Nordic Questionnaire for Monitoring the Age Diverse Workforce

Review report of QPSNordic-ADW

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Nordic co-operation

Nordic cooperation is one of the world's most extensive forms of regional collaboration, involving Denmark, Finland, Iceland, Norway, Sweden, and three autonomous areas: the Faroe Islands, Greenland, and Åland.

Nordic cooperation has firm traditions in politics, the economy, and culture. It plays an important role in European and international collaboration, and aims at creating a strong Nordic community in a strong Europe.

Nordic cooperation seeks to safeguard Nordic and regional interests and principles in the global community. Common Nordic values help the region solidify its position as one of the world's most innovative and competitive.

Content

Foreword

The impacts of demographic changes within the Western countries are likely to be major in the coming decades. Probably the most important change will be the transition towards a much older population: an ageing society. This trend is already apparent in most Nordic and European countries.

Although the pressures in the labour market differ between nations (e.g. Sweden versus Norway), the inevitable consequences for the labour market are to be found in the increasing number of senior workers, both in actual numbers and relative to the proportion of younger workforce. Any alternative solution will inevitably lead to a rise in unemployment, disability pensions, or early retirement among senior workers, which may have a negative impact on social welfare and national economies. The social and economic challenges are great, as the dependency rate between the retired and the working population is expected to drop from 1:5 to 1:2 in most European countries within 30 years.

Keeping people in work life for longer is the goal of governments and partly also labour market partners in many countries. The challenge is how to develop the skills and employability of older workers, while maintaining the health, motivation and capacities of workers as they age. Actions need to be taken to combat discrimination and negative stereotypes of older workers. Above all, working conditions as well as employment opportunities must be appropriate for an age-diverse workforce.

The ageing workforce has specific needs concerning work organization and content. In order to get older people to continue in work life until their normal pension age, their preferences and needs should be taken better into account. Their needs and preferences should be known, so that the development activities and personnel resource planning can be based on real knowledge.

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 2005, the Nordic Council of Ministers launched a project with the aim of developing a specific questionnaire for monitoring the needs and preferences of employees approaching the age of 60 (55 years and above). The goal was to develop a questionnaire that would be applicable for interventions at different workplaces, as well as for research purposes.

The project group comprised researchers from three Nordic countries (Finland, Norway and Sweden), mainly drawn from their respective

occupational health institutes. The multidisciplinary nature of the project group, comprising experts from diverse specialties, influenced the choice of both method of measurement and the contents of the questionnaire.

As a result, a new Nordic Questionnaire for Monitoring the Age Diverse Workforce (QPSNordic-ADW) was developed. A description of QPSNordic-ADW, its contents, measurement characteristics, and its potential use as a research tool and especially as a survey instrument in a survey feedback process is published in the User's Guide for QPSNordic-ADW. The QPSNordic-ADW questionnaire is available in English, Finnish, Danish, Norwegian and Swedish. All of the different language versions of the questionnaire can be found in the User's guide.

This review report provides an overview of the relations between work and well-being among senior workforce. Also the development of the earlier QPSNordic and its use is reported. The reader will also find information about the development of the new QPSNordic-ADW.

The project group is grateful especially to Thomas Lund from the National Research Centre for the Working Environment, Denmark, who contributed to the preparation of the questionnaire in Danish, and to Dr Sigrid Tibaek from Glostrup, Denmark, and RPT Jeanette Prestegaard from Copenhagen for their help with the questionnaire.

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Summary

Nordic Questionnaire for Monitoring the Age Diverse Workforce - Review report of QPSNordic-ADW

The impacts of demographic changes within the Western countries are likely to be major in the coming decades. Probably the most important change will be the marked transition towards a much older population: an ageing society.

Keeping older people in work life for longer is the goal of governments and partly also labour market partners in many countries. The challenge is how to develop the skills and employability of older workers, while maintaining the health, motivation and capacities of workers as they age. Actions need to be taken to combat discrimination and negative stereotypes of older workers. Above all, working conditions as well as employment opportunities must be appropriate for an age-diverse workforce.

In 2005, the Nordic Council of Ministers launched a project with the aim of developing a specific questionnaire for monitoring the needs and preferences of employees approaching the age of 60 (55 years and above). The goal was to develop a questionnaire that would be applicable for interventions at various workplaces, as well as for research purposes. As a result, a new Nordic Questionnaire for Monitoring the Age Diverse Workforce (QPSNordic-ADW) was developed.

This Review report is a description of the background and development of the Nordic Questionnaire for Monitoring the Age Diverse Workforce (QPSNordic-ADW). This review report provides an overview of the relations between work and well-being among senior workforce. Also, the development of the earlier QPSNordic and its use are reported. The reader will also find information about the development of the new QPSNordic-ADW and its content.

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1. Work and well-being for senior workforce

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The ongoing demographic changes in the Western societies rooted in the post-war baby boom have led to an increasing proportion of senior individuals in the potential workforce, while the availability of younger workforce has decreased due to reduced fertility rates by the same post-war generations. No clear age limits can be said to define seniority from the vantage point of work life. An age limit in the range of 45+ was initially proposed for the Nordic contexts by Ilmarinen (2001), Kilbom, Westerholm, Hallsten and Furåker (1997) and Tikkanen (1999). Sterns and Miklos (1995) proposed an age limit of 55+, which is more in line with a recent national survey in Norway indicating the age of 56 years as the time when workers begin to be perceived as senior (Dalen, 2005).

Although the pressures in the labour market differ between nations (i.e. Sweden versus Norway), the inevitable consequences of the demograpohic change to the labour market are to be found in an increasing number of senior workers, both in actual numbers and relative to the proportion of younger workforce. Any alternative solution will inevitably lead to a rise in unemployment, disability pensions, or early retirement of senior workers, which may have a negative impact on social welfare and national economies. The social and economic challenges are great, as the dependency rate between the retired and the working population is expected to drop from 1:5 to 1:2 in most European countries within 30 years.

These challenges have stimulated public debate on motivating senior individuals to participate in work life for longer. Several measures have been proposed, including changing the legislation on early retirement and disability pensions, thus reducing the attractiveness or pull effects of support and pensions regimes, i.e. exit routes from work life. Other means proposed to encourage individuals to stay on at work for longer include financial or other work-related benefits such as flexible working time arrangements, shorter workdays, or changing the content of their work. These also function to reduce the pull effects of the exit routes. Moreover, employers have been encouraged to employ more senior workers, for instance by initiatives such as the Norwegian National Initiative for Inclusive Working Life. Another tool has been the enforcement of anti-age discrimination laws in most countries.

Such changes in focus, rules, sanctions, and expectations will most likely impact the framework defining the perception of work and quality of working life for the senior workforce. On the one hand, it may be argued that being attractive as workforce may stimulate work-related motivations and boost the well-being of the individual senior worker. On the other hand, the higher the pressure for active participation in work life among senior workforce, the more salient becomes the question of the quality of work life for older workers. One reasonable scenario may be that older workers, despite possible positive interest, are also exposed to work demands and ways of organizing work that lead to negative emotional reactions. Thus, some consequences of the ways in which society and employers deal with the challenges of the changing demographics may be seen in the negative psychological reactions of senior workers. Especially issues such as work stress, lack of satisfaction from work, or reduced motivation to continue working should be addressed, as various 'pressures' are directed towards senior workers and their employers to reduce early exit from work life.

Few researchers have studied relations between workers' ages and work-related emotional outcomes per se. In most studies, age has been applied as a demographic variable without discussing its significance. Moreover, there are conflicting opinions and inconsistent findings about the relationship between employee age and occupational well-being. In their early work on emotional impacts from work, Herzberg, Mausner, Peterson, and Campwell (1957) identified a U-shaped relationship between age and well-being: younger workers reported higher levels of well-being as compared to their colleagues in their thirties, whereas higher levels of well-being were again found among senior workers. Warr (1992) also found an initially high level of well-being among young workers. It diminished during the interval from mid twenties to mid thirties before it began to rise again, reaching higher levels with employees in their fifties and sixties. The findings were interpreted as simply reflecting broader findings that older adults generally show increased levels of life satisfaction, less exposure to life stress, and less personal conflict over life challenges and the future.

Based on data from a recent survey on a representative sample of Norwegian workforce, Dalen (2005) reported having found some support for the curve-linear relationship between age and the indicators of emotional outcomes from work. A too high workload was reported by 29% of the eldest workers (aged 60+) and by 39% of the middle-aged workers (40–49 years). Of the eldest workers, 77% (60+) looked forward to their workdays, which was the highest proportion of any of the age groups. Likewise, 56% of this group reported that they coped well with the demands of their work, which was also the highest proportion identified for any age group in the study. Only 38% of age group 60+ looked forward to retirement as compared to 52% of the age group 50–59 that scored

highest on this dimension. Similarly, Mykletun, Mykletun and Solem (2000) reported highest scores on holding a positive outlook for their future at work among the younger and older male workers, whereas more pessimistic attitudes were identified among men aged 30–39. For females, the most positive attitudes were found among those aged 30–39 and 50+.

Birdi, Warr and Oswald (1995) studied job-related satisfaction, stress and boredom among employees in nine different European countries. They found that job satisfaction was initially high among younger workers, but diminished during their thirties before turning positive again as workers reached their fifties and sixties. In line with this, a curve-linear relationship was observed for job stress, which was initially low among younger workers, increased around mid thirties before it began to diminish as workers reached their fifties and sixties. These findings support the initial observations by Herzberg et al (1957). Moreover, Birdi et al showed that being bored of one's job declined linearly with increasing age, which supports findings by Rodes on positive work-related attitudes. However, in a study of health care workers from five different European countries Barnes-Farrell and Rumery (2002) found no relationship between chronological age and indicators of stress, strain and work efforts. These authors also included measures of perceived 'social and psychological ages', and consistent with previous research, workers generally reported that they felt, looked, acted, and preferred to be younger than their chronological age, and feeling old relative to one's chronological age was positively associated with job-related strain. Thus, these findings point to the need for additional attention to psychological age variables in studies of work and ageing, with particular emphasis on cultural and socio-economic conditions that may influence their interplay.

Contrary to this, Doering, Rhodes and Schuster (1983) found positive linear relations between age and well-being at work, which implied that senior workers had achieved the best working environment. The authors reviewed several studies supporting these conclusions. In line with this, Rodes (1983) found that positive work-related attitudes increased with age.

Phillips, Barrett and Rush (1978) reported qualitative differences in motivation for work between younger and senior workers. The latter group preferred more responsibilities, interesting work, and attention demands, whereas the former preferred autonomy and social opportunities.

Similarly, qualitative differences in stress factors may be observed between the different age groups at the workplace. Some of these stress problems may refer to stereotyped beliefs towards older workers held by managers and co-workers, which in turn results in discriminatory practices towards the senior segment of the workforce. Taylor & Walker (1998) examined the relationship between employment practices and

attitudes towards older workers held by personnel managers and directors in large organizations (500 or more employees) across a wide range of industrial sectors (excluding agriculture). The results indicated that attitudes held by managers towards older workers influenced the organizations' recruitment, training and promotion practices. These attitudes were: perceived trainability, creativity, cautiousness, physical capabilities, the likelihood of having an accident, and ability to work with younger workers. Chiu, Chan and Redman (2001) showed that respondents' own age was predictive of positive age stereotypes. Stereotypical beliefs were found to significantly affect respondents' attitudes towards the training, promotion and retention of older workers, their willingness to work with older workers, and their support for positive discrimination. Findings also suggested that anti-age discrimination policies in the respondent's organization had a positive impact on beliefs about the adaptability of older workers and possibly also on attitudes towards the provision of training to older workers.

A recent analysis of data from the Norwegian Study of Living Conditions by Ugreninov and Rønning (2005) showed that the proportion of senior workforce (50+) feeling threatened by future unemployment increased from 12% in 1996 to 18% in 2003, while the proportion of senior workforce perceiving poor possibilities for development in their work decreased from 32% in 1996 to 24% in 2003. However, 35% of senior workforce still faced difficulties regarding participation in training programmes. Mykletun, Mykletun and Solem (2000) found that workers in the municipal sector reported discrimination in access to training, use of new technologies, internal recruitments and promotion, and salary development. A study of 3000 Norwegian comprehensive schoolteachers showed that change was the only stress factor affecting senior workers more than their younger colleagues. Change as a stress factor was a significant contributor in cases of burnout and disability pensions among the teachers (Mykletun & Mykletun, 1999). Objective working conditions may also vary with age. Senior workforce (50+) held more daytime than shift-work positions and more often had fixed-term contracts as compared to their younger colleagues (Ugreninov and Rønning, 2005).

Qualitative differences between age groups in type of events and conditions that trigger emotional reactions may be expected to vary, and, as indicated above, discrimination and negative stereotypes towards older workers are likely to play a role here. Moreover, as motivations and perhaps also work values may differ between age groups, other qualitative differences may also appear in profiles of factors producing stress, satisfaction and well-being. Measurements of work-related stress that fail to address these problems do not represent a valid picture of the working conditions of older workers. While the hypothesis about a curve-linear relationship between age and emotional work outcomes is only partially supported by the studies reviewed here, all but one study found indica-

tions of positive outcomes for senior workforce. Thus, most studies indicate that in general, well-being at work is not especially threatened for senior workers. On the contrary, senior workers report lower levels of stress, cope better with the demands of their work, and hold a more positive outlook on the future than their slightly younger colleagues. The observed relationships between age and the emotional outcome variables may also reflect generally better living conditions and less life stress among senior workers. However, the findings do not fit well with the prevalence of depression observed among the ageing. For instance, depression as measured by HADS (Hospital Anxiety and Depression Scale) on census data (N=60.869) increases with age up until 50 years of age, after which the relationship becomes more unstable (Stordal, Mykletun, & Dahl, 2003). Yet, the possibility that the positive outcomes for older workers may be due to persons with higher depression scores having already exited the workforce, with the consequence only the most robust seniors remain at work, should also be considered. Depression has been found to constitute a major factor (second after muscle pain) contributing to exit from work life (Hensing & Wahlström, 2004), and has also been considerably underestimated as a cause of exit from work into disability pension for age groups below 45 (Mykletun, Øverland, Dahl, Krokstad, Bjerkeset, Glozier, Aarø & Prince, 2005). The higher values on job satisfaction and the lower values on job stress among senior workers could thus be due to the 'healthy worker effect', where psychologically vulnerable individuals are likely to be pushed out of work life and onto a disability pension systems. Lower HADS scores combined with lower work stress scores for senior workforce as compared to middle-aged workers provide support to this hypothesis.

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2. Development of QPSNordic

Kari Lindström

Background

The Nordic countries have a long tradition in monitoring and improving the psychological and social work environment. They have similar legislations and practical opportunities of carrying out surveys and interventions relating to work and the organization of work. In addition, problem orientation and emphasis on participation have been typical of research into the work environment in the Nordic countries. Research on the psychological and social factors of work has played an important role in reforms of working life and also in the area of occupational health and safety since the 1960s and 1970s. However, the accumulation of practical experience and scientific knowledge has been relatively scanty because of the workplace-specificity or group-specificity of the data collection methods used.

The questionnaire instrument QPSNordic provides the user with a comprehensive and sufficiently detailed picture of workers' perceptions of their work to guide interventions. Psychological and social factors at work with documented associations with well-being and health have been included in QPSNordic together with other factors that have been shown to be of increasing significance in today's working life.

How QPSNordic was developed

The first stage was a review of 19 Nordic instruments addressing factors of the psychological and social work environment. A state-of-the art report entitled 'Measurement of Psychological and Social Factors at Work' was published (Lindström et al. 1995). Four or five questionnaires from each participating Nordic country were selected for a more thorough examination. Overall, 19 questionnaires were reviewed.

The purpose of the validation project was to develop and validate the joint Nordic questionnaire, QPSNordic. The questionnaire was constructed as a comprehensive instrument for the measurement of important psychological and social factors at the workplace.

QPSNordic has been designed (a) to yield data on important psychological and social factors to establish a solid basis for initiating and evaluating interventions and organizational change, (b) to produce com-

prehensive data for scientific studies on relationships between work and health, and (c) to provide documentation on changes in working conditions.

The following research questions guided the development of the questionnaire:

- Q1) What are the most central psychological and social factors to be measured by QPSNordic?
    - analysis of the factorial structure of items included in QPSNordic
- Q2) To what extent are the scales validated for their measurement properties?
    - analysis of differences between genders, various levels of education and sectors or occupational groups
- Q3) What is the criterion validity of e.g. the relationship of QPSNordic scales measuring job involvement and psychological and social factors at work to health and well-being?
    - analysis of relations to various measures of well-being

Concepts addressed in QPSNordic

The concepts addressed by QPSNordic are derived from theories and conceptual models of organizational behaviour, work motivation, and job satisfaction as well as theories of job stress, well-being, and health. Originally, the questionnaire methods on the psychological and social factors of work used in the occupational health context were based on concepts from theories of job strain and work motivation. However, these have been recently supplemented with concepts from organizational and leadership theories and models. Measurement of task characteristics, such as job demands and control, is insufficient when work is performed in groups and networks. Interactions with other groups, clients, and collaborators outside the employee's workplace have become more common in today's work life. Therefore, organizational practices and cultures have become more important factors affecting the individual's health, well-being, and competence.

Construction of QPSNordic

The prototype of the new QPSNordic consisted of 160 multiple-choice questions pertaining to psychological and social factors. The questionnaire was constructed in English and checked by a professional translator. It was then translated from English into four Nordic languages. Cross-

checks between the different Nordic translations were performed. The Finnish translation was checked against the Swedish.

Table 1: Stages of the study, their goals, targets, number of observations and results

| Stage of the study | Aim of the stage and results | | | |
	Why	How	N	Results
Readability	Test of readability	Interview of different respondents from the four Nordic countries	40	Reformulation of some questions to eliminate ambiguous wording
1st data collection (Stage 1)	Conceptual structure, scale reliability Measurement modelling	Data collection in 16 organizations from the four Nordic countries	1015	Construction of measurement scales, exclusion of items, deciding on the structure of QPSNordic
2nd data collection (Stage 2)	Retesting of the structure and scale reliabilities. Predictive validity and structural modelling	Data collection in five organizations from three Nordic countries	995	Confirmation of the construct and predictive validity of QPSNordic
3rd data collection Retest data	Investigating test-retest reliability	Data collection in three organizations from two Nordic countries	393	Confirmation of test-retest reliability
4th data collection Case study: Survey-feedback data	Assessing the feasibility of QPSNordic for workplace interventions	16 feedback sessions including planning of improvements. Questionnaire study on the quality of feedback	n = approx. 200 n = 35	Recommendations on key items for feedback. Guidelines for organization development based on QPSNordic

A central feature of QPSNordic is that it contains measures on multiple levels of psychological and social phenomena at work. Most of its scales tap the task level, i.e. the boundary between the individual worker and the organizational context of work, focusing on job demands and perceived control at work. Some of the scales measure phenomena mainly on the organization or work group level (e.g. 'organizational climate'). In addition, QPSNordic includes scales that describe individual affective responses and motivational orientation (Table 2).

Table 2: Content areas of the QPSNordic questionnaire classified according to conceptual level

Task level	Social and organizational level	Individual level
Job demands	Social interaction	Commitment to organization
Control at work	Leadership	Mastery of work
Role expectation	Communication	Preference for challenge
Predictability at work	Organizational culture and climate	Predictability, individual
	Group work	Work motives
		Work centrality
		Interaction between work and private life

Use of the QPSNordic questionnaire

QPSNordic may be applied as a research instrument or as a survey feedback method in organizational development. Participation and cooperation are the basis for a successful development project. The motivation of the participants and their commitment to the intervention process depend on clear agreements and the clarification of the objectives and responsibilities between all participating groups.

The high degree of structuredness of the survey feedback method makes it attractive for beginners in organizational development. In the Nordic countries, occupational health personnel have been actively adopting this proactive and preventive approach in their work. The responsibility for implementing the survey feedback procedure can be given to an external consultant, occupational health personnel, management, or a representative group. Usually, all these actors are involved in the procedure in one way or another.

Because QPSNordic covers the central psychological and social factors of work and has a reliable and valid scale structure, it is also suitable for investigating the psychological and social basis of well-being, job satisfaction, motivation, skills development, and performance of working people. Because there are no unifying models explaining how psychological and social factors are associated with these 'outcome' factors, the focusing research questions have to be defined in each case by the researcher. The scales of QPSNordic can be used separately or in various combinations depending on the needs of the study.

3. Psychosocial and work organizational studies in administrative surveying work using QPSNordic questionnaire

Gunvor Gard and Kari Lindström

Summary

The QPSNordic questionnaire has been used as an outcome measure in the evaluation of the psychosocial and work organizational change process in administrative surveying work in Sweden during 1999–2000 (Gard, 1998, 1999, Gard et.al., 2002 a and b, Gard and Lindström 2003). A re-organization of work was carried out in an organization involved in administrative surveying work in Sweden in 1997 (Gard, 1998). The new system implied three important changes. First, there was a change from an organization depending on experts in different fields, such as technology and law, to a more customer-oriented organization. The second change took place in computer information support and meant a shift from strong specialization towards greater integration within the company. The third transition to a team-based organization implied a change in the competence required from specialist to generalist knowledge (Gard, 1998). Each member of the team no longer worked alone as a specialist with a specific topic, but instead as acted as a generalist handling a whole range of different topics (economics, law, surveying tasks). At the same time, the company underwent a downsizing process. The organizational reform was required to find a balance between cutting the costs and developing the work organization, with the aim of making it both effective and flexible. The transition to a team-based organization as well as the transition to a new IT technology during 1998 to 2000 was evaluated by the QPSNordic questionnaire and the Teamwork profile (Gard et.al., 2002 a and b).

Work organizational changes in the company during the three-year period

The changes that occurred at the time of the first study in 1998 were the implementation of a client-centered team-based organization together with an integrated IT system and expansion of tasks. The changes that

occurred from 1998 to 2000 were increased training in co-operation and collaboration between teams, increased training in the use of the information system and in the use of the information system on the regional and local levels of the organization, and downsizing of the company. Competence development in the form of, e.g., theoretical courses and coping training was introduced, which expanded the team members' generalist knowledge. Interventions including courses in how to cope with the role of a generalist, how to increase service to clients, and training in technology, law, economy, and computer information support were introduced from the beginning in 1997.

Background for the research

Increased focus on teamwork and group performance has meant important changes in the organization of work in the public administrative sector. Many advantages of teamwork have been identified: the opportunity for self-management, a high level of participation and division of tasks, and the opportunity of being assigned responsibility for independent jobs rather than fragmented tasks (Brown, 2000). The emergence of self-managing teams has been shown to bring increased learning opportunities and a high level of group autonomy, group cohesion, communication, and co-operation and to have positive effects on outcome measures such as job satisfaction, general well-being, motivation and effectiveness (Sonnentag et.al., 1994). Within the Swedish public administrative sector, the focus on teamwork has had an impact on the organization of work and implied a redesigning of the job content. Positive effects of this re-designing are the development towards more interesting, and stimulating jobs requiring better qualifications (Gard et al., 1990). Employees must be functionally flexible and have wide and overlapping competencies in order to carry out varying tasks (Barnatt, 1997). Negative effects of the re-design process are deskilling, monotony, and quantitative overload (Johansson & Aronsson, 1984). Redesigning of job content has been found to have effects on job and organizational practices, the health and well-being of employees, and outcome measures such as effectiveness and flexibility (Gard et al., 1990, Eklund, 1994, Lindström, 1996). The same effects of new technology on job content and well-being have been seen in public sector organizations in other countries (Lindström, 1991, Carayon et al., 1995, Smith, 1986).

Study 1: Effects of transition to a team-based work organization

The aim of this study was to observe the surveyors for a period of two years and investigate changes in perceived consequences of the transition, job and organizational factors, and effectiveness measures, such as strain, job satisfaction, social effectiveness of group work, and quality of service provided to clients, between 1998 and 2000 (Gard et.al.,2002b).

Scales from three different questionnaires were used: the QPSNordic questionnaire (Lindstrom et al., 1997), the Teamwork profile (Lindström, 1997), and a tailored questionnaire including questions about the perception of the change process (Arnetz et al., 1994, Aronsson & Pettersson, 1989). The 205 surveyors who participated in all three study phases constituted the follow-up group.

The result showed that in 2000 60% of the surveying personnel perceived that they worked in a learning organization and 40% perceived that they worked as a generalist in a team. Surveyors who perceived that they were working as generalists perceived the improvements in job and organizational factors as significantly higher than those who did not yet perceive themselves as generalists. Job content and job control were considered to have increased by 51% and 52% of the generalists, respectively. In 1998, most of the future expectations regarding the the job and organizational practices as a generalist in a team were associated with present perception of job and organizational practices. For example, expectations on improvement in group cohesion in the future correlated with high present job control. In 1999, positive changes in job climate and job content were more closely associated with job control than before. Reduced associations were shown between the effects of seeing oneself as a generalist and supervisory support and group cohesion in 1999. In 2000, the effects of changes in job climate, job content, and group cohesion were more clearly associated with communication and collaboration and continuous improvement practices than before. Improvements were noted in 2000 compared to 1999 in quality of service to clients, time available per case, and effectiveness of teamwork. The association between the effects of seeing oneself as a generalist in a team and the outcome variables was reduced in most variables between 1998 and 2000. Positive relations were shown between the scales of job and organizational characteristics in relation to job satisfaction, effectiveness of group work and service quality to clients in all three phases. The associations increased from 1998 to 1999, but decreased somewhat in most scales in 2000. In 1998, the variance in social effectiveness of group work was explained mostly by a change in group cohesion, continuous improvement practices, and clear goals; in 1999 by group cohesion, seniority and clear goals; and in 2000 by group cohesion and continuous improvement practices (Gard et al. 2002b).

The surveyors in the present study were all in a process of changing their comeptencies from specialist to generalist knowledge. This change can be seen as a job involvement approach implying job enrichment, focusing on creating work tasks that provide feedback, increased job control, a broadened range of skills, and increased frequency of being assigned independent jobs to perform rather than fragmented tasks (Brown, 1996). It can also be seen as a commitment approach, giving all surveyors a sense of involvement, not just in how effectively their team performs, but in the performance of the entire organization. For the surveyors in the process of developing generalist knowledge, the possibility to share experiences and knowledge in the team was critical in the acquisition of new competence. Learning by doing was an important learning strategy, and the team members used each other as competence resources. Different methods can be used in team learning and team training, such as mentoring, guided delegation, job rotation, experiments, discussion and analysis of critical incidents, and problem solving (Galbraith & Zelenak, 1991). In this study, guided delegation, job rotation, discussion of critical incidents, and practical problem solving were used. The overall learning strategy, inspired by Norrgren (1996), was an iterative approach where the surveyors could experiment and draw conclusions based on actions performed in relation to the organizational goals. In that way, an acceptance of the change process was attained in the teams through process control. In the organization studied, many of the elements intended to support the learning process – group processes, workplace culture, and organizational structures – were all undergoing a major change.

Study 2: Effects of transition to an integrated IT technology in surveying work

An integrated IT technology, characterized by a change in information support from a strong specialization towards greater integration, was introduced in the Swedish surveying company in 1998.

The aim of this study was to compare and describe the effects of the transition to the new information technology in relation to job and organizational characteristics and effectiveness and well-being measures between 1998 and 2000.

Scales from three different questionnaires were used: the QPSNordic questionnaire (Lindstrom et al., 1997), the Teamwork profile (Lindström, 1997), and a tailored questionnaire including questions on perceptions of the transition to integrated IT (Arnetz et al., 1994, Aronsson & Pettersson, 1989). The 205 surveyors who participated in all three study phases constituted the follow-up group.

The results showed that positive attitude towards the new IT system increased from 1998 to 2000. The transition process had negative conse-

quences for job content and job control 1999 but improvements could be seen in 2000. Co-operation with clients, quality of service, and effectiveness in group work were perceived to improve each year from 1998 to 2000. Most of the perceived consequences of the IT integration were positively related to work and organizational practices in 1998, 1999 and 2000. Improvements in job content, job control and group cohesion were associated with high present and continuous improvement practices, goal clarity, job control, and communication and collaboration, but the associations were reduced 1999. The results showed, however, that a positive attitude to the IT integration and to the use of computers in daily work was associated with high continuous improvement practices, goal clarity, and job control in all three phases. The reduction in 1999 can be explained by how the positive perceptions of the beginning started to turn more relistic. It took time for the surveyors to learn to work with the new IT system, which meant computer problems and reduced job control during the introductory years 1998–99. The whole work and organizational situation in the surveying company has an impact on the perceived consequences of the IT integration, not only on perceptions of computer use in itself. The fact that in 1998 and 1999 the company was undergoing a process of downsizing may also have an impact on the results.

The results are in line with other studies showing that a transition to a new IT system can increase job satisfaction and competence (Gard et al., 1990, Järvenpää, 1990). The level of competence has been shown to be related to mastery of the computer system (Lindström, 1991). In surveying work, the transition to a new IT system focused on increased competence in computer use for all surveyors and on a combination of top-down and bottom-up strategies for implementing the changes. The transition to integrated IT technology in the surveying organization can be seen as a participative change process. Both the process of IT integration in the work teams and the actual adoption of of IT in daily work were implemented in a participative way through education and training in the teams (Gard et al, 2002). Research on successful ergonomic implementation programmes has shown that factors such as a formalized introductory training programme, management commitment and involvement in the introduction programme, design and implementation of the programme, and worker involvement in the development of the programme may contribute to the effectiveness of the programmes (Robertsson & Robertsson, 1995; Kourinka & Forcier, 1995). In this study, the process of adopting a new information technology can be seen as a way to develop a healthy organization. The transfer process was first introduced on the organizational level, through the introduction of a centralized system, and implemented in all work groups through a participatory approach with team members using each other as resources. The surveyors participated both in the setting of the goals and in daily problem solving. For a successful

IT integration, broad participation and a focus on continuous improvements in daily work are crucial.

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4. Development of the new QPSNordic-ADW

4.1 Testing the existing QPSNordic data

Christina Björklund

Background

In the first stage of developing the new QPSNordic-ADW, the existing Nordic Questionnaire for Psychological and Social Factors at Work (QPSNordic) was selected as the basis for the new questionnaire, as in 1994–1998 considerable effort had been focused on producing a valid questionnaire for psychological and social factors at work. This method development project was funded by the Nordic Council of Ministers and Nordic institutes in occupational health. QPSNordic also includes many scales that are relevant for the older age groups, and it has been used widely in Norway, Sweden and Finland.

The data from the AHA project (Work and Health in the Processing and Engineering Industries) of the Karolinska Institutet was selected to test QPSNordic. The AHA data was selected because it covers both the private and the public sector in Sweden and provides ample opportunity (n=42 318) for testing the QPSNordic questionnaire in various age groups, with special attention on the age group 55–64.

Samples and data collection

This study is based on data from three different samples from Swedish organizations. The data were collected between 2000 and 2005 (Table 1). The first sample contained data from the AHA project mentioned above, involving four organizations (See AHA, 2004). Second, questionnaires were distributed to two different organizations in the service industry. These two samples were gathered by researchers at the Karolinska Institutet. Finally, data collection from both the public and the private sector from all parts of Sweden was performed by the Karolinska Institutet in collaboration with the Work and Health AFA Insurances.

Table 1: Number of distributed and completed questionnaires in different types of organizations

Types of organizations	Number of distributed questionnaires	Number of completed questionnaires
2 companies within the process industry	4 160	2 894
2 companies within the manufacturing industry		
6 service companies	3 539	2 758
17 municipalities	44 389	36 666
8 count councils		
Total	52 088	42 318

A total of 52 088 questionnaires were distributed and the response rate was approximately 81%. The majority of the respondents (73%) were female. The ages of the respondents ranged from 19 to 65 years (mean age 46 years). The participants' level of education ranged from high school to a university degree (modal education level = 3 years of upper secondary high school). One in four (10 535) of the participants were 55 years old or above.

Measuring Instruments
The main instrument in the study was the QPSNordic questionnaire that assesses psychological, social and organizational work conditions. The rationales in selecting content areas were that the concepts must be theoretically well-grounded and must have shown an empirical connection between organizational development, work, health and well-being.

QPSNordic covers the following areas: job demands, control at work, social interactions, leadership, commitment at work, role expectations, predictability at work, organizational climate, and group work. Other questionnaires included in the study were: Job Satisfaction and Work Motivation (Björklund, 2001); the Hospital Anxiety and Depression Scale, HAD (Zigmond & Snaith, 1983, Lisspers, Nygren & Söderman, 1997); and the Work Ability Index (Tuomi et al., 1998).

Results

Exploratory factorial analysis using principal component analysis was performed with a varimax rotation method. Only the indexes that could be divided into more than one index were included. Each thematic area was analysed separately (Table 2 and 3a-b). The structures of the indexes were quite similar to the first study of QPSNordic (Dallner et al, 2001).

Table 2: Principal component analysis with varimax solution of task-level items for all age groups (n= 42 318)

Thematic area	Items	Factor loadings		
		Quantitative	Decision	Learning
Job demands	Do you have too much to do?	0.835	0.143	0.105
	Is your work load irregular so that the work piles up?	0.785	0.098	0.173
	Is it necessary to work at a rapid pace?	0.785	0.252	-0.027
	Do you have to work overtime?	0.591	0.125	0.250
	Does your work require maximum attention?	0.094	0.814	-0.028
	Does your work require quick decisions?	0.341	0.716	0.149
	Does your work require complex decisions?	0.180	0.692	0.372
	Do you perform work tasks for which you need more training?	0.054	0.135	0.805
	Are your work tasks too difficult for you?	0.282	-0.022	0.712
	Does your job require that you acquire new knowledge and new skills?	0.068	0.443	0.611

Thematic area	Items	Role conflicts	Role clarity
Role expectations	Are you given assignments without adequate resources to complete them?	0.766	-0.137
	Do you receive incompatible requests from two or more people?	0.758	-0.144
	Do you have to do things that you feel should be done differently?	0.742	-0.068
	Do you know what your responsibilities are?	-0.103	0.864
	Do you know exactly what is expected of you at work?	-0.133	0.850
	Have clear, planned goals and objectives been defined for your job?	-0.121	0.777

Thematic area	Items	Pacing	Decision
Control at work	Can you decide the length of your break?	0.877	0.202
	Can you decide yourself when you are going to take a break?	0.859	0.235
	Can you set your own working hours (flexitime)?	0.708	0.117
	Can you influence the amount of work assigned to you?	0.128	0.739
	Can you influence decisions that are important for your work?	0.173	0.717
	If there are alternative methods for doing your work, can you choose which method to use?	0.069	0.695
	Can you set your own work pace?	0.458	0.582
	Can you influence decisions concerning the persons you will need to collaborate with?	0.325	0.516

Table 3a: Principal component analysis with varimax solution of social level items for all age groups (n= 42 318)

Thematic area	Items	Factor loadings	
		Superior	Co-workers
Social inter-actions	If needed, can you get support and help with your work from your immediate superior?	0.860	0.277
	If needed, is your immediate superior willing to listen to your work-related problems?	0.855	0.252
	Are your work achievements appreciated by your immediate superior?	0.850	0.043
	If needed, are your co-workers willing to listen to your work-related problems?	0.268	0.835
	If needed, can you get support and help with your work from your co-workers?	0.269	0.828
		Fair and empowering	
Leadership	Does your immediate superior encourage you to participate in important decisions?	0.805	
	Does your immediate superior encourage you to speak up, when you have different opinions?	0.800	
	Does your immediate superior help you develop your skills?	0.797	
	Does your immediate superior distribute the work fairly and impartially?	0.784	
	Does your immediate superior treat the workers fairly and equally?	0.773	
	Is the relationship between you and your immediate superior a source of stress to you?	0.545	

Table 3b: Principal component analysis with varimax solution of organizational level items for all age groups (n= 42 318)

Thematic area	Items	Factor loadings		
		Social & Innovative climate	Human resource primacy	Inequity
	What is the climate like in your work unit			
	- Relaxed and comfortable?	0.745	0.183	-0.194
	- Encouraging and supportive?	0.721	0.306	-0.167
	Is there sufficient communication in your department?	0.719	0.125	-0.157
	Do workers take initiative at your workplace?	0.663	0.117	0.065
	Distrustful and suspicious?	0.610	0.042	-0.350
	To what extent is the management of your organization interested in the health and well-being of the personnel?	0.278	0.730	-0.166
Organizational climate	At your organization, are you rewarded for a job well done,	0.334	0.700	-0.076
	with immaterial rewards (encouragement and support)?			
	At your organization are you rewarded for a job well done with material rewards (money and other benefits)?	-0.193	0.645	0.054
	Are workers well taken care of in your organization?	0.433	0.637	-0.221
	Are workers encouraged to think of ways to do things better at your workplace?	*0.456*	*0.555*	0.027
	Have you noticed any inequalities in how men and women are treated at your workplace?	-0.112	-0.100	0.831
	Have you noticed any inequalities in how older and younger employees are treated at your workplace?	-0.232	-0.110	0.795

The main focus was on the age group 55+, and for this reason Cronbach's alpha was calculated for the scales in this particular group. The results are presented in Table 4. Cronbach's alpha above 70 is deemed as satisfactory, and this limit was crossed in the majority of the scales.

Leadership was suggested as one factor in this study. Dallner (2000) suggests two different factors or indexes. In further analysis, leadership was divided into empowering and fair leadership, since Cronbach's alpha was quite high for both fair and empowering leadership separately. Furthermore, organizational climate was divided into social and innovative climate in a study by Dallner et al. (2000). In this study, Cronbach's alpha for the new index 'new innovative climate' had a higher reliability than the original two indexes social climate and innovative climate separately. Therefore, in further analysis the index 'new innovative climate' was used.

Table 4: Internal consistency of scales, and the number of items in each scale (Cronbach alpha) for the group 55 years-old and older (n= 10 535)

Thematic area	Subscales	Alpha	Number of items
Job demands	Quantitative job demands	804	3
	Decision demands	.733	3
	Learning demands	*.613*	3
Role expectations	Role clarity	.779	3
	Role conflict	.712	3
Control at work	Control of decisions	.684	4
	Control of pacing	.805	4
Social interactions	Support from co-workers	.822	2
	Support from superior	.847	3
Leadership	Empowering leadership	.859	3
	Fair leadership	.808	2
	New leadership (empowering and fair)	.868	5
Organizational climate	Social climate	.768	3
	Innovative climate	*.670*	3
	New innovate climate (social and innovative)	.804	6
	Human resource primacy	.788	4
Perception of work group		.811	3
Commitment to organization		.857	3
Predictability of next 2 years		.890	2

In Table 5, mean values and standard deviations for all age categories are shown for each scale. The age group 55+ rated somewhat lower than the others on job demands, role conflicts, empowering leadership, support from co-workers, inequity, and predictability of next two years. However, this group rated slightly higher in role clarity, control of decisions, and fair leadership.

Table 5: Mean scores (M) and std deviations (SD) of all QPSNordic scales (n= 42 318)

Scale	Age groups							
	-34		*35-44*		*45-54*		*55-*	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Quantitative JD	2.83	0.91	2.90	0.88	2.95	0.88	2.69	0.89
Decision JD	3.27	0.86	3.30	0.83	3.35	0.83	3.28	0.86
Learning JD	2.32	0.75	2.31	0.71	2.33	0.69	2.25	0.69
Role clarity	4.18	0.74	4.25	0.72	4.31	0.72	4.39	0.71
Role conflict	2.42	0.83	2.38	0.83	2.39	0.84	2.27	0.85
Control of pacing	2.70	1.00	2.89	1.02	3.01	1.03	3.03	1.07
Control of decisions	2.85	0.72	2.91	0.75	2.94	0.80	2.96	0.81
Empowering leadership	3.00	1.02	3.04	1.04	3.01	1.07	2.94	1.08
Fair leadership	3.67	1.02	3.68	1.00	3.68	1.01	3.72	1.05
Support from supervisor	3.52	0.97	3.58	0.97	3.54	1.01	3.56	1.01
Support from co-workers	4.24	0.78	4.19	0.81	4.12	0.83	4.07	0.87
Innovative climate	3.68	0.69	3.67	0.69	3.66	0.68	3.67	0.68
Human resource primacy	2.67	0.79	2.67	0.77	2.72	0.80	2.73	0.79
Inequity	1.74	0.83	1.61	0.78	1.59	0.78	1.57	0.78
Work group	3.93	0.67	3.95	0.66	3.95	0.659	3.95	0.67
Commitment to the organization	3.26	0.90	3.36	0.89	3.42	0.89	3.51	0.86
Predictability of next 2 years	3.18	0.95	3.07	1.00	2.96	1.06	2.75	1.15

Also outcome variables, such as mental health, work ability and commitment and job satisfaction, were measured in the study. In Table 6 the results of mean values and standard deviations for these outcome variables are presented. The results show that for depression, the mean value was highest in the age group 35–44, whereas the mean value for anxiety was lowest in the 55+ group. Regarding work ability (physical demands), the age group under 35 scored the lowest and the 55+ group scored the highest. On work ability (mental demands) the age groups under 35 and 55+ had the highest scores. The age group 55+ scored highest on commitment to the organization and job satisfaction, whereas the age group under 35 had the lowest mean values in those factors.

Table 6: Mean values and std deviations for all age groups regarding mental illnesses, work ability, job satisfaction and organizational commitment (n= 42 318)

Scale	Age groups							
	- 34		35-44		45-54		55-	
	M	SD	M	SD	M	SD	M	SD
Depression	3.19	3.01	3.47	3.20	3.40	3.08	3.33	2.97
Anxiety	4.85	3.62	4.51	3.54	4.19	3.39	3.87	3.34
Work abilities (physical demands)	1.67	0.80	1.73	0.83	1.81	0.84	1.92	0.85
Work abilities (mental demands)	1.85	0.77	1.82	0.76	1.81	0.73	1.84	0.73
Job satisfaction	2.88	0.89	2.99	0.82	3.03	0.78	3.09	0.76
Commitment to the organization	3.26	0.90	3.36	0.89	3.42	0.89	3.50	0.86

The relationship between the scales and the outcome variables were examined in the study for the age group 55+ (Table 7). The strongest relationships were between the commitment to the organization and scales measuring primacy of human resources, new innovative climate and those measuring support from the superior and leadership. Relationships were also strong between job satisfaction and new innovative climate, perception of work group and support from the superior. The associations between the QPSNordic indexes and the health aspects were in general quite low. However, the strongest association was between new innovative climate and depression followed by anxiety and role conflict and quantitative job demands and anxiety. The outcome factors job satisfaction and commitment to the organization had somewhat stronger associations to the QPSNordic indexes compared to the health aspects.

Table 7: Correlations between the indexes, and outcome variables (mental illnesses, work ability, job satisfaction and organizational commitment) for the age group 55+ (n= 10,535)

	Depression	Anxiety	Workability - Physical demands	Workability - Mental demands	Job satisfaction	Commitment to the organization
Quantitative job demands	0,21	0,28	0,01	0,08	-0,17	-0,13
Decision demands	0,05	0,11	-0,07	-0,05	0,02	-0,02
Learning demands	0,16	0,21	0,05	0,17	-0,10	-0,06
Role clarity	-0,23	-0,20	-0,07	-0,21	0,23	0,22
Role conflict	0,25	0,29	0,10	0,17	-0,27	-0,26
Control of decisions	-0,19	-0,17	-0,21	-0,21	0,30	0,34
Control of pacing	-0,13	-0,15	-0,22	-0,15	0,18	0,19
Support from co-workers	-0,25	-0,19	-0,13	-0,18	0,29	0,26
Support from superior	-0,25	-0,20	-0,15	-0,18	0,36	0,44
Empowering leadership	-0,20	-0,13	-0,15	-0,15	0,30	0,41
Fair leadership	-0,23	-0,21	-0,16	-0,18	0,34	0,41
Innovative climate	-0,31	-0,24	-0,20	-0,23	0,42	0,51
Human resource primacy	-0,21	-0,15	-0,17	-0,16	0,35	0,53
Inequality	0,19	0,17	0,10	0,10	-0,20	-0,22
Perception of work group	-0,26	-0,19	-0,17	-0,23	0,37	0,38
Predictability of next 2 years	-0,20	-0,15	-0,26	-0,25	0,26	0,26

Summary

The factor structures suggested in previous studies (Dallner et al., 2000) were confirmed in this study with few exceptions. Furthermore, differences between the age 55+ and the other age groups were found. The age group 55+ scored somewhat lower on job demands, role conflicts, empowering leadership, support from co-workers, inequity, and predictability of next two years. However, this group rated slightly higher on role clarity, control of decisions and fair leadership. The results showed that anxiety was lowest among the 55+. The age group 55+ scored highest on commitment to the organization and job satisfaction.

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4.2. Piloting the new QPSNordic-ADW questionnaire

Krista Pahkin

Samples and data collection

In the second stage, the new questionnaire QPSNordic-ADW was tested. For the new version of the questionnaire, some questions were added based on a literature review conducted in the project. The new version of the questionnaire included questions on the future needs and preferences of older workers; work motivation; self-efficacy; attitudes towards ageing workers; and retirement thoughts. Scales measuring well-being such as job and life satisfaction, experience of stress, and perceived work ability (WAI) are also included. Background information for the questions is provided in the Appendix 1.

Respondents to the prototype QPSNordic-ADW were members of teachers' unions from Finland, Norway and Sweden (table 1). Teachers were selected as a study group because their work will face important changes in the future. For example in Finland, changes in the municipal and in the service structure will also affect the work of educational institutions and thereby teachers. In the future, probably the most important change will be the marked transition towards a much older population: an ageing society. It is possible that the changes will also increase the work load in teaching.

Table 1: Number of respondents

	Number of distributed questionnaires		Number of completed questionnaires	
	Total	For those 55 or over	Total	Of those 55 or over
Finland	700	400	391	234
Norway	1050	600	409	260
Sweden	903	603	201	129
Total	**2653**	**1603**	**1001**	**623**

The main focus on the data collection was on the age group 55+. For this reason, over 60% of the respondents belonged to this group (60% in Finland, 68% in Sweden and 64% in Norway). Mean age was 53 years. The majority of the respondents were female (67%). In both Finland and in Norway more respondents were female than male (76% and 65%), but in Sweden the share was equal.

Content of QPSNordic - ADW

QPSNordic-ADW includes 97 questions, of which 73 compose the 22 scales. There are 24 single items that measure their specific content area. These single items were considered important, although they formed no scales. In addition, there are 13 questions on personal and organizational background factors. Table 2 summarizes the content areas and scales included. Internal consistency of the scales varied between 0.61 and 0.91 measured by Cronbach's alpha.

Table 2: Organization and content of scales, internal consistency (Cronbach's alpha) of scales and single items in the questionnaire

Num-ber	Content area and scale	Level of measure-ment[1]	ITEMS[2] (see appendix for formulations)	N of items	Alpha in test data 2[3]	Alpha in test data 1[4]
2	**Job demands**					
2.1	Quantitative demands	T	Q1, Q2, Q3	3	*0.698*	*.804*
2.2	Decision demands	T	Q4, Q5, Q6	3	*0.650*	*.733*
2.3	Learning demands	T	Q7, Q8, Q9	3	*0.627*	*.613*
	Single items	T	Q10	1	-	-
3	**Role expectations**					
3.1	Role clarity	T	Q11, Q12, Q13	3	*0.762*	*.779*
3.2	Role conflict	T	Q14, Q15, Q16	3	*0.750*	*.712*
4	**Control at work**					
4.1	Control of work pacing	T	Q17, Q18, Q19, Q20	4	*0.768*	*.805*
4.2	Control of decisions	T	Q21, Q22, Q23, Q24	4	*0.631*	*.684*
5	**Predictability at work**					
5.1	Predictability of next two years	I	Q25, Q26, Q27	3	*0.730*	*.890*
5.2	Preference for challenge	I	Q28, Q29, Q30	3	*0.721*	-
6	*Social interactions*					
6.1	Support from co-workers	SO	Q31, Q32, Q33	3	*0.844*	*.822*
6.2	Support from superior	SO	Q34, Q35, Q36	3	*0.909*	*.847*
7	**Leadership**					
7.1	Empowering leadership	SO	Q37, Q38, Q39	3	*0.874*	*.859*
7.2	Fair leadership	SO	Q40, Q41	2	*0.894*	*.808*
8	**Organizational culture and climate**					
8.1	Social climate	SO	Q42, Q43, Q44	3	*0.817*	*.768*
8.2	Innovative climate	SO	Q45, Q46, Q47	3	*0.702*	*.670*
8.3	Human resource primacy	SO	Q48, Q49, Q50	3	*0.834*	*.788*
9	*Bullying and harassment*					
	Single items	SO	Q51, Q52, Q53	3	-	-
10	**Interaction between work and private life**					
	Single items	I	Q54, Q55	2	-	-
11	Commitment to organization	I	Q56, Q57, Q58	3	0.851	.857
12	*Work motivation*	I	Q59, Q60, Q61, Q62	4	*0.614*	-
13	*Job and life satisfaction*	I	Q63, Q64, Q65	3	*0.683*	-
14	*Health and well-being*					
14.1	Work ability	I	Q66, Q67, Q68, Q69	4	*0.804*	-
14.2	Self-efficacy	I	Q72, Q73, Q74, Q75	4	*0.798*	-
	Single items	I	Q70, Q71	2		
15	**Work and age**					
15.2	Attitudes towards ageing workers		Q81, Q82, Q83, Q84, Q85, Q86	6	*0.840*	-
15.3	Future needs and preferences of older workers (single items)		Q89 - Q97	9	-	-
	Single items		Q76, Q77, Q78, Q79, Q80, Q87, Q88	7	-	-
	Number of items included in scales			73		
	Number of single items			24		
	Number of personal and organizational back-ground items		A- M	13		
	Total number of items			110		

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

[2] q = question

[3] Test data 2 = Teachers in Finland, Norway and Sweden, n=1001

[4] Test data 1 = Data in AHA-project, n=42 318

Validation process

The validation process used multiple outcomes. All criterion measures were based on self-report scales. The predictive power of the QPSNordic-ADW scales to show associations with selected measures of individual well-being produces evidence on the validity of the questionnaire.

Job and life satisfaction correlated with commitment to the organization, empowering leadership, support from superior, and social climate at the workplace. It also correlated negatively with role conflict. Experience of stress was associated with quantitative demands and role conflict at the workplace. They were also negatively connected with experience of self-efficacy. Perceived work ability correlated with experience of self-efficacy. It also correlated with commitment to the organization and with support from co-workers. Moreover, perceived work ability reflected role conflicts at the workplace (table 2).

Table 2: Correlations of QPSNordic-ADW scales with selected health and well-being outcomes in the 2nd stage of data collection (n=1001)

Scale name	Job and life satisfaction	Experience of stress	Work ability
Job demands			
Quantitative demands	-.19**	.39***	-.09**
Decision demands	-.09**	.20***	-.03
Learning demands	-.25***		-.21***
Role expectations			
Role clarity	.25***	-.17***	.16***
Role conflict	-.42***	.34***	-.25***
Control at work			
Control of work pacing	.13***	-.11*	.13***
Control of decisions	.35***	-.22***	.20***
Predictability at work			
Predictability of next two years	.35***	-.16***	.25***
Preference for challenge	.17***	-.12***	.19***
Social interactions			
Support from co-workers	.37***	-.21***	.26***
Support from superior	.41***	-.24***	.19***
Leadership			
Empowering leadership	.42***	-.19***	.17***
Fair leadership	.34***	-.22***	.12***
Organizational culture			
Social climate	.40***	-.27***	.23***
Innovative climate	.37***	-.13***	.14***
Human resource primacy	.31***	-.17***	.08*
Commitment to the organization	.56***	-.26***	.27***
Work motivation	.32***	-.06	.18***
Self-efficacy	.38***	-.37***	.50***

* p<.050, ** p<.010. *** p<.001

Commitment to organization correlated with all the factors associated with organizational culture, leadership, and social interactions at the workplace. Work motivation correlated with innovative and social climate at the workplace. It was also connected with support from co-

workers. Self-efficacy correlated negatively with learning demands. It was also associated with predictability at work and control of decisions. (Table 3)

Table 3: Correlations of the QPSNordic-ADW scales with selected motivation and self-efficacy outcomes in the 2nd stage of data collection (n=1001)

Scale name	Commitment to the organization	Work motivation	Self-efficacy
Job demands			
Quantitative demands	-.12***	.14***	-.09**
Decision demands	-.05	.12***	-.05
Learning demands	-.18***	-.00	-.28***
Role expectations			
Role clarity	.31***	.20***	.16***
Role conflict	-.37***	-.05	-.21***
Control at work			
Control of work pacing	-.01	-.04	.12**
Control of decisions	.31***	.11***	.22***
Predictability at work			
Predictability of next two years	.27***	.14***	.22***
Preference for challenge	.08*	.17***	.17***
Social interactions			
Support from co-workers	.44***	.20***	.18***
Support from superior	.52***	.14***	.09**
Leadership			
Empowering leadership	.48***	.18***	.09**
Fair leadership	.48***	.13***	.05
Organizational culture			
Social climate	.57***	.21***	.17***
Innovative climate	.54***	.25***	.10***
Human resource primacy	.46***	.20***	.03

* $p<.050$, ** $p<.010$. *** $p<.001$

Negative attitudes towards ageing workers correlated negatively with all the factors related to leadership, social interactions, and organizational culture at the workplace, but also with commitment to organization. (Table 4)

Table 4: Correlations of QPSNordic-ADW scales with attitudes towards ageing workers outcome in the 2nd stage of data collection (n=1001)

Scale name	Attitudes towards ageing workers
Job demands	
Quantitative demands	.08*
Decision demands	.06
Learning demands	.13***
Role expectations	
Role clarity	-.19***
Role conflict	.29***
Control at work	
Control of work pacing	-.12**
Control of decisions	-.25***
Predictability at work	
Predictability of next two years	-.24***
Preference for challenge	-.09**
Social interactions	
Support from co-workers	-.33***
Support from superior	-.39***
Leadership	
Empowering leadership	-.39***
Fair leadership	-.36***
Organizational culture	
Social climate	-.32***
Innovative climate	-.34***
Human resource primacy	-.31***
Commitment to the organization	-.35***
Work motivation	-.15***
Self-efficacy	-.15***

* p<.050, ** p<.010. *** p<.001

The surveys conducted for teachers' unions included some additional outcome variables: in Norway and Sweden depression and anxiety scales (HADS) were used, and in Finland exhaustion was measured (Copenhagen Burnout Inventory, 1999). With all these outcome variables (depression, anxiety and exhaustion), the trend of the results was similar: with many symptoms, correlation was negative to all factors related to leadership, social interactions, organizational culture at the workplace, predictability at work, and commitment to organization. The correlation with job demands was positive, whereas connection to role clarity and control of decisions was negative.

Results

In table 5, mean values and standard deviations for all age categories for the scales are shown. There are differences between the age groups. The age group 55+ rated somewhat lower for example in predictability of next 2 year, in preference of challenge, and in support from co-workers. How-

ever, their role clarity and work motivation was slightly higher. They also experience that there are more negative attitudes towards ageing workers in the workplace than the other age groups.

Table 5: Means (M) and Std.deviations (SD) for the QPSNordic-ADW scales in different age groups (n=1001)

Scale	Age groups							
	- 34		35-44		45-54		55-	
	M	SD	M	SD	M	SD	M	SD
Quantitative demands	3.52	0.62	3.44	0.71	3.57	0.70	3.38	0.69
Decision demands	3.97	0.60	3.89	0.58	3.99	0.56	3.84	0.60
Learning demands	2.78	0.57	2.79	0.59	2.87	0.59	2.74	0.62
Role clarity	4.08	0.69	4.15	0.60	4.23	0.69	4.33	0.61
Role conflict	2.75	0.89	2.67	0.80	2.74	0.78	2.74	0.82
Control of pacing	2.25	0.94	2.50	0.89	2.17	0.80	2.28	0.84
Control of decisions	3.06	0.67	3.28	0.68	3.15	0.66	2.99	0.68
Predictability of next 2 years	3.33	0.81	3.34	0.73	3.41	0.86	3.09	0.95
Preference of challenge	3.53	0.67	3.54	0.73	3.51	0.81	3.31	0.77
Empowering leadership	2.90	1.08	3.09	0.98	2.97	1.00	2.89	1.06
Fair leadership	3.37	1.15	3.56	1.00	3.50	0.99	3.50	1.04
Support from supervisor	3.55	1.14	3.75	0.96	3.59	1.03	3.53	1.07
Support from co-workers	4.16	0.74	4.07	0.73	3.98	0.78	3.86	0.80
Social climate	4.01	0.77	3.87	0.73	3.87	0.87	3.88	0.78
Innovative climate	3.59	0.80	3.51	0.68	3.46	0.76	3.44	0.71
Human resource primacy	2.55	0.94	2.60	0.88	2.65	0.90	2.60	0.92
Commitment to the organization	3.63	1.02	3.61	0.92	3.64	0.83	3.61	0.88
Work motivation	4.07	0.54	4.10	0.48	3.84	0.79	4.13	0.50
Negative attitudes towards ageing workers	1.63	0.64	1.93	0.72	2.06	0.82	2.24	0.90

Summary

The new structure of QPSNordic-ADW was confirmed to be satisfactory and the factor structures suggested in previous studies (QPSNordic; AHA-project) were confirmed in this study. The predictive power of the QPSNordic-ADW scales showed associations with the selected measures of individual well-being produces evidence on the validity of the questionnaire. The results also showed differences between age groups.

Sammanfattning

Nordiskt frågeformulär för undersökning av arbetskraft med stor åldersspridning - granskningsrapport gällande QPSNordic - ADW

Man kan räkna med stora förändringar på grund av demografiska tendenser i västvärlden under de närmaste decennierna. Den viktigaste förändringen blir förmodligen en tydlig förskjutning mot en befolkning med högre medelålder - ett åldrande samhälle.

Många regeringar och även vissa arbetsmarknadsparter i många länder vill ge människor möjlighet att stanna kvar längre i arbetslivet. Utmaningen ligger i att hitta sätt att utveckla de äldre anställdas kunskaper och kompetens, samtidigt som de bevarar sin hälsa, motivation och arbetskapacitet. Åtgärder måste vidtas för att bekämpa diskriminering av och negativa stereotyper om äldre anställda. Framför allt måste arbetsförhållanden och anställningsalternativ vara anpassade för en arbetskraft med stor åldersspridning.

2005 igångsatte Nordiska Ministerrådet ett projekt med målet att utveckla ett särskilt frågeformulär för att undersöka behov och önskemål hos äldre anställda, som närmar sig 60 års ålder (från 55 år och uppåt). Målet var att ta fram ett frågeformulär som skulle kunna ligga till grund för åtgärder på olika arbetsplatser, men som också skulle kunna användas för forskning. Detta är bakgrunden till utvecklingen av ett nytt nordiskt frågeformulär för undersökning av arbetskraft med stor åldersspridning (QPS Nordic-ADW).

Den här granskningsrapporten är en beskrivning av bakgrunden till och utvecklingen av detta frågeformulär. I den här rapporten granskas sambanden mellan arbete och välbefinnande för äldre anställda. Vidare behandlas utvecklingen och användningen av det förutvarande formuläret QPS Nordic. Läsaren får också information om utvecklingsarbetet bakom det nya QPS Nordic-ADW och om frågeformulärets innehåll.

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Yhteenveto

Pohjoismainen työn psyykkisten ja sosiaalisten tekijöiden yleiskysely eri-ikäisistä työntekijöistä koostuville työyhteisöille - katsaus QPSNordic-ADW -kyselyyn

Väestömuutosten aiheuttamien vaikutuksen oletetaan olevan huomattavia länsimaissa tulevina vuosikymmeninä. Yksi huomattavammista muutoksista on väestön ikääntyminen.

Ikääntyvien työntekijöiden työuran jatkaminen onkin useiden hallitusten ja myös työmarkkinaosapuolten tavoitteena. Keskeinen haaste on kehittää ikääntyvien työntekijöiden osaamista ja lisätä heidän työllistymismahdollisuuksiaan ja samanaikaisesti tukea heidän terveyttään, motivaatiotaan ja työkykyisyyttään. Tarvitaan myös toimenpiteitä taistelussa ikääntyvien työntekijöiden työpaikoilla kohtaamaa syrjintää ja kielteisiä asenteita vastaan. Ennen kaikkea työskentelyolosuhteiden ja työllistymismahdollisuuksien tulisi olla soveltuvia eri-ikäiselle työvoimalle.

Vuonna 2005 Pohjoismaiden ministeriöneuvos käynnisti projektin, jonka tavoitteena oli kehittää kyselylomake, joka soveltuu erityisesti ikääntyvien työntekijöiden (55 vuotta ja yli) tarpeiden ja työssä jatkamisen edellytysten tarkasteluun. Tavoitteena oli kehittää kyselylomake, jota voidaan hyödyntää organisaatioiden kehittämishankkeissa ja tutkimuksissa. Tuloksena syntyi uusi pohjoismainen kysely eri-ikäisistä työntekijöistä koostuville työyhteisöille (QPSNordic-ADW).

Tässä raportissa kuvataan Pohjoismaisen työn psyykkisten ja sosiaalisten tekijöiden yleiskyselyn (QPSNordic - ADW) taustaa ja kehittämistä. Raportissa tarkastellaan työn ja hyvinvoinnin yhteyksiä ikääntyvillä työntekijöillä, kuvataan aikaisemman yhteispohjoismaisen kyselyn (QPSNordic) kehittämistä ja kuinka sitä on käytetty kehittämishankkeissa. Lukija löytää tietoa myös uuden QPSNordic-ADW kyselyn kehittämisprosessista ja sen sisällöstä.

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Appendix 1: Background of the questions

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