aim to improve the scientific quality and the comparability of measurement results on psychological and social factors at work. The resulting instrument, the General Nordic Questionnaire (QPS_{Nordic}), encompasses the basic psychological and social factors at work and is suitable both for workplace interventions and for research purposes.

The project group consisted of scientists from four Nordic countries, mainly drawn from their respective occupational health institutes. The multidisciplinary nature of the project group, comprising experts from diverse specialties, influenced the choices of both the method of measurement and the contents of the questionnaire.

The reliability and validity of the QPS_{Nordic} and its scales were examined in two stages, where different samples have been collected from various branches of industry in four Nordic countries. Reliability was tested by examining the internal consistency of the scales and their test-retest reliability. Both its ability to measure the central psychological and social factors at work and to predict health and well-being were examined. The feasibility of the QPS_{Nordic} as a survey feedback instrument has also been tested. The reader is encouraged to study the three basic reports where the details of the development process, the theoretical background of the questionnaire, and the results of the validation process are reported (Lindström et al. 1995, Lindström et al. 1997, Dallner et al. 2000).

The usefulness of the QPS_{Nordic} in participatory improvement of the psychological and social work environment interventions has been borne in mind when constructing the method. The respondents' appraisal of survey-feedback with the QPS_{Nordic} was investigated as part of the validation process. This will strengthen the participative tradition of work life improvement in the Nordic countries and also elsewhere.

This User's Guide is a brief description of the QPS_{Nordic}, its contents, measurement characteristics and its potential use as a research tool and especially as a survey instrument in a survey feedback process.

2. What is the QPSNordic

2.1. When to use the QPSNordic

The General Nordic Questionnaire (QPSNordic) is a general questionnaire for measuring psychological and social factors at work, including job and organization characteristics, as well as individual work-related attitudes. The QPSNordic measures factors that pertain to most types of work and workplaces. One should consider whether there are conditions, types of work or external factors (e.g. economic problems) that necessitate supplementing the QPSNordic with other instruments or methods.

The QPSNordic can be applied as a research method or as a survey feedback instrument in organization development. The QPSNordic has been constructed for assessing employees' perceptions of psychological, social, and organizational work conditions with the following goals:

- (1) to provide a basis for organizational development and interventions,
- (2) for documentation of changes in working conditions and for the evaluation of organizational interventions and
- (3) for research into associations between work, health, and productivity.

A questionnaire survey is a traditional method for measuring individual, group, and organizational characteristics at work. The selection of appropriate methods for organizational analysis depends on the aim of the study, the intervention project and the target group. Information can also be collected by other methods like interviews, group discussions, observations, or meetings and conferences etc. Combining methods, e.g. by supplementing the QPSNordic data with interviews of some of the respondents may strengthen the validity of the information obtained and provide examples and descriptive data which may support the interaction process.

The advantages of using a questionnaire as an organizational survey instrument are numerous: The structured form of a questionnaire with specific scales and items provides unified concepts for all participants. It is an opportunity for large groups to participate and it contains information about the importance of the questionnaire topics. It helps those involved focus their development discussions and concentrate on important questions. Influence on and modification of people's mental models actually start when they fill out the questionnaire.

Monitoring of and interventions in organizations can be carried out to develop various processes and structures of the organization. Improving productivity and management have traditionally been the main aims of organizational interventions, but today the aim is often to develop human resources and facilitate the learning of the organization and its employees simultaneously. The feedback of results can serve several functions. It can legitimate and steer actions, focus attention and vitalize the organization, as well as control and evaluate actions, when remeasurements are done.

2.2. Content and development of the QPS_{Nordic}

The main principles in selecting the topics to be included in the QPS_{Nordic} were relevance and importance for work, health, well-being, and motivation. In the process of selecting appropriate content areas and items, 19 commonly used Nordic questionnaires were studied (Lindström et al 1995). In addition, comparable international instruments were studied. The database constructed on the basis of the existing Nordic questionnaires served as one source of the questionnaire items.

The QPS_{Nordic} consists of multiple choice questions pertaining to the following psychological and social factors at work; job demands and control, role expectations, predictability and mastery of work, social interaction, leadership, group work, organizational climate, work centrality, organizational commitment, work motives, and interaction between work and private life. The content areas and scales of the QPS_{Nordic} questionnaire are classified according to their conceptual level in table 1 and 4.

Table 1. *Content areas of the QPS_{Nordic} questionnaire classified according to the conceptual level*

Task level	Social and organizational level	Individual level
<ul style="list-style-type: none"> • Job demands • Control at work • Role expectations • Predictability at work 	<ul style="list-style-type: none"> • Social interactions • Leadership • Communication • Organizational culture and climate • Group work 	<ul style="list-style-type: none"> • Commitment to organization • Mastery of work • Preference for challenge • Predictability, individual • Work motives • Work centrality • Interaction between work and private life

During the process of validation of the QPS_{Nordic}, two sets of data were collected in the four Nordic countries. The first data set (n=1015) was used to study the factor structure of the questionnaire and to construct the scales. The second data set (n=995) was used to test the construct and predictive validity of the scales. The internal consistencies and test-retest reliabilities were calculated for each scale. The QPS_{Nordic} includes 129 questions, of which 80 compose the 26 scales. Thirty-eight single items measure their own content area. These single items were considered important, although they formed no scales. In addition, 11 questions measure demographic factors (Appendix 1).

A short version of the QPS_{Nordic} (QPS_{Nordic} 34+) has also been developed (Appendix 2). This version contains questions from several of the scales of the QPS_{Nordic}, but each scale is only represented by one or two questions.

2.3. QPS_{Nordic} compared with other questionnaires

In comparison to other comprehensive measurement instruments for psychological and social factors at work, the QPS_{Nordic} has several advantages.

The QPS_{Nordic} focuses simultaneously on task, organization and individual level factors. At the organizational level, it differentiates between the whole organization and the group level, which is currently important in work life, when organizations are becoming flat and flexible. The individual level factors describe work-related attitudes. Hence, the QPS_{Nordic} combines characteristics that have been traditionally measured by job stress and job redesign focused methods, such as the Job Content Questionnaire (JCQ) (Karasek 1985) and the Job Diagnostic Survey (JDS) (Hackman & Oldham 1975).

The QPS_{Nordic} covers aspects of rapidly changing working life, such as predictability and preference for challenge. Many of the existing questionnaire methods originate from the 1970s and the early 1980s. They were designed to measure the task level, and they rely on industrial age views on work life as well as organizational structures and practices.

The QPS_{Nordic} takes into account the continuous development or change in organizations, including the innovative climate that is one important element of a learning organization. The QPS_{Nordic} also covers gender and age equality issues as well as work-private life interface issues, because they are receiving increasing attention in work life.

3. How to administer the QPSNordic

3.1. Requirements for the user

Potential users

The QPSNordic can be used both by practitioners and by scientists in the field of psychological and social factors at work. The QPSNordic is meant to be used by professionals consultants who are interested in developing the work organization in a participative way or by scientists investigating the relationship of psychological and social factors at work to health and work motivation.

Skills and knowledge needed

Consultative skills are needed to (1) administer the questionnaire, (2) analyze data on psychological and social factors at work, (3) assess their relationships with health and well-being, and (4) to present the results and (5) interpret them in cooperation with the participants. Basic knowledge of survey methods, of statistical analysis and of organization development is needed. In feeding back the results of the questionnaire survey to the respondents, the skills of managing group work and understanding group dynamics are useful. Ethical considerations are important both for research and organization development. The scientist or consultant must secure the confidentiality of all individual participants.

3.2. What to take into consideration when using the QPSNordic

The context of using the QPSNordic

The measurement of psychological and social factors at work may be used for the assessment and improvement of health and safety, organization climate, learning, quality, as well as of management and leadership. Usually, several change processes are simultaneously going on in organizations. When planning a questionnaire survey, different aims that the same survey could serve should be considered.

The timing of the survey and retesting

The timing of the survey can affect the results. Having the survey just before or after a vacation should be avoided. The season of the year and the changes occurring in the organization should be taken into account. If the investigation is to be repeated after a certain time, it is important to conduct the survey in circumstances similar to those of the first survey. The interval passing between the two surveys depends on the speed of any changes or improvements. Very frequent repetition of questionnaire surveys can

frustrate participants. Intervals shorter than one year cannot be cost-effective and may even frustrate participants, lowering the response rate.

Resources needed

The questionnaire can be reproduced from Appendix 1 of this User's Guide. You can create a PC-based system for data entry, statistical analyses and the reporting of results or the standard statistical packages to be used.

A Nordic database will be established with reference data from a variety of organizations. You should contact one of the authors or their institution for more information. Appendix 2 contains reference data collected during the development process.

3.3. Carrying out a QPS_{Nordic} survey-feedback procedure

Planning the survey feedback process

For planning and carrying out the survey feedback process, a joint steering group at the workplace level is needed. This is a joint forum consisting of representatives of the employer and employees. Its primary task is to ensure the involvement of all main interest groups and keeping the employees informed during the process.

When the QPS_{Nordic} has been selected for the survey-feedback method, the development of the project plan should focus on the following issues and tasks: data collection, data analysis and writing of reports, organization of the feedback of results to the management and employees, continuous follow-up and the final evaluation (Fig. 1).

Practical issues to be attended to in the feedback procedure are the time and place of feedback meetings, the number and composition of the feedback groups, the techniques to be applied to facilitate discussions, and the formulation of practical conclusions. It should be determined how feedback is to be given and who will be responsible for various issues in the feedback meetings.

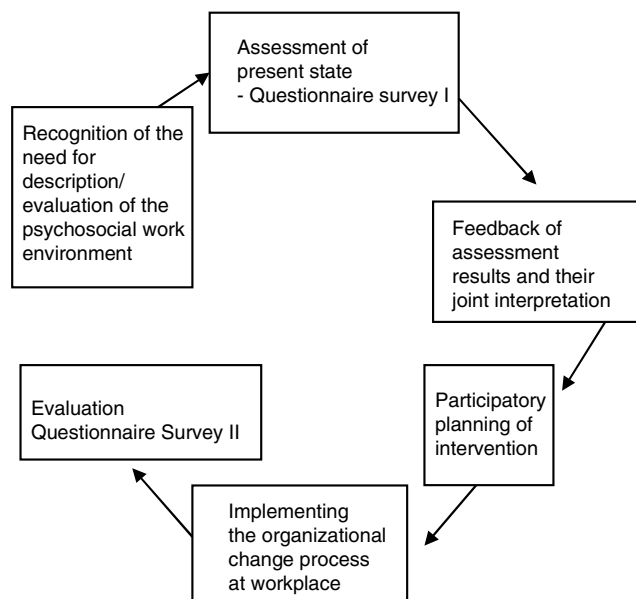


Figure 1. The cyclical phases of the survey-feedback process and its evaluation

Prerequisites for success

A definitive agreement should be made on the details of the whole development process before administering the questionnaire. It should be decided which persons will be responsible for the application of the survey results and the follow-up of actions. Cooperation between top management/line managers and union and other employee representatives is crucial.

The names or identification numbers of respondents to a questionnaire are sometimes necessary for occupational health purposes or research purposes. Joint discussions and agreement between the principal shareholders and interest groups are needed on confidentiality issues in collecting, analyzing and the storing the questionnaire data as well as on reporting the results.

The motivation of the respondents is a key issue in the successful use of any survey instrument. It is easy to distribute the questionnaires to the respondents. However, if they are not motivated and do not understand or accept the purpose of the survey, the response rate will be low. This will endanger the reliability and validity of the study, because conclusions drawn from low response rate data will be unreliable.

To be successful, a survey feedback intervention needs specified goals and subgoals, defined responsibilities, and a well-planned time schedule. From the organizational learning point of view, evaluation is the most important issue. Although the aim and implementation of an intervention can be planned in detail, the final evaluation of the intervention is usually complicated in real life. Several simultaneous changes may well occur in work organizations. Continuous follow-up helps assessing the effects of different changes. Evaluation carried out by employees involved in the intervention is also important.

4. The scales and structure of the QPSNordic

4.1. Data sets in the development of the QPSNordic

The QPSNordic was developed in two stages when data was collected from several organizations in each Nordic country to validate the questionnaire (Table 2).

Table 2. *Number of respondents by country in the two stages*

Country	Stage 1, 1997 N	Stage 2, 1998 N
Denmark	149	-
Finland	280	146
Norway	372	291
Sweden	214	558
Total	1015	995

Respondents to the prototype QPSNordic were employees from organizations representing several sectors of working life such as industrial production, private services, public administration and health care (Table 3).

Table 3. *Distribution of respondents by sector and services in the two stages*

Sector	Stage 1, 1997		Stage 2, 1998	
	N	%	N	%
Public services	281	28	378	38
Health sector	201	20	288	29
Private services	253	25	250	25
Production	280	27	79	8
Total	1015	100	995	100

The validation of the QPSNordic was carried out in two sets of data collected from the four Nordic countries. The first data collection (n=1015) was used to study the factor structure of the questionnaire and to construct the scales. The second data collection (n=995) was used to test the construct and predictive validity of the scales. Internal consistencies (n=2010) and test-retest reliabilities (n=393) were calculated for all 26 scales.

4.2. Content areas and scales

Table 4 summarizes the content areas and scales included in the QPSNordic. The items of the various scales are also presented.

Table 4. *The organization and content of scales and single items in the questionnaire*

Num- ber	CONTENT AREA AND SCALE	Level of measurement ¹⁾	ITEMS ²⁾ (see appendix for formulations)	N of items
2	<i>Job demands</i>			
	2.1 Quantitative demands	T	q12, q13, q14, q15	4
	2.2 Decision demands	T	q17, q19, q22	3
	2.3 Learning demands	T	q18, q25, q29	3
	-- Single items		q16, q20, q21, q23, q24, q30, q31, q32, q33, q34, q35, q36, q37	13
3	<i>Role expectations</i>			
	3.1 Role clarity	T	q38, q39, q40	3
	3.2 Role conflict	T	q41, q42, q43	3
	-- Single items		q44	1
4	<i>Control at work</i>			
	4.1 Positive challenge at work	T	q26, q27, q28	3
	4.2 Control of decision	T	q45, q46, q51, q52, q53	5
	4.3 Control of work pacing	T	q47, q48, q49, q50	4
5	<i>Predictability at work</i>			
	5.1 Predictability during the next month	T	q54, q55, q56	3
	5.2 Predictability of next two years	I	q60, q61	2
	5.3 Preference for challenge	I	q63, q64, q65	3
	-- Single items		q57, q58, q59, q62	4
6	<i>Mastery of work</i>			
	6.1 Perception of mastery	I	q66, q67, q68, q69	4
	-- Single items		q70, q71	2
7	<i>Social interactions</i>			
	7.1 Support from superior	SO	q73, q75, q78	3
	7.2 Support from coworkers		q72, q74	2
	7.3 Support from friends and relatives	SO	q76, q77, q80	3
	7.5 Bullying and harassment (single items)	SO	q81, q82a, q82b, q83	4
	-- Single item		q79	1
8	<i>Leadership</i>			
	8.1 Empowering leadership	SO	q84, q85, q86	3
	8.2 Fair leadership	SO	q89, q90, q91r	3
	-- Single items		q87, q88	2
9	<i>Organizational culture and climate</i>			
	9.1 Social climate	SO	q93, q94r, q95	3
	9.2 Innovative climate	SO	q97, q98, q99	3
	9.3 Inequality	SO	q100, q101	2
	9.4 Human resource primacy	SO	q102, q103, q104	3
	-- Single items		q92, q96	2
10	<i>Interaction between work and private life</i>	I		
	-- Single items		q105, q106	2
11	<i>Work centrality</i>	I	q107c, q108a, q108b	3
	Single items		q107a, q107b, q107d, q107e	4
12	<i>Commitment to organization</i>	I	q109, q110, q111	3
13	<i>Perception of group work</i>	SO	q113, q114, q115	3
	-- Single items		q112, q116	2
14	<i>Work motives</i>			
	14.1 Intrinsic motivation to work	I	q117, q120, q123	3
	14.2 Extrinsic motivation to work	I	q119, q121, q122	3
	-- Single items		q118	1
	Number of items included in scales			80
	Number of single items			38
	Number of background items			11
	Total number of items			129

¹⁾ T = task level, SO = social and organizational level, I = individual level

²⁾ q = question

Table 5. *The internal consistency (Cronbach's alpha, n=2010), the test-retest reliabilities (n=393) of the scales, and the number of items in each scale*

Content area and scales	Number of items in scale	Alpha (n=2010)	Test-retest reliability (n=393)
Job demands			
Quantitative demands	4	0.73	0.78
Decision demands	3	0.68	0.75
Learning demands	3	0.61	0.81
Role expectations			
Role clarity	3	0.81	0.67
Role conflict	3	0.71	0.76
Control at work			
Positive challenge at work	3	0.78	0.82
Control of decision	5	0.72	0.83
Control of work pacing	4	0.83	0.82
Predictability at work			
Predictability of the next month	3	0.67	0.73
Predictability of next two years	2	0.87	0.66
Preference for challenge	3	0.76	0.76
Mastery of work			
Perception of mastery	4	0.69	0.65
Social interactions			
Support from superior	3	0.83	0.81
Support from coworkers	2	0.80	0.72
Support from friends and relatives	3	0.75	0.83
Leadership			
Empowering leadership	3	0.86	0.79
Fair leadership	3	0.75	0.77
Organisational culture			
Social climate	3	0.74	0.73
Innovative climate	3	0.71	0.80
Inequality	2	0.73	0.67
Human resource primacy	3	0.83	0.80
Work centrality	3	0.71	-
Commitment to the organisation	3	0.77	0.81
Perception of group work	3	0.77	0.58
Work motives			
Intrinsic motivation to work	3	0.68	0.63
Extrinsic motivation to work	3	0.71	0.75

The internal consistency of the scales varied between 0.60 and 0.88 measured by Cronbach's alpha and the test-retest reliabilities from 0.55 to 0.82, when the interval between the two administrations was from five to eight weeks (table 5).

4.3. Construct validity: Overall structure of QPS_{Nordic}

The overall conceptual structure of the QPS_{Nordic} was verified by the empirical relationships between the scales. The structural equation model shown in figure 2 was used to examine the overall structural properties of the QPS_{Nordic}. The model was anchored to the individual's perception of his or her work situation, emphasizing workload, complexity of work, and quality of supervision as the basic determinants of person-job fit. These three concepts were conceived as second level factors, which were used to determine the central outcomes related to individual work attitudes and organizational functioning.

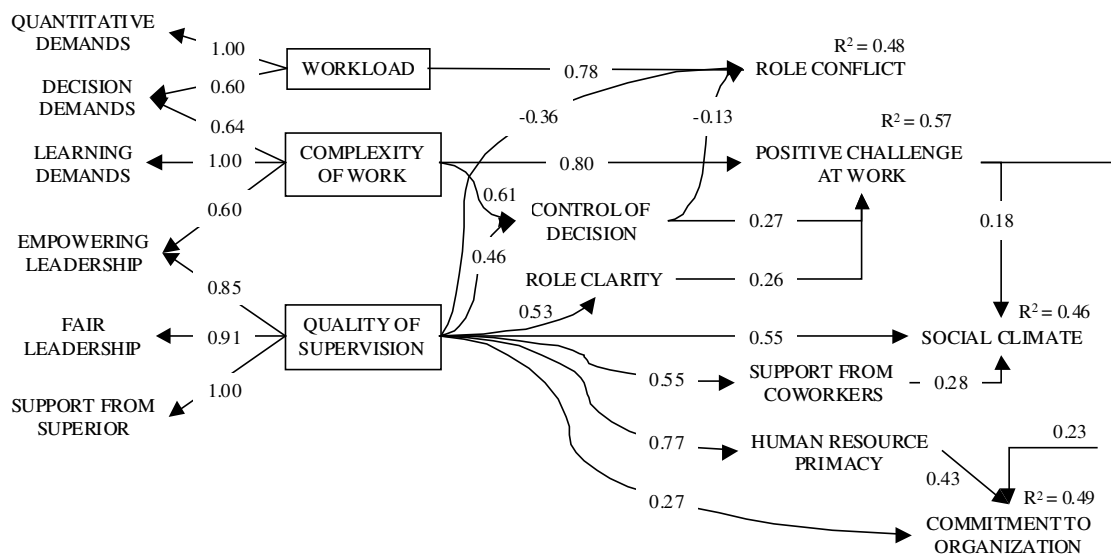


Figure 2. Structural equation model of selected scales of the QPS_{Nordic}

The reasoning in constructing the second level factors was:

1. *Workload* was defined primarily as a function of quantitative job demands and secondarily as a function of decisional demands. High workload implies high quantitative work load, usually accompanied by high requirements for attention and alertness. The main hypothesis on the effects of high workload was that it increases perceived role conflicts, which was operationalized in the QPS_{Nordic} as conflicting demands and insufficient resources.
2. *Complexity of work* reflects the qualitative demands of work. The model primarily associated it with learning demands. However, high requirements for decision-making and participation also constitute a psychological factor, which can function either as a demand or an opportunity for challenge. Thus, according to the hypothesis, high complexity work was expected to contribute to positive challenges at work.

3. *Quality of supervision* was defined on the basis of supportive, fair and empowering leadership. Supervisor-employee interaction has been reported as the principal element of the perceived social work environment. In addition, supervisory practices have been linked to goal clarity and control at work. It was thus hypothesized that the quality of supervision functions as a general factor in the model.

The explaining independent part of the model was built on three hypothetical second level factors using six observed scale variables. The dependent side of the model was focused on role conflict, social climate, and commitment to organization. The mediating dependent variables were positive challenges at work, control of decision, role clarity, support from coworkers, and human resource primacy. This model provided a very good fit with the collected data. On the dependent side of the model, the pattern of coefficients was complicated.

4.4. Criterion validity

The validation process used multiple outcomes, reflecting health, motivation, and job satisfaction indicators. All criterion measures were based on self-report scales.

The predictive power of the QPS_{Nordic} scales to show associations with the selected measures of individual well-being produces evidence on the validity of the questionnaire. Table 6 contains the average correlation coefficients over samples between QPS_{Nordic} scales and criterion scales. The analysis of this descriptive statistics provided a clear pattern of relationships.

Job involvement correlated most highly with work centrality, commitment to the organization, and positive challenges at work. These concepts are closely related. In addition, empowering leadership was positively associated with job involvement.

Job satisfaction correlated strongly with commitment to organization, as well as with positive challenges at work, support from superiors, social climate, and few role conflicts. Other leadership and organizational factors also showed moderate correlations with job satisfaction.

Emotional exhaustion correlated with low commitment to organization, high quantitative job demands, and role conflicts. In addition, a good social climate showed a mitigating effect on the level of reported exhaustion. This pattern of correlations is in accordance with previous findings.

Distress symptoms indicating nervousness, anxiety and sleep disturbances correlated most highly with role conflicts, high quantitative demands, and low perceived mastery of work.

Table 6. *Correlations of the QPSNordic scales with selected health and well-being outcomes in the 2nd stage data collection (n=995)*

Scale name	Job involvement	Job satisfaction	Emotional exhaustion	Distress symptoms
Job demands				
Quantitative demands	0.05	-0.18	0.36	0.34
Decisional demands	0.08	-0.12	0.17	0.13
Learning demands	0.14	-0.03	0.18	0.15
Role expectations				
Role clarity	0.12	0.23	-0.08	-0.15
Role conflict	-0.12	-0.41	0.35	0.36
Control at work				
Positive challenge at work	0.39	0.45	-0.21	-0.14
Control of decision	0.24	0.27	-0.23	-0.10
Control of work pacing	0.13	0.19	-0.22	-0.14
Predictability at work				
Predictability during the next month	0.05	0.17	-0.05	-0.03
Predictability of next two years	0.18	0.13	-0.05	-0.02
Preference for challenge	0.10	-0.04	-0.21	0.01
Mastery of work				
Perception of mastery	0.10	0.32	-0.28	-0.31
Social interactions				
Support from superior	0.22	0.45	-0.24	-0.22
Support from coworkers	0.06	0.25	-0.12	-0.11
Support from friends and relatives	-0.01	0.16	-0.17	-0.16
Leadership				
Empowering leadership	0.30	0.37	-0.15	-0.13
Fair leadership	0.07	0.36	-0.25	-0.27
Organisational culture				
Social climate	0.21	0.42	-0.29	-0.28
Innovative climate	0.18	0.33	-0.19	-0.12
Inequality	-0.03	-0.16	0.15	0.13
Human resource primacy	0.26	0.39	-0.24	-0.16
Work centrality	0.71	0.32	-0.11	0.08
Commitment to organization	0.47	0.58	-0.37	-0.21
Perception of group work	0.14	0.01	0.13	0.10
Work motives				
Intrinsic motivation to work	0.16	0.00	0.07	0.16
Extrinsic motivation to work	0.02	0.01	0.20	0.00

5. Presenting and implementing the results

5.1. Statistical analysis of the data and result presentation

Statistical analysis of the data

Item scores as well as scale scores can be used when the data are analyzed and the results presented.

The data may be analyzed using a spreadsheet or a standard statistical package. The main analyses needed are the frequency distributions and means or medians computed on single items or on scales. The scales and items belonging to the scales can be found in table 4 or in appendix 3.

When single-item scores are used, it is common practice to calculate the percentage distributions of the responses of the target group. The extreme response categories 1 and 2 may be combined as well as 4 and 5.

<u>Example</u>							
		Very seldom or never	Rather seldom	Sometimes	Rather often	Very often or always	Total
		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
Do you have too much to do?	n	87	250	832	503	298	1970
- original scale 1-5	%	4	13	42	26	15	100
- reduced scale 1-3	%	17		42	41		100

When scale scores are used, the individual values of items belonging to the same scale are added and divided by the number of items. It is also usually convenient to present the results as means and standard deviations or as medians and percentiles (see Appendix 4).

In three scales, some items have to be reverted prior to summation or raw scores have to be transformed

- Fair leadership, item 91, 6 minus entry value = value to be used in summation
- Social climate, item 96, 6 minus entry value = value to be used in summation
- Work centrality, recoding prior to summation:
 - Item 107c 0-10 = 1, 11 - 20 = 2, 21 - 30 = 3, 31 - 40 = 4, 41 - 50 = 5, 51 - 100 = 6,
 - Item 108a 6 - 7 = 6,
 - Item 108b 6 - 7 = 6.

Group size at the presentation of results

Questionnaires used as research instruments are usually applied to large groups consisting of hundreds of people. Questionnaire results based on small groups need special consideration. First of all, respondents must remain anonymous. Furthermore, the group has to be large enough to yield valid statistical and practical conclusions.

The members of small work units and their line leaders would typically like to see the results of their own work group. Certain recommendations on the lower limits of the group size as a unit of analysis can be given. In general, questionnaires should not be used or statistically analyzed in very small groups of less than 10 people. To protect of respondents' anonymity, qualitative verbal description of the results is the only possibility when a questionnaire study includes such small subgroups. Each individual should have an opportunity to express his or her differing opinion during the feedback discussion if he or she wants to do that. Other methods such as interviews and group discussions are more suitable for very small groups with less than 10 people.

If the group to be analyzed consists of more than 10 but less than 30 people, means and medians and reduced percentage distributions are suitable parameters for reporting. The response scales of the QPS^{Nordic} consist of 5 response alternatives, which may be reduced to 3 alternatives by summing up the responses in the extreme alternative categories 1 and 2; 4 and 5 (see example p. 18).

The full percentage distributions or means and medians for scale scores or single items are to be recommended for use in units/groups consisting of more than 30 people.

Reference data

The reference data presented in this user's guide is based on results on 2015 respondents from different Nordic countries working in various branches. The reference data is presented as means and standard deviations in regard to each QPS^{Nordic} question and scale (Appendix 3). Appendix 4 presents means in low and high educational groups, and the scale scores in the 20, 40, 60, and 80 percentiles.

Percentage distributions for full response scales and for reduced response scales are given for all QPS^{Nordic} items (Appendix 5) and for QPS^{Nordic} 34+ (Appendix 6). If the QPS^{Nordic} is used frequently in the same organization, the user can soon create his or her own reference data bank.

Form of feedback of results

In general, the QPS^{Nordic} is an extensive instrument. Those responsible for the feedback of the results should carefully consider whether to give oral or written feedback. In the

feedback procedure on the organization/department level, those results evaluated as most interesting and relevant should be selected for presentation.

The research results obtained by the QPS^{Nordic} can be fed back on the scale level and/or by selecting single items to represent different scales. The percentage distributions of single items present a more concrete picture to the respondents, because they can directly compare them with their own responses. When single items are selected for feedback, both the statistical properties and the content of the item should be taken into consideration.

In one feedback meeting, the presentation of results should be limited to those from 20 - 30 questions or scales. Feedback of more results is difficult to internalize. An excess of information can repress discussion, resulting in poor group discussions and few suggestions for improvements.

The results should be presented and interpreted statistically in a way that is understandable to the respondents irrespective of their basic education. Overhead transparencies presenting histograms or pies of percentage distributions are recommended. Several distributions may be presented in the same figure. Means are more concise for comparing several groups simultaneously (figure 3). The results based on sum scales are more reliable measures for scientific purposes and for constructing models.

Reference data is useful in assessing the strengths and weaknesses of the target group compared to other work units, departments, and to the whole organization, or other relevant reference groups. The differences in background variables between the groups should always be given proper consideration. The size of the target group and the distribution of data within the group should also be taken into account. Comparisons give a general view of the level of the target group. However, it is important to guide the feedback discussion in a constructive way and not to focus too much on comparisons. In general, comparisons with previous measurements of the same unit are most useful in planning and evaluating interventions.

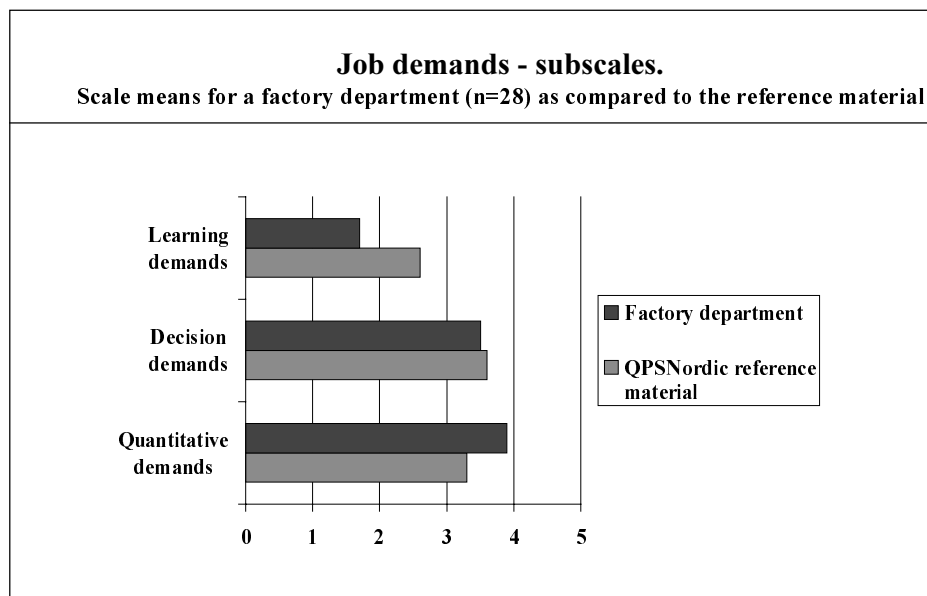
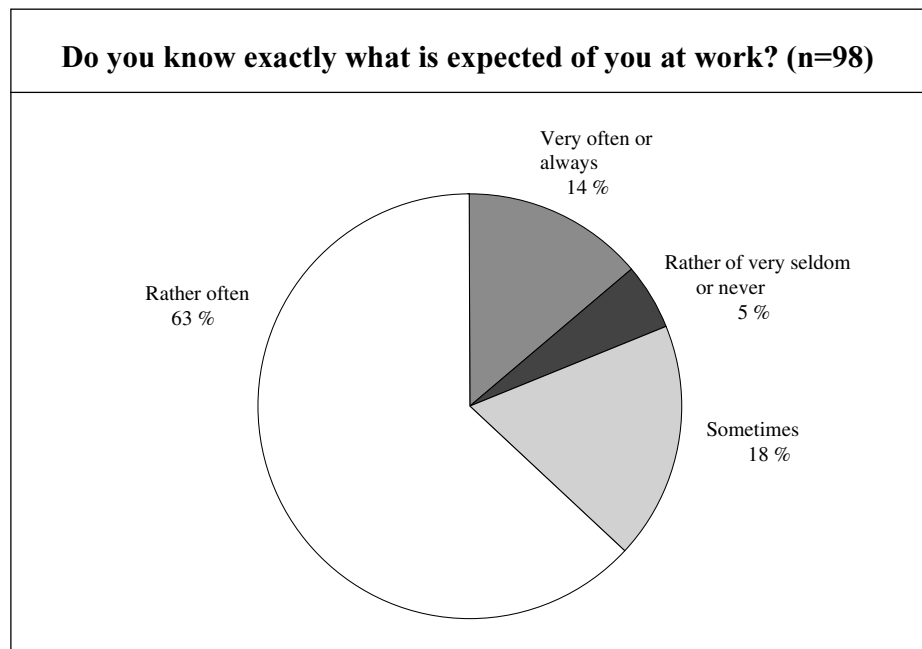


Figure 3. Examples of feedback figures

5.2. Organizing feedback meetings

A successful feedback meeting is based on:

1. a structured plan; agenda, responsibilities of the consultant, line manager and employees

2. the presence of an independent consultant competent in selecting and feeding back the relevant results and guiding / monitoring the feedback sessions.
3. the use of small groups during the feedback meeting focusing on questions/problems within their work unit
4. the documentation of action plans including responsibilities, time schedules and evaluation.

Practical matters to be decided on are the time and place of the feedback sessions, the composition of the feedback groups, the techniques to be applied to facilitate discussion, and the formulation of the practical conclusions. Such issues should be decided on before the distribution of the questionnaires. The best solution is to have the time and place of the feedback sessions on the front page of the questionnaire.

The first part of the feedback meeting is the feedback of results by an independent consultant combined with a joint discussion. The second part is a small group discussion followed by a plenary session where the small groups report the results of their discussions, priorities for future development are set, and agreements made on future actions. The feedback of results by the independent consultant should be limited to one hour. The whole session including the discussion of results requires a minimum of 3-4 hours. It may be divided into two separate sessions.

The participants profit most when they have the time and opportunity to discuss the results and priorities in small groups prior to presenting their evaluations and priorities in a plenary session. The attainment of developmental goals depends on the degree of participation by employees in the feedback session and their focus on selected issues. The results presented in the feedback meeting are meant as a starting point for discussions, not as a limitation of what may be discussed. This implies that issues not covered by the QPS^{Nordic} may also be discussed after the formal feedback of results from the questionnaire study.

Several factors are critical in the feedback process. The participants should be motivated to work with the results. They should have professional assistance in the interpretation of the results. There should be enough time for the discussion of results and the development of action plans.

Participation and cooperation are the basis for a successful development project, whereas open discussions, and the setting of common developmental goals are the basis for interpreting the results. An agreement on developmental actions must be looked for, and the planned actions should not be within the limits of the available resources. Finally, the focal unit or department should have the necessary resources to implement their action plans.

Job characteristics themselves may also promote or limit the usefulness of a survey feedback method. Employees with extremely independent work may not be motivated to discuss issues related to their work with others. On the other extreme, employees in one department may depend more on, and collaborate more with, workers in other departments. Discussions should then be organized between these departments.

The advantages and disadvantages of a development project should be assessed in the long term. Goal directness and efficiency should be maintained during the process. The critical issue is to follow-up and to evaluate the results. With the rapid changes in technology and markets, resulting in almost continuous demand for changes in organizations, a continuous survey-feedback-improvement-survey cycle based on an instrument providing detailed information may offer a competitive advantage.

6. Ethical considerations

The ethical issues associated with the QPS^{Nordic} are mainly about two issues: informing the participants and confidentiality. The respondents should be informed in advance about the aims of the questionnaire, the way it will be administered, analyzed and how the results will be presented and the confidentiality of the individual data maintained. Information should be given about how to fill in the questionnaire, and how and by whom the data will be analyzed and how the questionnaires and data will be stored. This information should be in writing and preferably also given orally. Participation must always be voluntary.

The QPS^{Nordic} is primarily intended to be used as a group and an organization level approach to interventions and research. No results or conclusions should be presented at the individual level. It is essential that the survey and the interventions will be implemented so that no labeling or discrimination of individuals is possible.

When negotiating and making decision at the workplace about the use of the QPS^{Nordic} as an employee survey, the following issues are important from the ethical point of view

- the purpose for which it will used must be clearly defined and made known
- the person in charge of the study and feedback of results should have enough knowledge about the use of questionnaires as a method of assessing psychological and social factors at work
- the personnel/respondents must be informed about the purpose of the survey and what the survey process will be like
- how data will collected, processed, fed back and filed.

It is essential that the survey and interventions be planned so that absolutely no labeling or discrimination of individuals will be occur and the anonymity of individual information will be safeguarded.

7. Summary: How to use the QPSNordic

Issues to be considered

- *Organizing extensive cooperation and commitment in planning the survey and implementing improvements.*
- *Commitment of the top management to organizing the survey.*
- *Commitment of the line managers to implementing the necessary improvements.*
- *Commitment of the employees to responding to the questionnaire, interpreting the results, and making improvement plans!*
- *Clarification of the roles of unions and safety delegates.*
- *Ensuring that all employees have an opportunity to participate in the survey and the feedback discussions.*
- *Considering what other developmental actions or changes are presently in progress in the organization and the need for coordination with the QPSNordic survey?*
- *Will the survey be repeated? If so, how often?*
- *Are ethical and individual data protection principles observed?*

To be determined

- *The purpose of the survey*
- *Knowledge and agreement of the principal stakeholders of the purpose of the survey*
- *Should the survey be carried out simultaneously in the whole organization or would it be better to do it department by department?*
- *Is the extensive or the short form of the QPSNordic to be preferred?*
- *Are supplementary scales measuring health, well-being, and job satisfaction needed?*
- *Who will be responsible for the process as a whole and for different tasks and roles?*
- *How will the data analysis be carried out?*
- *Where and when will the feedback meetings be convened?*
- *Will external consultants be needed and if so, in what phases and functions?*

Further information

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Appendices

Appendix 1. QPS_{Nordic}

Appendix 2. QPS_{Nordic 34+}

Appendix 3. Description of the scales with descriptive statistics from data collected during the development of the method

Appendix 4. Percentiles, means and standard deviations of the QPS_{Nordic} sum scales (n=2010)

Appendix 5. Means, standard deviations and percentage distributions of QPS_{Nordic} items in the total sample (n=2010)

Appendix 6. Percentage distributions of items of the QPS_{Nordic 34+} (n=2010)

QPSNordic
General Questionnaire for
Psychological and Social
Factors at Work

Responding to the Questionnaire

On the following pages you will find questions and statements about your work and the organization where you work. The purpose of this questionnaire is to collect the information needed to develop your work and the work environment.

Take your time answering. Circle the alternative that best describes your opinion.
For example:

	Very seldom <u>or never</u>	Rather <u>seldom</u>	Some- <u>times</u>	Rather <u>often</u>	Very often or <u>always</u>
1. Do you have to hurry to get your work done?	1	2	3	④	5

1. PERSONAL BACKGROUND

<p>1. Year of birth _____</p> <p>2. Sex Male 1 Female 2</p> <p>3. Formal education (approx.length in years) Choose the appropriate alternative Comprehensive school (1-9 years) 1 Secondary school/ vocational school(10-12 years) 2 College degree (13-16 years) 3 Higher university degree (more than16 years) 4</p> <p>4. Title of occupation _____</p> <p>5a. How long have you worked for this organization? _____ years</p> <p>5b. In what department / section / unit do you work? _____</p>	<p>6. How long have you worked at your current position? _____ years</p> <p>7. Is your employment contract Permanent at the present company/organization 1 Temporary 2</p> <p>8. Are you a contract worker? Yes 1 No 2</p> <p>9. Is your job a supervisory position? Yes 1 No 2</p> <p>10. How many hours do you usually work per week? _____ hours</p> <p>11. Which of the following best describes your working hour arrangements? Daytime 1 Two-shift work 2 Three-shift work 3 Regular evening shift 4 Regular night shift 5 Other schedule, 6 What _____</p>
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2. JOB DEMANDS

		Very seldom or <u>never</u>	Rather <u>seldom</u>	Some- <u>times</u>	Rather <u>often</u>	Very often or <u>always</u>
12.	Is your work load irregular so that the work pile up?	1	2	3	4	5
13.	Do you have to work overtime?	1	2	3	4	5
14.	Is it necessary to work at a rapid pace?	1	2	3	4	5
15.	Do you have too much to do?	1	2	3	4	5
16.	Does your work require physical endurance?	1	2	3	4	5
17.	Does your work require quick decisions?	1	2	3	4	5
18.	Are your work tasks too difficult for you?	1	2	3	4	5
19.	Does your work require maximum attention?	1	2	3	4	5
20.	Does your work require great precision of movement?	1	2	3	4	5

		Very seldom or <u>never</u>	Rather <u>seldom</u>	Some- <u>times</u>	Rather <u>often</u>	Very often or <u>always</u>
21.	Are there interruptions that disturb your work?	1	2	3	4	5
22.	Does your work require complex decisions?.....	1	2	3	4	5
23.	Is your work monotonous?	1	2	3	4	5
24.	Do you have to repeat the same work procedure at intervals of a few minutes?	1	2	3	4	5
25.	Do you perform work tasks for which you need more training?	1	2	3	4	5
26.	Are your skills and knowledge useful in your work?	1	2	3	4	5
27.	Is your work challenging in a positive way?	1	2	3	4	5
28.	Do you consider your work meaningful?.....	1	2	3	4	5
29.	Does your job require that you acquire new knowledge and new skills?	1	2	3	4	5

	Very seldom or <u>never</u>	Rather <u>seldom</u>	Some- <u>times</u>	Rather <u>often</u>	Very often or <u>always</u>
30. Is it possible to have social contacts with coworkers while you are working?	1	2	3	4	5
31. Have you been exposed to threats or violence at work during the last two years?	1	2	3	4	5
32. Are errors in your work associated with a risk of personal injury?	1	2	3	4	5
33. Are errors in your work associated with the risk of economic losses?	1	2	3	4	5

34. Does your job include contacts with customers or clients?
- No 1
- Yes, mostly indirect contacts (by mail, telefax, e-mail, etc.) 2
- Yes, mostly direct contacts (face to face contact or by phone)? 3
- Yes, equally both direct and indirect contacts 4

If you answered "yes" (2, 3 or 4), please answer the following questions (35 - 37), otherwise, go to question 38.

	Very seldom or <u>never</u>	Rather <u>seldom</u>	Some- <u>times</u>	Rather <u>often</u>	Very often or <u>always</u>
35. Does your work involve <u>personal</u> contacts with customers or clients?	1	2	3	4	5
36. Do you have to receive and handle complaints from customers or clients?	1	2	3	4	5
37. Are you content with your ability to maintain a good relationship with your customers or clients?	1	2	3	4	5

3. ROLE EXPECTATIONS

	Very seldom or <u>never</u>	Rather <u>seldom</u>	Some- <u>times</u>	Rather <u>often</u>	Very often or <u>always</u>
38. Have clear, planned goals and objectives been defined for your job?	1	2	3	4	5
39. Do you know what your responsibilities are?	1	2	3	4	5
40. Do you know exactly what is expected of you at work?	1	2	3	4	5

		Very seldom or <u>never</u>	Rather <u>seldom</u>	Some- <u>times</u>	Rather <u>often</u>	Very often or <u>always</u>
41.	Do you have to do things that you feel should be done differently?	1	2	3	4	5
42.	Are you given assignments without adequate resources to complete them?	1	2	3	4	5
43.	Do you receive incompatible requests from two or more people?	1	2	3	4	5
44.	Does your job involve tasks that are in conflict with your personal values?	1	2	3	4	5

4. CONTROL AT WORK

		Very seldom or <u>never</u>	Rather <u>seldom</u>	Some- <u>times</u>	Rather <u>often</u>	Very often or <u>always</u>
45.	If there are alternative methods for doing your work, can you choose which method to use?	1	2	3	4	5
46.	Can you influence the amount of work assigned to you?	1	2	3	4	5
47.	Can you set your own work pace?	1	2	3	4	5
48.	Can you decide yourself when you are going to take a break?	1	2	3	4	5
49.	Can you decide the length of your break?	1	2	3	4	5
50.	Can you set your own working hours (flexitime)?	1	2	3	4	5
51.	Can you influence decisions concerning the persons you will need to collaborate with?	1	2	3	4	5
52.	Can you decide when to be in contact with clients?	1	2	3	4	5
53.	Can you influence decisions that are important for your work?	1	2	3	4	5

5. PREDICTABILITY AT WORK

		<u>Very seldom or never</u>	<u>Rather seldom</u>	<u>Some- times</u>	<u>Rather often</u>	<u>Very often or always</u>
54.	Do you know in advance what kind of tasks to expect a month from now?	1	2	3	4	5
55.	Do you know in advance who will be your coworkers a month from now?	1	2	3	4	5
56.	Do you know in advance who will be your superior a month from now?	1	2	3	4	5
57.	Is it necessary to demonstrate your ability and competence to others in order to be assigned to attractive tasks or projects?	1	2	3	4	5
58.	Do you feel that you have someone or an organization which looks after your interests?	1	2	3	4	5
59.	Are there rumors concerning changes at your workplace?	1	2	3	4	5
		<u>Very little or not at all</u>	<u>Rather little</u>	<u>Some- what</u>	<u>Rather much</u>	<u>Very much</u>
60.	Do you know what is required in order for you to get a job that you consider attractive in 2 years?	1	2	3	4	5
61.	Do you know what has to be learned and which new skills have to be acquired in order for you to maintain a job that you consider attractive in 2 years?	1	2	3	4	5
62.	Are you confident that, in 2 years from now, you will have a job that you consider as attractive as your present job?	1	2	3	4	5
		<u>Very little or not at all</u>	<u>Rather little</u>	<u>Some- what</u>	<u>Rather much</u>	<u>Very much</u>
63.	Do you prefer the challenge presented by taking on new work tasks often?	1	2	3	4	5
64.	Do you prefer the challenge presented by working with new coworkers / colleagues?	1	2	3	4	5
65.	Do you prefer the challenge presented by working in different places?	1	2	3	4	5

6. MASTERY OF WORK

		Very seldom or <u>never</u>	Rather <u>seldom</u>	Some- <u>times</u>	Rather <u>often</u>	Very often or <u>always</u>
66.	Are you content with the quality of the work you do?	1	2	3	4	5
67.	Are you content with the amount of work that you get done?	1	2	3	4	5
68.	Are you content with your ability to solve problems at work?	1	2	3	4	5
69.	Are you content with your ability to maintain a good relationship with your coworkers at work?	1	2	3	4	5
70.	Do you get information about the quality of the work you do?	1	2	3	4	5
71.	Can you yourself immediately assess whether you did your work well?	1	2	3	4	5

7. SOCIAL INTERACTIONS

		Very seldom or <u>never</u>	Rather <u>seldom</u>	Some- <u>times</u>	Rather <u>often</u>	Very often or <u>always</u>
72.	If needed, can you get support and help with your work from your coworkers?	1	2	3	4	5
73.	If needed, can you get support and help with your work from your immediate superior?	1	2	3	4	5
74.	If needed, are your coworkers willing to listen to your work-related problems?	1	2	3	4	5
75.	If needed, is your immediate superior willing to listen to your work-related problems?	1	2	3	4	5
76.	If needed, can you talk with your friends about your work-related problems?	1	2	3	4	5

		Very seldom or <u>never</u>	Rather <u>seldom</u>	Some- <u>times</u>	Rather <u>often</u>	Very often or <u>always</u>
77.	If needed, can you talk with your spouse or any other close person about your work-related problems?	1	2	3	4	5
78.	Are your work achievements appreciated by your immediate superior?	1	2	3	4	5
79.	Have you noticed any disturbing conflicts between coworkers?	1	2	3	4	5
		Very little or <u>not at all</u>	Rather <u>little</u>	Some- <u>what</u>	Rather <u>much</u>	Very <u>much</u>
80.	Do you feel that your friends/family can be relied for support when things get tough at work?	1	2	3	4	5

Bullying (harassment, mental violence, badgering, niggling, offending somebody) is a problem at some work-places and for some workers. To label something bullying, the offensive behavior has to occur repeatedly over a period of time, and the person confronted has to experience difficulties defending himself/ herself. The behavior is not bullying if two parties of approximately equal "strength" are in conflict or the incident is an isolated event.

		No	Yes
81.	Have you noticed anyone being subjected to harassment or bullying at your workplace during the last six months?	1	2
82.	How many people have you seen being bullied or subjected to harassment during the last six months?	Men _____	Women _____
		No	Yes
83.	Have you been subjected to bullying or harassment at the workplace during the last six months?	1	2

8. LEADERSHIP

		<u>Very seldom or never</u>	<u>Rather seldom</u>	<u>some- times</u>	<u>Rather often</u>	<u>Very often or always</u>
84.	Does your immediate superior encourage you to participate in important decisions?	1	2	3	4	5
85.	Does your immediate superior encourage you to speak up, when you have different opinions?	1	2	3	4	5
86.	Does your immediate superior help you develop your skills?	1	2	3	4	5
87.	Does your immediate superior tackle problems as soon as they surface?	1	2	3	4	5
		<u>Very little or not at all</u>	<u>Rather little</u>	<u>Some- what</u>	<u>Rather much</u>	<u>Very much</u>
88.	Do you trust the ability of the management to look after the future of the company/ organization?	1	2	3	4	5
		<u>Very seldom or never</u>	<u>Rather seldom</u>	<u>Some- times</u>	<u>Rather often</u>	<u>Very often or always</u>
89.	Does your immediate superior distribute the work fairly and impartially?	1	2	3	4	5
90.	Does your immediate superior treat the workers fairly and equally?	1	2	3	4	5
91.	Is the relationship between you and your immediate superior a source of stress to you?	1	2	3	4	5

9. ORGANIZATIONAL CULTURE

		<u>Very little or not at all</u>	<u>Rather little</u>	<u>Some- what</u>	<u>Rather much</u>	<u>Very much</u>
92.	<i>What is the climate like in your work unit?</i> Competitive	1	2	3	4	5
93.	Encouraging and supportive	1	2	3	4	5
94.	Distrustful and suspicious	1	2	3	4	5
95.	Relaxed and comfortable	1	2	3	4	5
96.	Rigid and rule-based	1	2	3	4	5

		Very seldom or <u>never</u>	Rather <u>seldom</u>	Some- <u>times</u>	Rather <u>often</u>	Very often or <u>always</u>
97.	Do workers take initiatives at your workplace?	1	2	3	4	5
98.	Are workers encouraged to think of ways to do things better at your workplace?	1	2	3	4	5
99.	Is there sufficient communication in your department?	1	2	3	4	5
		Very little or <u>not at all</u>	Rather <u>little</u>	Some- <u>what</u>	Rather <u>much</u>	Very <u>much</u>
100.	Have you noticed any inequalities in how men and women are treated at your workplace?	1	2	3	4	5
101.	Have you noticed any inequalities in how older and younger employees are treated at your workplace?	1	2	3	4	5
102.	At your organization, are you rewarded (money, encouragement) for a job well-done?	1	2	3	4	5
103.	Are workers well taken care of in your organization?	1	2	3	4	5
104.	To what extent is the management of your organization interested in the health and well-being of the personnel?	1	2	3	4	5

10. INTERACTION BETWEEN WORK AND PRIVATE LIFE

		Very seldom or <u>never</u>	Rather <u>seldom</u>	Some- <u>times</u>	Rather <u>often</u>	Very often or <u>always</u>
105.	Do the demands of your work interfere with your home and family life?	1	2	3	4	5
106.	Do the demands of your family or spouse / partner interfere with your work-related activities?	1	2	3	4	5

11. WORK CENTRALITY

107.	Assing a total of 100 points to indicate how important the following areas are in your life at the present time.	
a.	Leisure (such as hobbies, sports, recreation, and contact with friends).....	_____
b.	Community (such as voluntary organizations, trade unions, and political organizations).....	_____
c.	Work.....	_____
d.	Religious activities and beliefs.....	_____
e.	Family.....	_____
100 total		

108a.	Most of my personal life goals are work-oriented.							
Disagree totally	1	2	3	4	5	6	7	Agree totally
108b.	How important and significant is working in your life as a whole?							
One of the least important things in my life	1	2	3	4	5	6	7	One of the most important things in my life

12. COMMITMENT TO THE ORGANIZATION

The following statements deal with organizational commitment. Please indicate the extent to which you personally agree or disagree with each of these statements.

		Disagree totally	Disagree to some extent	Indif-ferent	Agree to some extent	Agree totally
109.	To my friends I praise this organization a great place to work.....	1	2	3	4	5
110.	My values are very similar to the organization's values.....	1	2	3	4	5
111.	This organization really inspires me to give my very best job performance.....	1	2	3	4	5

13. GROUP WORK

	<u>No</u>	<u>Yes</u>
112. Do you belong to a permanent working group or team?	1	2
If you answered "yes", please answer the following questions (113 - 116); otherwise, go to question 117.		

	<u>Very little or not at all</u>	<u>Rather little</u>	<u>Some- what</u>	<u>Rather much</u>	<u>Very much</u>
113. Do you appreciate belonging to this group or team?	1	2	3	4	5
	<u>Very seldom or never</u>	<u>Rather seldom</u>	<u>Some- times</u>	<u>Rather often</u>	<u>Very often</u>
114. Is your group or team work flexible? ..	1	2	3	4	5
115. Is your group or team successful at problem solving?	1	2	3	4	5
116. How often does your group or team have group or team meetings?	1	2	3	4	5

14. WORK MOTIVES

<i>How important are the following considerations in relation to your ideal job</i>	<u>Un- impor- tant</u>	<u>Not so impor- tant</u>	<u>Rather impor- tant</u>	<u>Very impor- tant</u>	<u>Absol- utely neces- sary</u>
117. To develop my own personality	1	2	3	4	5
118. To have good pay and material benefits	1	2	3	4	5
119. To have a peaceful and orderly job ..	1	2	3	4	5
120. To get a sense of accomplishing something worthwhile	1	2	3	4	5
121. That the work is secure and provides regular income	1	2	3	4	5
122. To have a safe and healthy physical work environment	1	2	3	4	5
123. To be able to put my imagination and creativity to good use at work	1	2	3	4	5

THANK YOU!

QPSNordic 34+

Responding to the Questionnaire

On the following pages you will find questions and statements about your work and the organization where you work. The purpose of this questionnaire form is to collect the information needed to develop your work and the work environment.

Take your time answering. Answers to most of the questions are given by circling the alternative that best describes your opinion.

For example:

	Very seldom <u>or never</u>	Rather seldom	Some- times	Rather <u>often</u>	Very often or <u>always</u>
1. Do you have to hurry to get your work done?	1	2	3	④	5

PERSONAL BACKGROUND

<p>A1. Year of birth _____</p> <p>A2. Sex Male 1 Female 2</p> <p>A3. Title of occupation _____</p> <p>A4. In what department / section / unit do you work? _____</p>	<p>A5. Is your employment contract Permanent at the present organization 1 Temporary 2</p> <p>A6. Are you a contract worker? Yes 1 No 2</p> <p>A7. Is your job a supervisory position? Yes 1 No 2</p>
--	---

	# ori- ginal item		Very seldom or never	Rather seldom	Some- times	Rather often	Very often or always
1.	12.	Is your work load irregular so that the work piles up?	1	2	3	4	5
2.	15.	Do you have too much to do?	1	2	3	4	5
3.	18.	Are your work tasks too difficult for you?	1	2	3	4	5
4.	25.	Do you perform work tasks for which you need more training?	1	2	3	4	5
5.	26.	Are your skills and knowledge useful in your work?	1	2	3	4	5
6.	27.	Is your work challenging in a positive way?	1	2	3	4	5
7.	38.	Have clear, planned goals and objectives been defined for your job?	1	2	3	4	5
8.	40.	Do you know exactly what is expected of you at work?	1	2	3	4	5
9.	43.	Do you receive incompatible requests from two or more people?	1	2	3	4	5
10.	46.	Can you influence the amount of work assigned to you?	1	2	3	4	5
11.	47.	Can you set your own work pace?	1	2	3	4	5
12.	48.	Can you decide yourself when you are going to take a break?	1	2	3	4	5
13.	53.	Can you influence decisions that are important for your work?	1	2	3	4	5
14.	54.	Do you know in advance what kind of tasks to expect a month from now?	1	2	3	4	5
15.	59.	Are there rumors concerning changes at your workplace?	1	2	3	4	5
16.	68.	Are you content with your ability to solve problems at work?	1	2	3	4	5
17.	72.	If needed, can you get support and help with your work from your coworkers?	1	2	3	4	5
18.	73.	If needed, can you get support and help with your work from your immediate superior?	1	2	3	4	5
19.	78.	Are your work achievements appreciated by your immediate superior?	1	2	3	4	5
20.	84.	Does your immediate superior encourage you to participate in important decisions?	1	2	3	4	5
21.	86.	Does your immediate superior help you develop your skills?	1	2	3	4	5

#	ori- ginal item	Very little or <u>not at all</u>	Rather <u>little</u>	Some- <u>what</u>	Rather <u>much</u>	Very <u>much</u>
22.	80. Do you feel that your friends / family can be relied for support when things get tough at work?	1	2	3	4	5
	<i>What is the climate like in your work unit?</i>	Very little or <u>not at all</u>	Rather <u>little</u>	Some- <u>what</u>	Rather <u>much</u>	Very <u>much</u>
23.	93. Encouraging and supportive	1	2	3	4	5
24.	95. Relaxed and comfortable	1	2	3	4	5
25.	96. Rigid and rule-based	1	2	3	4	5
26	113. Do you appreciate belonging to your work group or team?	1	2	3	4	5
		Very seldom <u>or never</u>	Rather <u>seldom</u>	Some- <u>times</u>	Rather <u>often</u>	Very often <u>or always</u>
27	115. Is your group or team successful at problem solving?	1	2	3	4	5
28.	98.. Are workers encouraged to think of ways to do things better at your workplace?	1	2	3	4	5
29.	99. Is there sufficient communication in your department?	1	2	3	4	5
30.	79.. Have you noticed any disturbing conflicts between coworkers?	1	2	3	4	5
		Very little or <u>not at all</u>	Rather <u>little</u>	Some- <u>what</u>	Rather <u>much</u>	Very <u>much</u>
31.	100. Have you noticed any inequalities in how men and women are treated at your workplace?	1	2	3	4	5
32.	101. Have you noticed any inequalities in how older and younger employees are treated at your workplace?	1	2	3	4	5
33.	102.. At your organization, are you rewarded (money, encouragement) for a job well done?	1	2	3	4	5
34.	104. To what extent is the management of your organization interested in the health and well-being of the personnel?	1	2	3	4	5
		Disagree <u>totally</u>	Disagree to some <u>extent</u>	Indif- <u>ferent</u>	Agree to some <u>extent</u>	Agree <u>totally</u>
35.	I like to be absorbed in my job most of the time.	1	2	3	4	5
36.	The major satisfaction in my life comes from my job.	1	2	3	4	5
	<i>Stress means the situation when a person feels tense, restless, nervous, or anxious, or is unable to sleep at night because his or her mind is troubled all the time.</i>	Not <u>at all</u>	Only a <u>little</u>	To some <u>extent</u>	Rather <u>much</u>	Very <u>much</u>
37.	Do you feel that kind of stress these days?	1	2	3	4	5

Appendix 3. Description of the scales with descriptive statistics from data collected during the development of the method

The statistics are based on all subsamples used in the developmental phase of QPSNordic (n=2010). The lowest and highest sample means and standard deviation refer to the subsamples of the total sample, which included a total of 21 subsamples.

Table 16, Bullying and harassment, and table 23. Interaction between work and private life, are included, although they do not constitute a scale.

Table 1. Quantitative job demands

Item #		Mean	Sd	Lowest sample mean	Highest sample mean
12.	Is your work load irregular so that the work piles up?	3.24	1.00	2.46	3.80
13.	Do you have to work overtime?	2.72	1.17	1.73	3.33
14.	Is it necessary to work at a rapid pace?	3.73	0.92	3.17	4.34
15.	Do you have too much to do?	3.34	1.02	2.77	3.64
Composite scale score		3.26	0.77	2.70	3.70

Table 2. Decision demands

Item #		Mean	Sd	Lowest sample mean	Highest sample mean
17.	Does your work require quick decisions?	3.57	1.02	2.69	4.09
19.	Does your work require maximum attention?	4.20	0.86	3.59	4.68
22.	Does your work require complex decisions?.....	2.87	1.05	2.27	3.38
Composite scale score		3.55	0.77	3.03	3.87

Table 3. Learning demands

Item #		Mean	Sd	Lowest sample mean	Highest sample mean
18.	Are your work tasks too difficult for you?	1.85	0.77	1.55	2.35
25.	Do you perform work tasks for which you need more training?	2.44	0.96	1.95	2.95
29.	Does your job require that you acquire new knowledge and new skills?	3.61	1.06	2.52	4.52
Composite scale score		2.63	0.71	2.02	3.19

Table 4. Role clarity

Item #		Mean	Sd	Lowest sample mean	Highest sample mean
38	Have clear, planned goals and objectives been defined for your job?	4.04	1.04	2.89	4.35
39	Do you know what your responsibilities are?	4.39	0.83	3.32	4.77
40	Do you know exactly what is expected of you at work?	4.21	0.89	3.29	4.67
Composite scale score		4.21	0.79	3.18	4.55

Table 5. Role conflict

Item #		Mean	Sd	Lowest sample mean	Highest sample mean
41.	Do you have to do things that you feel should be done differently?	2.75	0.92	2.39	3.06
42.	Are you given assignments without adequate resources to complete them?	2.71	1.13	1.92	3.39
43.	Do you receive incompatible requests from two or more people?	2.24	1.04	1.82	2.75
Composite scale score		2.38	0.77	1.88	2.68

Table 6. Positive challenge at work

Item #		Mean	Sd	Lowest sample mean	Highest sample mean
26.	Are your skills and knowledge useful in your work? ..	4.10	1.02	2.97	4.65
27.	Is your work challenging in a positive way?	3.65	1.02	2.61	4.63
28.	Do you consider your work meaningful?.....	4.07	0.93	3.37	4.80
Composite scale score		3.94	0.83	3.11	4.64

Table 7. Control of decisions

Item #		Mean	Sd	Lowest sample mean	Highest sample mean
45.	If there are alternative methods for doing your work, can you choose which method to use?	3.72	1.09	2.49	4.19
46.	Can you influence the amount of work assigned to you?	2.45	1.13	1.53	3.20
51.	Can you influence decisions concerning the persons you will need to collaborate with?	2.14	1.16	1.20	3.11
52.	Can you decide when to be in contact with clients?	2.55	1.48	1.22	4.20
53.	Can you influence decisions that are important for your work?	2.95	1.07	1.88	3.60
Composite scale score		2.76	0.82	1.66	3.46

Table 8. Control of work pacing

Item #		Mean	Sd	Lowest sample mean	Highest sample mean
47.	Can you set your own work pace?	3.01	1.24	1.77	4.00
48.	Can you decide yourself when you are going to take a break?	2.98	1.46	1.26	4.53
49.	Can you decide the length of your break?	2.59	1.45	1.19	4.28
50.	Can you set your own working hours (flexitime)?	2.67	1.59	1.08	4.66
Composite scale score		2.81	1.18	1.44	4.24

Table 9. Predictability during the next month

Item #		Mean	Sd	Lowest sample mean	Highest sample mean
54.	Do you know in advance what kind of tasks to expect a month from now?	3.57	1.31	2.55	4.15
55.	Do you know in advance who will be your coworkers a month from now?	4.02	1.26	2.11	4.67
56.	Do you know in advance who will be your superior a month from now?	4.46	1.04	3.61	4.90
Composite scale score		4.01	0.95	3.08	4.55

Table 10. Predictability of next two years

Item #		Mean	Sd	Lowest sample mean	Highest sample mean
60.	Do you know what is required in order for you to get a job that you consider attractive in 2 years?	2.70	1.20	1.93	3.44
61.	Do you know what has to be learned and which new skills have to be acquired in order for you to maintain a job that you consider attractive in 2 years?	2.91	1.17	2.24	3.47
Composite scale score		2.80	1.12	2.09	3.44

Table 11. Preference for challenge

Item #		Mean	Sd	Lowest sample mean	Highest sample mean
64.	Do you prefer the challenge presented by working with new coworkers / colleagues?	3.41	0.95	2.95	4.29
65.	Do you prefer the challenge presented by working in different places?	2.98	1.21	2.23	3.94
Composite scale score		3.36	0.86	2.78	4.18

Table 12. Perception of mastery

Item #		Mean	Sd	Lowest sample mean	Highest sample mean
66.	Are you content with the quality of the work you do?	3.96	0.68	3.68	4.23
67.	Are you content with the amount of work that you get done?	3.78	0.86	3.41	4.10
68.	Are you content with your ability to solve problems at work?	3.88	0.74	3.38	4.15
69.	Are you content with your ability to maintain a good relationship with your coworkers at work?.....	4.14	0.71	3.85	4.44
Composite scale score		3.94	0.54	3.73	4.14

Table 13. Support from superior

Item #		Mean	Sd	Lowest sample mean	Highest sample mean
73.	If needed, can you get support and help with your work from your immediate superior?.....	3.47	1.17	3.19	4.00
75.	If needed, is your immediate superior willing to listen to your work-related problems?	3.79	1.09	3.31	4.80
78.	Are your work achievements appreciated by your immediate superior?	3.21	1.17	2.13	4.00
Composite scale score		3.49	1.00	2.96	4.21

Table 14. Support from coworkers

Item #		Mean	Sd	Lowest sample mean	Highest sample mean
72.	If needed, can you get support and help with your work from your coworkers?	3.80	1.02	3.10	4.38
74.	If needed, are your coworkers willing to listen to your work-related problems?	3.96	0.94	3.38	4.50
Composite scale score		3.88	0.89	3.24	4.36

Table 15. Support from friends and relatives

Item #		Mean	Sd	Lowest sample mean	Highest sample mean
76.	If needed, can you talk with your friends about your work-related problems?	3.63	1.17	2.55	4.06
77.	If needed, can you talk with your spouse or any other close person about your work-related problems?	4.07	1.15	2.27	4.35
80.	Do you feel that your friends / family can be relied on for support when things get tough at work?	2.62	1.00	3.42	4.46
Composite scale score		3.91	0.92	2.85	4.25

Table 16. Bullying and harassment

Item #			
81.	Have you noticed anyone being subjected to harassment or bullying at your workplace during the last six months?	<u>Yes</u>	
	Men	13.8%	
	<u>Women</u>	<u>12.8%</u>	
	All	13.2%	
82.	How many people have you seen being subjected to bullying or harassment during the last six months?	Men being bullied	Women being bullied
	0	91.7%	87.1%
	1	5.0%	6.5%
	2 or more	3.3%	6.4%
83.	Have you been subjected to bullying or harassment at the workplace during the last six months?	<u>Yes</u>	
	Men	4.1%	
	<u>Women</u>	<u>3.9%</u>	
	All	4.0%	

Table 17. Empowering leadership

Item #		Mean	Sd	Lowest sample mean	Highest sample mean
84.	Does your immediate superior encourage you to participate in important decisions?	2.74	1.18	1.63	3.30
85.	Does your immediate superior encourage you to speak up, when you have different opinions?.....	2.78	1.19	1.74	3.50
86.	Does your immediate superior help you develop your skills?	2.66	1.13	1.81	3.14
Composite scale score		2.73	1.03	1.75	3.20

Table 18. Fair leadership

Item #		Mean	Sd	Lowest sample mean	Highest sample mean
89.	Does your immediate superior distribute the work fairly and impartially?	3.61	1.03	3.22	4.30
90.	Does your immediate superior treat the workers fairly and equally?	3.79	1.01	3.31	4.40
91.	Is the relationship between you and your immediate superior a source of stress to you?.....	1.80	0.95	1.20	2.42
Composite scale score		3.87	0.82	3.39	4.50

Table 19. Social climate

Item #		Mean	Sd	Lowest sample mean	Highest sample mean
93.	Encouraging and supportive	3.33	1.00	2.63	3.82
94.	Distrustful and suspicious ¹⁾	1.89	1.00	1.30	2.53
95.	Relaxed and comfortable	3.50	1.01	2.78	3.76
Composite scale score		3.65	0.82	2.96	4.09

¹⁾ Item 94 is reverted when calculating the composite scale score (scale score value = 6 minus entry value).

Table 20. Innovative climate

Item #		Mean	Sd	Lowest sample mean	Highest sample mean
97.	Do workers take initiatives at your workplace?	3.36	0.93	2.48	3.90
98.	Are workers encouraged to think of ways to do things better at your workplace?	3.37	0.97	2.72	4.00
99.	Is there sufficient communication in your department?	3.32	1.05	2.54	3.95
Composite scale score		3.35	0.79	2.65	3.92

Table 21. Inequality

Item #		Mean	Sd	Lowest sample mean	Highest sample mean
100.	Have you noticed any inequalities in how men and women are treated at your workplace?	1.89	1.06	1.29	2.94
101.	Have you noticed any inequalities in how older and younger employees are treated at your workplace? ..	1.91	0.98	1.45	2.80
Composite scale score		1.90	0.90	1.41	2.58

Table 22. Human resource primacy

Item #		Mean	Sd	Lowest sample mean	Highest sample mean
102.	At your organization are you rewarded (money, encouragement) for a job well done?	2.26	1.14	1.60	3.40
103.	Are workers well taken care of in your organization?	3.18	1.00	2.78	4.00
104.	To what extent is the management of your organization interested in the health and well-being of the personnel?	3.07	1.11	2.61	4.20
Composite scale score		2.84	0.88	2.39	3.83

Table 23. Interaction between work and private life

Item #		Mean	Sd	Lowest sample mean	Highest sample mean
105.	Do the demands of your work interfere with your home and family life?	2.59	1.12	1.74	3.14
106.	Do the demands of your family or spouse / partner interfere with your work-related activities?	1.75	0.86	1.43	2.10

Table 24. Work centrality¹⁾

Item #		Mean	Sd	Lowest sample mean	Highest sample mean
107c	Work.....	3.37	1.31	2.99	4.13
108a	Most of my personal life goals are work-oriented.	3.51	1.05	3.15	3.91
108b	How important and significant is work in your life as a whole?	4.76	1.05	4.46	5.10
Composite scale score		3.90	0.95	3.55	4.23

¹⁾ Items 107c, 108a and 108b have to be transformed prior to summation.

Table 25. Commitment to the organization

Item #		Mean	Sd	Lowest sample mean	Highest sample mean
109.	To my friends I praise this organization a great place to work.....	3.52	1.11	3.09	4.40
110.	My values are very similar to the organization's values.....	3.17	0.95	2.85	3.85
111.	This organization really inspires me to give my very best job performance.....	3.13	1.09	2.68	4.01
Composite scale score		3.28	0.92	2.87	4.03

Table 26. Perception of group work

Item #		Mean	Sd	Lowest sample mean	Highest sample mean
113.	Do you appreciate belonging to this group or team? ...	4.14	0.80	3.53	4.67
114.	Is your group or team work flexible?	3.80	0.82	3.00	4.17
115	Is your group or team successful at problem solving?	3.79	0.83	3.00	4.26
Composite scale score		3.83	0.71	3.60	4.12

Table 27. Intrinsic motivation to work

Item #		Mean	Sd	Lowest sample mean	Highest sample mean
117.	To develop my own personality	3.78	0.82	3.38	4.20
120.	To get a sense of accomplishing something worthwhile.....	4.05	0.75	3.60	4.41
123.	To be able to put my imagination and creativity to good use at work	3.88	0.85	3.40	4.30
Composite scale score		3.90	0.64	3.62	4.17

Table 28. Extrinsic motivation to work

Item #		Mean	Sd	Lowest sample mean	Highest sample mean
119.	To have a peaceful and orderly job	3.58	0.96	2.89	4.27
121.	That the work is secure and provides regular income...	4.04	0.84	3.64	4.45
122.	To have a safe and healthy physical work environment	3.98	0.83	3.56	4.36
Composite scale score		3.87	0.70	3.40	4.27

Appendix 4. Percentiles, means and standard deviations for the QPS_{Nordic} sum scales (n=2010)

Scale name		Scale Mean	Scale Sd	Scale score at the percentile rank			
				20%	40%	60%	80%
Quantitative demands	Total	3.3	0.8	2.7	3.0	3.5	4.0
	Lower education	3.1	0.7	2.5	3.0	3.3	3.8
	Higher education	3.4	0.8	2.8	3.3	3.8	4.0
Decision demands	Total	3.5	0.8	3.0	3.3	3.7	4.3
	Lower education	3.3	0.8	2.7	3.3	3.7	4.0
	Higher education	3.7	0.7	3.3	3.7	4.0	4.3
Learning demands	Total	2.6	0.7	2.0	2.3	3.0	3.3
	Lower education	2.4	0.7	1.7	2.3	2.7	3.0
	Higher education	2.8	0.6	2.3	2.7	3.0	3.3
Role clarity	Total	4.2	0.8	3.7	4.0	4.7	5.0
	Lower education	4.3	0.8	3.7	4.3	4.7	5.0
	Higher education	4.2	0.8	3.7	4.0	4.3	5.0
Role conflict	Total	2.4	0.8	1.8	2.3	2.5	3.0
	Lower education	2.3	0.7	1.5	2.0	2.3	2.8
	Higher education	2.5	0.8	1.8	2.3	2.8	3.0
Positive challenge at work	Total	3.9	0.8	3.3	4.0	4.3	4.7
	Lower education	3.7	0.9	3.0	3.7	4.0	4.3
	Higher education	4.1	0.7	3.7	4.0	4.3	4.7
Control of decision	Total	2.8	0.8	2.0	2.6	3.0	3.4
	Lower education	2.5	0.8	1.8	2.2	2.8	3.2
	Higher education	3.0	0.7	2.4	2.8	3.2	3.6
Control of work pacing	Total	2.8	1.2	1.8	2.3	3.3	4.0
	Lower education	2.7	1.2	1.5	2.3	3.0	4.0
	Higher education	2.9	1.2	1.8	2.5	3.3	4.0
Predictability during the next month	Total	4.0	1.0	3.3	4.0	4.3	4.7
	Lower education	3.8	1.1	3.0	3.7	4.3	4.7
	Higher education	4.2	0.7	3.7	4.3	4.7	5.0
Predictability of next two years	Total	2.8	1.1	2.0	2.5	3.0	4.0
	Lower education	2.6	1.1	1.0	2.0	3.0	3.5
	Higher education	3.0	1.0	2.0	3.0	3.5	4.0
Preference for challenge	Total	3.4	0.9	2.7	3.0	3.7	4.0
	Lower education	3.3	0.9	2.7	3.0	3.3	4.0
	Higher education	3.5	0.8	2.7	3.3	3.7	4.0
Perception of mastery	Total	3.9	0.5	3.5	3.8	4.0	4.3
	Lower education	4.0	0.6	3.5	4.0	4.0	4.5
	Higher education	3.9	0.5	3.5	3.8	4.0	4.3

Scale name		Scale	Scale	Scale score at the percentile rank			
		Mean	Sd	20%	40 %	60 %	80 %
Support from superior	Total	3.5	1.0	2.7	3.3	4.0	4.3
	Lower education	3.6	1.0	2.7	3.3	4.0	4.5
	Higher education	3.4	1.0	2.7	3.1	3.7	4.3
Support from coworkers	Total	3.9	0.9	3.0	4.0	4.0	5.0
	Lower education	3.8	0.9	3.0	4.0	4.0	5.0
	Higher education	3.9	0.9	3.0	4.0	4.0	5.0
Support from friends and relatives	Total	3.9	0.9	3.3	4.0	4.3	4.7
	Lower education	3.8	0.9	3.0	3.7	4.3	4.7
	Higher education	4.0	0.9	3.3	4.0	4.3	4.7
Empowering leadership	Total	2.7	1.0	1.7	2.3	3.0	3.7
	Lower education	2.6	1.0	1.7	2.3	3.0	3.7
	Higher education	2.8	1.0	2.0	2.7	3.0	3.7
Fair leadership	Total	3.9	0.8	3.3	3.7	4.3	4.7
	Lower education	3.9	0.8	3.3	4.0	4.3	4.7
	Higher education	3.8	0.8	3.0	3.7	4.0	4.3
Social climate	Total	3.6	0.8	3.0	3.7	4.0	4.3
	Lower education	3.6	0.8	3.0	3.3	3.7	4.3
	Higher education	3.7	0.8	3.0	3.7	4.0	4.3
Innovative climate	Total	3.3	0.8	2.7	3.3	3.7	4.0
	Lower education	3.2	0.8	2.7	3.0	3.3	4.0
	Higher education	3.5	0.7	3.0	3.3	3.7	4.0
Inequality	Total	1.9	0.9	1.0	1.5	2.0	2.5
	Lower education	1.9	0.9	1.0	1.5	2.0	2.5
	Higher education	1.9	0.9	1.0	1.5	2.0	2.5
Human resource primacy	Total	2.8	0.9	2.0	2.7	3.0	3.7
	Lower education	2.8	0.8	2.0	2.7	3.0	3.7
	Higher education	2.8	0.9	2.0	2.7	3.0	3.7
Work centrality	Total	3.9	0.9	3.0	3.7	4.3	4.7
	Lower education	3.7	0.9	3.0	3.7	4.0	4.7
	Higher education	4.1	0.9	3.3	4.0	4.3	5.0
Commitment to the organisation	Total	3.3	0.9	2.3	3.0	3.7	4.0
	Lower education	3.3	0.9	2.7	3.0	3.7	4.0
	Higher education	3.2	0.9	2.3	3.0	3.7	4.0
Perception of group work	Total	3.8	0.7	3.0	3.7	4.0	4.3
	Lower education	3.8	0.8	3.0	3.7	4.0	4.3
	Higher education	3.8	0.7	3.3	3.7	4.0	4.3
Intrinsic motivation to work	Total	3.9	0.6	3.3	3.7	4.0	4.3
	Lower education	3.8	0.7	3.3	3.7	4.0	4.3
	Higher education	4.0	0.6	3.7	4.0	4.0	4.7
Extrinsic motivation to work	Total	3.9	0.7	3.3	3.7	4.0	4.7
	Lower education	4.1	0.6	3.7	4.0	4.3	4.7
	Higher education	3.7	0.7	3.0	3.7	4.0	4.3

Appendix 5. Means, standard deviations, and percentage distributions of QPSNordic items in the total sample (n=2010)

QPSNordic			Percentage distribution of items					Reduced scale percentage distribution of items		
#	Mean	Sd	1 %	2 %	3 %	4 %	5 %	1&2 %	3 %	4&5 %
Q12	3.2	1.0	6	13	39	32	9	19	39	41
Q13	2.7	1.2	20	20	37	18	7	40	37	25
Q14	3.7	0.9	2	6	31	40	22	8	31	62
Q15	3.3	1.0	4	13	43	26	15	17	43	41
Q16	2.7	1.3	25	22	25	19	10	48	25	29
Q17	3.6	1.0	4	10	32	36	19	13	32	55
Q18	1.9	0.8	37	45	18	1	0	82	18	2
Q19	4.2	0.9	1	3	14	40	44	4	14	83
Q20	3.0	1.5	26	16	15	20	23	42	15	43
Q21	3.7	1.0	3	9	29	36	24	13	29	60
Q22	2.9	1.1	11	25	39	21	6	35	39	27
Q23	2.3	1.1	30	30	25	11	5	61	25	16
Q24	2.6	1.4	32	18	19	18	14	50	19	32
Q25	2.4	1.0	21	29	41	10	1	49	41	11
Q26	4.1	1.0	4	4	12	39	42	8	12	81
Q27	3.7	1.0	5	8	26	44	20	12	26	64
Q28	4.1	0.9	2	4	15	44	37	6	15	81
Q29	3.6	1.1	5	7	31	37	22	13	31	58
Q30	3.5	1.2	10	12	25	30	25	22	25	55
Q31	1.3	0.8	84	8	6	2	1	92	6	3
Q32	2.0	1.3	56	17	14	7	8	73	14	15
Q33	2.3	1.3	40	21	21	10	9	61	21	18
Q35	4.4	1.1	5	5	8	12	70	10	8	82
Q36	2.8	1.3	21	15	33	15	12	36	33	26
Q37	3.9	1.0	5	2	12	49	26	7	12	75
Q38	4.0	1.0	3	7	13	38	40	10	13	78
Q39	4.4	0.8	1	2	7	34	56	4	7	90
Q40	4.2	0.9	1	4	10	42	44	6	10	85
Q41	2.7	0.9	10	25	50	14	3	35	50	17
Q42	2.7	1.1	15	30	31	18	7	45	31	25
Q43	2.2	1.0	29	33	28	9	3	62	28	12
Q44	1.8	0.9	48	30	17	4	1	78	17	5
Q45	3.7	1.1	6	7	21	43	24	13	21	68
Q46	2.5	1.1	25	29	27	16	4	54	27	20
Q47	3.0	1.2	15	22	25	29	12	36	25	41
Q48	3.0	1.5	25	15	18	24	20	40	18	44
Q49	2.6	1.5	35	18	18	17	14	53	18	31
Q50	2.7	1.6	39	12	14	15	21	51	14	36
Q51	2.1	1.2	41	25	21	12	3	65	21	15
Q52	2.5	1.5	38	14	15	18	13	51	15	31
Q53	3.0	1.1	11	19	40	24	7	31	40	31
Q54	3.6	1.3	13	10	13	39	27	23	13	66
Q55	4.0	1.3	10	5	7	33	48	15	7	80
Q56	4.5	1.0	5	2	3	21	70	8	3	91
Q57	2.6	1.2	23	23	30	17	8	46	30	25
Q58	2.7	1.2	20	28	27	18	9	48	27	26
Q59	3.1	1.1	11	19	38	21	13	30	38	33
Q60	2.7	1.2	21	23	27	22	6	44	27	28
Q61	2.9	1.2	15	20	29	28	7	35	29	35
Q62	3.4	1.2	12	11	22	37	17	23	22	54
Q63	3.7	0.9	2	7	31	41	21	9	31	61
Q64	3.4	1.0	3	12	38	36	12	15	38	48
Q65	3.0	1.2	14	21	31	23	12	35	31	35
Q66	4.0	0.7	1	2	16	66	17	3	16	83
Q67	3.8	0.9	2	6	23	53	18	8	23	71
Q68	3.9	0.7	1	3	21	59	17	4	21	77
Q69	4.1	0.7	0	2	13	56	31	2	13	87

QPSNordic			Percentage distribution of items					Reduced scale percentage distribution of items		
#	Mean	Sd	1	2	3	4	5	1&2	3	4&5
			%	%	%	%	%	%	%	%
Q70	2.8	1.1	13	25	37	20	6	39	37	26
Q71	3.8	0.8	1	4	25	53	18	6	25	71
Q72	3.8	1.0	3	7	24	39	28	11	24	67
Q73	3.5	1.2	7	14	27	32	22	21	27	54
Q74	4.0	0.9	2	5	21	41	32	7	21	74
Q75	3.8	1.1	4	9	23	34	31	13	23	65
Q76	3.6	1.2	6	12	22	34	27	18	22	61
Q77	4.1	1.1	5	7	15	25	50	11	15	75
Q78	3.2	1.2	10	16	32	28	14	26	32	42
Q79	2.6	1.0	15	30	41	12	4	45	41	16
Q80	4.0	1.1	3	5	17	33	42	9	17	75
Q81	1.1	0.3	87	13	-	-	-	-	-	-
Q83	1.0	0.2	96	4	-	-	-	-	-	-
Q84	2.7	1.2	19	23	31	21	7	42	31	28
Q85	2.8	1.2	18	23	31	21	8	41	31	29
Q86	2.7	1.1	18	28	32	18	6	46	32	23
Q87	3.2	1.1	9	18	31	30	12	27	31	42
Q88	3.4	1.0	5	14	30	38	13	19	30	52
Q89	3.6	1.0	4	9	25	44	18	14	25	62
Q90	3.8	1.0	3	8	20	44	25	11	20	69
Q91	1.8	0.9	49	31	16	4	2	80	16	6
Q92	2.4	1.1	25	32	26	11	6	57	26	17
Q93	3.3	1.0	5	15	33	37	10	20	33	47
Q94	1.9	1.0	44	32	16	6	2	76	16	8
Q95	3.5	1.0	4	11	30	39	15	15	30	54
Q96	2.3	1.1	29	34	22	11	4	63	22	15
Q97	3.4	0.9	4	11	40	38	9	15	40	47
Q98	3.4	1.0	4	13	37	37	11	17	37	48
Q99	3.3	1.1	6	16	32	36	12	21	32	48
Q100	1.9	1.1	48	28	15	7	3	76	15	9
Q101	1.9	1.0	42	35	16	6	2	77	16	7
Q102	2.3	1.1	34	26	26	12	3	60	26	15
Q103	3.2	1.0	5	19	36	32	8	25	36	40
Q104	3.1	1.1	10	19	34	29	9	29	34	38
Q105	2.6	1.1	21	26	34	16	5	47	34	21
Q106	1.8	0.9	48	35	15	2	1	83	15	3
Q107A	21.3	13.6	-	-	-	-	-	-	-	-
Q107B	4.4	7.3	-	-	-	-	-	-	-	-
Q107C	33.1	15.5	-	-	-	-	-	-	-	-
Q107D	2.0	6.0	-	-	-	-	-	-	-	-
Q107E	40.7	16.9	-	-	-	-	-	-	-	-
Q108B	4.8	1.1	-	-	-	-	-	-	-	-
Q109	3.5	1.1	5	14	26	34	21	19	26	55
Q110	3.2	1.0	5	17	40	32	6	22	40	38
Q111	3.1	1.1	8	20	32	31	9	28	32	40
Q113	4.1	0.8	1	2	8	33	22	2	8	55
Q114	3.8	0.8	1	3	15	35	11	4	15	46
Q115	3.8	0.8	1	3	16	34	11	4	16	45
Q116	3.3	1.0	4	9	21	26	5	12	21	32
Q117	3.8	0.8	1	5	29	49	18	5	29	67
Q118	3.5	0.9	1	9	44	35	13	10	44	48
Q119	3.6	1.0	1	13	30	40	18	15	30	57
Q120	4.1	0.7	0	1	19	52	28	2	19	81
Q121	4.0	0.8	0	3	22	42	34	3	22	76
Q122	4.0	0.8	0	3	26	43	30	3	26	73
Q123	3.9	0.8	1	5	24	47	24	6	24	71

Appendix 6. Percentage distributions of items of the QPSNordic 34+ (n=2010)

QPSNordic 34+ #	QPSNordic original version #	Percentage distribution of items					Reduced scale percentage distribution of items		
		1 %	2 %	3 %	4 %	5 %	1&2 %	3 %	4&5 %
1	Q12	6	13	39	32	9	19	39	41
2	Q15	4	13	43	26	15	17	43	41
3	Q18	37	45	18	1	0	82	18	2
4	Q25	21	29	41	10	1	49	41	11
5	Q26	4	4	12	39	42	8	12	81
6	Q27	5	8	26	44	20	12	26	64
7	Q38	3	7	13	38	40	10	13	78
8	Q40	1	4	10	42	44	6	10	85
9	Q43	29	33	28	9	3	62	28	12
10	Q46	25	29	27	16	4	54	27	20
11	Q47	15	22	25	29	12	36	25	41
12	Q48	25	15	18	24	20	40	18	44
13	Q53	11	19	40	24	7	31	40	31
14	Q54	13	10	13	39	27	23	13	66
15	Q59	11	19	38	21	13	30	38	33
16	Q68	1	3	21	59	17	4	21	77
17	Q72	3	7	24	39	28	11	24	67
18	Q73	7	14	27	32	22	21	27	54
19	Q78	10	16	32	28	14	26	32	42
20	Q84	19	23	31	21	7	42	31	28
21	Q86	18	28	32	18	6	46	32	23
22	Q80	3	5	17	33	42	9	17	75
23	Q93	5	15	33	37	10	20	33	47
24	Q95	4	11	30	39	15	15	30	54
25	Q96	29	34	22	11	4	63	22	15
26	Q113	1	2	8	33	22	2	8	55
27	Q115	1	3	16	34	11	4	16	45
28	Q98	4	13	37	37	11	17	37	48
29	Q99	6	16	32	36	12	21	32	48
30	Q79	15	30	41	12	4	45	41	16
31	Q100	48	28	15	7	3	76	15	9
32	Q101	42	35	16	6	2	77	16	7
33	Q102	34	26	26	12	3	60	26	15
34	Q104	10	19	34	29	9	29	34	38
Additional items									
35		17	22	30	26	6	39	30	31
36		28	26	30	15	2	54	30	17
37		26	32	26	12	5	58	26	17