

**COMPETENCE NEEDS OF OLDER WORKER
IN SMALL AND MEDIUM SIZE ENTERPRISES**

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ABSTRACT

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Ageing workers (45 years or over) are a large part of today's work force in Finland. Changes in working life, participation in training and life situations have an impact on the competence development of work force. Professional competence refers to knowledge, skills, aptitudes, and general characteristics of an individual. In this study, special indication has been put to the older workers. The purpose of this study was to examine the competence needs of older workers in two small and medium size enterprises. The enterprises were selected from two different branches, informational and manual work. Research strategy was to survey the competence needs, as well as to compare the competence needs between selected groups. These groups were employees and managers as well as older and younger employees within and between the enterprises. In addition, the working environment, competence and the background of the competence needs of the employees were described. This study was a part of the pilot study of EU -project "Working Life Changes and Training of Older Workers".

Both quantitative and qualitative research methods were utilized. The main information was gathered by using the structured questionnaires of employees (n=65) and managers (n=10). Altogether 65 % of the personnel in both enterprises filled out the questionnaires. In the enterprise of informational work, the response rate was 75 %, and in the enterprise of manual work 50 %. In both enterprises, half of the respondents were over 45 years of age. Qualitative information was gathered with the semi-structured interviews. Four older workers and one manager were interviewed from the enterprise of informational work, and two older workers and two managers from the enterprise of manual work.

The competence needs of older workers in the enterprise of informational work were largest in IT skills, in international relations, and in production skills. In the enterprise of manual work, competence needs of older workers were large only in marketing. Although older workers had competence needs, these were similar to the competence needs of younger workers. This could refer to the similar challenges and tasks in work faced by younger and older employees. In both enterprises the managers thought that the employees had more competence needs than the employees themselves stated. This would indicate that the managers are more aware of the changes and therefore competence needs that the company has to face. In the enterprise of informational work, numerous changes in work and organization had occurred in the past three years, and changes will be an essential part of the future as well, contrary to the enterprise of manual work. Similarly, participation in training was more frequent in the enterprise of informational work. In the enterprise of informational work, the competence needs of employees, not only older workers, should lead to practical affairs, such as training in needed competence areas. In the enterprise of manual work the managers should be more aware of the value of experience and competence of older workers, and their working conditions, because a large part of them could be retiring earlier than probably expected. If new employees are not hired and trained with the help of the knowledge and experience of older workers, the valuable know-how of older workers is vanishing.

Key words:

older worker; competence; competence need; changes in working life; participation in training, small and medium size enterprise

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1 Introduction

One of the challenges in today's working life is the ageing work force. The baby boomers are now reaching the retirement age and early retirement plans have attracted workers to exit the work force at ever earlier age. In society where youth and dynamic way of life are admired, the workers in their 40's are now seen as "old". In this research, over 45 years old employees are the older workers.

Rapid and continuous changes in organization of work, development of technology, transition from manual work more and more to informational work and services demand continuous self-development of both the younger and the older workers. As concerning the older workers, these demands are connected with the stereotypical attitudes which makes it harder to develop and to stay in working life (Tikkanen, Valkeavaara & Lunde 1996; Pearson 1996).

Professional competence makes it able to function effectively in work tasks. It has been defined most commonly as consisting of knowledge, skills and aptitudes, in addition to the general characteristics of an individual. (Willis & Dubin 1990.) Two competence models are chosen to describe the changing and context-related competence (Ellström 1997; Nordhaug 1991).

In this study, the competence needs of older workers are examined. The interest towards older workers has grown during the last few years at the same time as the proportion of older workers. Earlier studies concerning especially older workers' competence needs are nearly non-existent; the studies have concentrated on employees in general. This study may be of help in clarifying the competence needs of older workers, and thereby facilitate the planning and organization of training, as well as working conditions in order to keep the experienced older workers longer in working life.

The purpose of this study is to examine the competence needs and the competence of older workers in two Finnish small and medium size enterprises. Specially age and

educational background of the employees with regard to the competence needs are analyzed, as well as differences in competence needs between the younger and the older workers, the enterprises, and between the employees and the managers. Moreover, the changes in work tasks and in organizations, participation in training, and life situations are considered to be on the background of competence needs.

Data collection was carried out in two small and medium size enterprises in the pilot study of a project called Working Life Changes and Training of Older Workers. One enterprise represents manual work and the other is mainly based on informational work. Research methods included questionnaires for the employees and the managers as well as a semi-structured interviews in order to gain more qualitative information.

2 Older worker in enterprise

2.1 Characteristics of older worker

Definitions of the age at which people become "older" workers are arbitrary, but often the limit is placed between 40 and 50 years of age (Warr 1998, 24). The Ministry of Labor and the Committee of Ageing People in Working Life in Finland have defined over 45 years old as older workers and by "aged" workers is meant the workers over 55 years old. Furthermore, the term "middle-age" seems to be changing towards the term of "older". (Tikkanen 1998, 20.) Employees who are from 45 to 64 years of age have been defined as older workers by Niemelä, Talvitie-Ryhänen and Väisänen (1995, 7). In this research 45 years old or over are considered as older workers.

Age and ageing do not refer solely to chronological age. The latter is a process, and the former is a status in which at least biological, psychological and social factors are involved. (Straka 1990, 70.) Jarvis (1990, 118) has defined ageing as experiencing through time. Age can be viewed from angles such as legal, functional, socio-psychological and life-span. These definitions differ depending on the context of application, for example in legal matters the retirement age varies and in job recruitment the worker is considered as old in 40 years of age. Definitions of "older worker" are connected also with attitudes in working life. (Tikkanen 1998, 20 - 21.)

Birren and Renner (1977) suggest four kinds of definitions of age: biological, psychological, functional and social age. Biological age is defined by the condition of the life-limiting organ system. Psychological age refers to the adaptive capacities of persons, the conditions of the functions of the mind, learning, intelligence, and motivation. An individual's practical capacities for coping refer to the functional age. Social age reflects a person's social enthusiasms, how much and how well one performs within the social community. In these sub-systems of ageing, it is possible to grow younger in one way when growing older in other. (Shea 1990, 67.)

The proportion of older workers in Finland is increasing. The average age of the population was 38 years in 1997, it will be 43 years in 2017. Changes in the structure of the workforce are to take place. In the end of this century the population of 40 to 64 years will be increased by 200 000 and the population of 15 to 39 years by 150 000. This is the direction that society and working life should take into account. (Valkonen 1997, 40.)

Today's society respects youthfulness. Stereotypical estimation is that with ageing comes decline in physical powers, beauty and intellectual abilities. The access to education, training, employment, promotion, pensions, political and civil rights may be controlled by the age of the individuals. Judgments can not be made about a person's mental abilities or about the potential for learning and development just based on age and not knowing any other information. (Shea 1990, 66.)

The "baby-boomers" are today's older workers. They have grown during the economic growth and have established their status in working life, built a home and set up a family, or two. The economic depression in the 1990's changed the situation. Employment, bankruptcies, and debts increased rapidly. The age barriers have become reality in the recruitment of older workers. The older workers' expectations and attitudes towards work will not change in essence. Therefore, it is essential that society has an ability to offer the older workers successful strategies to survive in the changing working life, e.g. flexibility in the labor market and in the retirement policies. Premature retirements could increase unless the situation of older workers is not taken into account. (Kasvio 1994, 126 - 127.)

Older workers face ambivalent attitudes from the part of society at large, the firms in which they work, and also from older workers themselves. When considering the societal level, the trend in the twentieth century has been towards ever earlier end of work and the extension of retirement years. This leads to a reality of labor shortages in today's working life. Furthermore, the early retirement-boom has lead to projections of enormous social and personal expense. (Schränk & Waring 1989, 114 - 115.) For example, the average retirement age in Finland (59 years) is relatively low

compared to the official retirement age (65 years) (Ministry of Social Affairs and Health 1999).

From the part of the ageing workers themselves, the want to retire at ever early age is possibly due to the obsolete knowledge and skills in work. This, on the other hand, has to do with their lower formal education and few opportunities to participate on-the-job training. Moreover, the economic activity of older workers was not needed in turbulent changes in working life and the divisions of high educated younger workers available. Leisure in later life is seen as legitimate, and even as an entitlement. (Schrunk & Waring 1989, 114.)

Schneider (1994) observed that increasingly early exit from labor market among the ageing workers is partly due to declining health and inability to cope with the demands of their job. Also, to a great extent it is due to the employers' inability to adapt and manage with more mature workers. Therefore, the companies will have a central part to play in enhancing the older workers' participation in the labor market. (Tikkanen, Valkeavaara & Lunde 1996, 107.)

Older workers today differ from the future older workers. Future older workers will probably be in better health, be better educated and are better able to meet and adopt the demands of the changes in work life. Given these characteristics, this new generation of older workers may want to work later in life. They may, however, be overqualified for filling the low paying jobs open in the labor market. (Schrunk & Waring 1989, 115.)

2.2 Work experience and learning skills of older worker

Older workers have one thing in common: experience gained through the life-span. Experience means practicing a task over a period of time and its outcome expertise refers to declarative or procedural knowledge, sometimes viewed as "wisdom" (Warr 1998, 32). Baltes (1993) defines wisdom as an expert knowledge system with excellent judgment and advice about important and uncertain matters of life. Factual

and procedural knowledge are part of wisdom, which is acquired through experience across many years. (Baltes 1993, 586.) Expertise is very domain-specific. Benefits of expertise are likely to be seen when its content is directly relevant to the task at hand. Expertise helps to acquire deeper understanding, greater automatization of behavior and thinking and also complex perception of tasks. (Warr 1998, 33 - 36.)

Older people have learned from previous experiences at work and elsewhere. In situations when people do not have to make decisions or to learn new things, actions are habitualized, which enables activity to occur with less effort and choices. The paradox of experience could occur, because ageing people tend to take recurring situations for granted. They have learned from experiences and habitualized their responses, therefore learning new issues becomes more problematic. Although, habitualization doesn't mean that older people do not learn, but it should be taken into account as part of the learning process. (Jarvis 1990, 115, 118.)

Knowles has pointed out that the experience gained through the life-span may become the basis for future learning, but not all experience have a positive impact on learning. Older people may take much for granted in their lives after living in the slowly changing world and being in harmony with that world. Today, the world is constantly changing, thereby the older people should learn new things too. (Jarvis 1990, 118-119.)

Ropo (1996) argues that lifelong learning is necessary requirement for all workers through their life time. Among workers it is more crucial how able and willing they are to develop their competence and skills related to the needs of an organization, than how skilled they are when entering the company. Companies need lifelong learners, who are ready to change themselves and the company if needed. Learning is not possible without the contextual settings that support the developmental process, because learning is an interplay between the person and the organizational context. Although, training is also necessary as a facilitator of individual development. (Ropo 1996, 8.)

Possible decrease in learning outcomes of ageing workers could occur due to the lack of underpinning knowledge and learning strategies, which result from differences in recent practice (Warr 1998, 41 - 42). Also the lower processing speed at older ages contributes to less effective learning (Fisk & Warr 1998, 112; Salthouse 1994, 1486). It is the inability of older workers to form associations as rapidly as younger ones which accounts for most of the age effect on learning outcomes. (Fisk & Warr 1998, 112, 120.)

Motivation to learn has a consistent, significant and positive influence on different outcomes related to development activity. Employees' motivation to learn can be enhanced by providing them realistic information regarding the features and benefits of development activities. Organizations need to take steps to ensure that managers and peers are supportive of development activity. In addition, the working conditions have to be such that inadvertent punishment do not occur. (Noe & Wilk 1993, 301.) Support is important specially for older workers, to courage them to enter the same training programs as younger workers.

Differences in training motivation arise from variations such as stable attitudes, interests, perceptions of oneself and possible rewards and costs. In addition, many older workers assume that learning is difficult, unrewarding and not typical for their lifestyle. (Warr 1998, 39.) Older workers have also less positive attitudes towards flexibility in work roles (Birdi, Allan & Warr 1997, 854).

The strategies for improving the learning participation and learning success of older people could include a skill-based pay program, in which wage levels are linked to demonstrated competence after training to increase motivation. Also organization's positive learning climate could have an impact on motivation (time, support, encouragement from managers and colleagues). Learning confidence could be increased by pre-training as part of a current program. It could also enhance the content of expertise and learning strategies of some older employees. Furthermore, project works on the job and job rotation could be suitable ways to enhance older employees' learning. (Pearson 1996, 31 - 32; Warr 1998, 46 - 49.)

Warr (1998) points out that the patterns in research concern only average trends. There are wide differences in individual level and some older individuals are above the average level of younger ones. Also many other attributes, than age, influence on job performance. (Warr 1998, 45.)

2.3 Job performance of older worker

Professional competence is reflected in the job performance. Employees demonstrate their level of competence through job performance. (Willis & Dubin 1990, 3.) There is a common belief in the labor market that older worker tends to be less productive than younger one. However, there is no supporting evidence that older workers' job performance is generally and systematically lower than that of their younger colleagues. (Pearson 1996, 15; Plett 1990, 82-84.) Older workers are often more productive than younger ones because they are more confident in their work. This confidence is due to the experience: older workers know the content of the job and have already tested solutions to apply, which younger workers would have to invent themselves. (Schrack & Waring 1989, 116.)

Compared to younger workers, older workers have fewer absences for child-care obligations that interfere with work commitments and they are also more careful and accurate on the job and have fewer accidents. They are also less likely to leave the company, partly because they face age discrimination in the labor market. (Pearson 1996, 16; Schrank & Waring 1989, 116; Warr 1998, 27.)

An older worker is often more satisfied with the work than the younger colleague, the former is able to utilize the skills and the experience accumulated in the course of years at work. In addition, the older worker may have advanced in career, thereby the work tasks could be more complex and demanding than those of younger workers. The work tasks could be also more independent, the competence has been proven and there is no need for counseling or observing from others. (Smolak 1993, 303.)

Older workers have a variety of work patterns due to reasons such as individual work history, family situation and obligations, health conditions, future life planning, financial situation, commitment to groups of all kinds and views on the meaning of old age. Usually, they are more dependable, co-operative, conscientious, consistent and knowledgeable than younger workers. Considering the work patterns of older workers, the object is to find out the individual work patterns of the particular older worker requesting training or employment. (Plett 1990, 82 - 84.)

Particularly older workers may express behavior of prosocial activity at work, which means performance outside a prescribed main task. They may help to resolve interpersonal conflicts, provide advice to colleagues or serve as role models for younger workers. In these contextual roles, they are an asset to an organization. (Warr 1998, 27.)

Some physical characteristics and abilities decrease with age, for example physical strength, agility, the power of vision and hearing and the sense of touch (Kuhn 1999; Straka 1990, 72). Work performance of older workers also may deteriorate if heavy demands are placed on speed of cognitive functioning or if physical demands of the work process are consistently high. (Kuhn 1999; Pearson 1996, 38; Warr 1998, 32.)

Changes in intellectual capability of older workers are often divided into two categories, in which ageing either increases or decreases the capabilities (Kuhn 1999; Straka 1990, 72 - 73).

There is an increase in:

- work and professional experience
- conscientiousness
- sense of duty and responsibility
- faithful service to the company
- consistency / stability

There is a reduction in:

- willingness to undertake further training
- willingness to learn
- short term memory
- capability of working under time pressure
- tolerance of changes
- speed of absorbing and processing information

Some capabilities seem to remain mainly the same, for example resistance during normal physical and psychological demands, long term performance, attentiveness and ability to concentrate, the scope of acquired knowledge and knowledge of languages (Kuhn 1999).

2.4 Status of older worker in human resource management

People are the most important assets to the organizations. The competence of personnel and their education and development will be, in the long run, major competitive advantage of enterprises. Personnel management is the core domain in organizational development. Since the work force is ageing, new human resource management (HRM) attributes are called for. Though not much used in practice, age-awareness or age-sensitiveness are needed in HRM. (Tikkanen, Valkeavaara & Lunde 1996, 100-101.) Furthermore, when the importance of qualifications and competence of the workforce is increased among the personnel managers, the status of older workers is lowered. That is, the competence is seen to be negatively associated with age. (Olofsson 1997, 248.)

Juhela (1993) also argues that personnel strategy has an integral part of the company strategy and of the goals of business activity. According to Staehle (1989) the increasing significance of staff has above all been influenced by keener competition, introduction of new technology and production concepts, problems related to productivity and quality, demographic changes, changes in values and life style, and changes in concepts about work and its meaning. (Juhela 1993, 85-86.)

These factors lead to increasing number of human resources development and in-service training programs as a part of the activity of the firms. The developmental stage of the organization determines to a large extent the significance of the human resources and their content composition. Therefore, human resource strategies have to be in balance and correspond with the developmental stage of the organization at that particular time. If this is not the case, the efficacy of personnel strategy will suffer and combining it with the other components of the company strategy becomes difficult, as Meshoulan and Baird (1987) observed. (Juhela, 1993, 86.)

Cohen (1994) argues that learning and development of staff can be seen as an investment in the future of an organization. Learning opportunities will shape the employees to become more critical-thinking, problem solving and competent individuals who have an ability to think and act self-directly in a rapidly changing workplace. (Rowden 1996, 6.) As the individuals and their skills, knowledge, and abilities form the base of the competence within organization, open learning opportunities for all employees are crucial for the success of the organization.

Organizations must take into account the demographic fact: the ageing workforce. Organizations have to tackle the problem of how to implement the vision of workers as the main assets as well as to integrate this vision to the business strategy while at the same time trying to increase the productivity and competitiveness. They will have to do all this with the growing numbers of older workers among their staffs. (Tikkanen, Valkeavaara & Lunde 1996, 106-107.)

This situation appears to be double jeopardy to the ageing workers. They often find it hard to keep up with continuous changes in their fields, not to mention of learning to know a new field. This has to do with older workers' often lower levels of formal education or with the obsolete education and training. Younger workers face the same problems as well, but an older worker also has to tackle with various disadvantages that come from increasing age. (Tikkanen et al. 1996, 107.)

Current HRM-policies have ambivalent attitudes towards older workers. On the one hand HRM-policies emphasize the need and possibility for lifelong learning and development, and on the other, age-discriminative policies. Those policies view an employee as old and useless to the company at ever younger age. (Tikkanen et al. 1996, 104 - 105.) On organizational level, this ambivalence toward older workers is clearly seen. Older workers are typically the carriers of organizational culture. They have developed relationships with customers and clients and they have been there in building the company. (Schränk & Waring 1989, 115-118.) For example, a 35 years old worker may be too old to be hired, and too young to a manager's responsible role (Tikkanen 1998, 20).

In the labor market, the hardest disadvantages faced by older workers are the negative and stereotypical attitudes toward, and sometimes also among older people. Myths, prejudice, and lack of knowledge of older workers has led to ageist HRM policies. (Tikkanen et al. 1996, 107.) These policies have diminished the opportunities for career planning, competence development, and vocational training for workers above 45 - 50 years. They also have led to the age limits in recruitment and premature exclusion from labor force into early retirement or unemployment. (Pearson 1996, 17, 46 - 47.)

On the other hand, Schränk & Waring (1989) suggest that age-neutrality in HRM-activities is the best way to ensure that older workers, as well as workers at all ages, have the skills, resources, motivation, incentives, context and commitment to do their jobs well. Programs or interventions focused only to the ageing workers may produce, reinforce or even create stereotypes that older workers are poorer performers who need extra support to do well in the company. In addition, privileges focused to older workers may produce rejection among other worker groups. Age-neutral training and development are justified because the rapid changes, for example in technology, can make the skills and knowledge of all workers obsolete overnight. Thereby, ongoing training should be routine for everyone. (Schränk & Waring 1989, 119 - 121.)

According to Anderson (1996) age is expected to be less of an issue in the future HRM. Handy (1996) claims that the knowledge and skills are what count, not the person's age, for example. Co-operative team work in flattening organizations will give good chances to mix the knowledge and skills of older and younger workers to the increase use of the group-intelligence. (Tikkanen et al. 1996, 106.)

The companies have not yet been convinced what they gain by retaining or even hiring older workers. Older workers have experience-based knowledge that no "fresh" education can give to a younger person. While knowledge obsolescence is rapid in most professions, it would be rational to increase the emphasis of training and retraining in organization with the increasing age of the employees. However, this is not the case so far. With stereotypical attitudes, the training needs of older workers are generally seen low, sometimes even among older workers themselves. This is due to the decreasing options for job-related training among ageing workers. (Tikkanen et al. 1996, 107 - 108.)

2.5 Participation in training of older worker

Adult education has had an intensive growth in recent 20 years, as was indicated in the Adult Education Survey of Statistic Center (1999).

Table 1 Participation in adult education related to work or occupation by age group in 1980, 1990 and 1995 (labor force aged 18 - 64) (%)

<i>Age</i>	<i>1980</i>	<i>1990</i>	<i>1995</i>
18 - 29	25	44	35
30 - 44	27	48	46
45 - 54	22	44	47
55 - 64	12	27	33
All	24	44	43

Source: Adult Education Survey 1995

Table 1 shows that participation in work related adult education has increased from 24 % to 43 % in all age groups since 1980's. The most significant growth in participation is among the age group of 45 - 54. (Adult Education Survey 1995.)

Participation in continuing adult education tends to cumulate for those who already are the most educated (Juhela 1993, 87). The research of the Statistics Center (1999) shows that the educational background is low within the 45 - 54 years old. 34 % of this category and from the 55 - 64 years old 59 % have only the basic educational background. It has been shown that more educated people participate more in continuing training. (Finland in figures 1997.)

For example in Adult Education Survey, it was found out that people who had the highest educational background participated most in training (72 %), whereas among the low - educated people participation rate was only 32 %. In many cases, groups of lower formal education are those of the ageing workers who also have fewer chances to take part in on-the-job training. (Adult Education Survey 1995.)

Tikkanen (1998) has concluded that older workers (40 - 54 years), who had better educational background, had more than 30 times higher possibilities to participate in training than lower-educated older workers. The higher-educated participated in training with increasing amount until the age of 54, whereas the lower-educated had a decreasing participation rate from the age of 40. In addition, after the age of 54, the participation rate decreased from 94 % to 40 % among the higher - educated workers. (Tikkanen 1998.)

In the research of Statistic Center (1999) was found that three main motives for participation in education and training among Finnish labor force aged 18 - 64 were self-improvement, development of professional skills and better pay. Entering a training activity is connected with life, tasks or problems. Although, participation may be prevented by a failure or the fear of an inability to compete against younger, better-educated trainees. (Straka 1990, 74 - 75; Pearson, 1996, 46.) In the background of age-differences in participation is the fact that older workers tend to have lower

educational qualifications and therefore lack of declarative and procedural knowledge (for example, the ability to understand and use information from written texts and tables) which are often the basis for new learning. This lack of qualifications is strongly related to lower self-confidence about the ability to acquire new skills and knowledge. (Warr 1998, 39.)

Training course of employees increased learning motivation, self-actualization and self-confidence. Therefore, among more educated individuals a positive feedback cycle could occur between education and positive learning attitudes, which may thus encourage greater activity in training. (Nordhaug 1989, 376 - 377.) Motivation for participation in training may be influenced by norms related to age and also differential social pressures. Although, when older workers do take part in training, their attitudes are equally favorable. Therefore, the key practical problem is how to encourage older workers to enter training programs. (Warr 1998, 40.)

Table 2 Participation in training subsidized by the employer by age group in 1980, 1990 and 1995 (wage earners aged 18 - 64) (%)

<i>Age</i>	<i>1980</i>	<i>1990</i>	<i>1995</i>
18 - 29	20	43	41
30 - 44	25	52	53
45 - 54	20	48	57
55 -64	14	37	51
All	22	47	52

Source: Adult Education Survey 1995

Employers have increased their investment in training during the last two decades. As shown in the Table 2, employers have probably recognized the value of older workers, since the largest growth in participation is among the workers aged 45 or over. (Adult Education Survey 1995.)

Research made in Pirkanmaa in 1989 shows that merely more than third of employees could participate in training organized by their employer. Great

differences between age-groups were found after 45 years of age. From the men of 45 - 54 years, almost a half got into training and only a quarter of the women of the same age. From the older men 42 % and from the older women 30 % got into training. (Siltanen 1994, 291.) Current job satisfaction was found to be greater among employees who had taken part in training courses and work-based development activities. This increased also employees' commitment to the organization. (Birdi, Allan & Warr 1997, 855.)

3 Competence of older worker

3.1 Older worker in working life transitions

Whatever the job title, more and more jobs are based on knowledge-work. People at all levels of the organization must combine their specialized technical skills with the social skills to work in teams as well as to form productive relationships with clients and customers. What is more, they have to continuously reflect with their organizational practices and change them when needed. Manager's role is to guide and coach these individuals to integrate their work. (Argyris 1992, 85.) There seems to be growing separation between performing (manual) work and information processing (brain) work. (Tessaring 1998, 90.)

In a changing working life, more flexibility will be required both from employees and organizations. According to Chalofsky, (1992) as intelligence will be the future source of wealth and prosperity, continuous and lifelong learning and development of one's abilities, skills and knowledge are necessary, not only for individuals but also for organizations. Handy (1996) and Laudlin (1996) suggest that future orientation of the source of knowledge for innovations and organizational development will probably be in the shrinking core of the staff, in team work, and in an increasing number of people who sell their competence in portfolios. (Tikkanen, Valkeavaara & Lunde 1996, 105.)

For the better educated work force, this vision gives more freedom in terms of the use of one's time, and probably also more money. On the other hand, as Reskin and Padavik (1994, 168) point out, it means more job insecurity (for keeping one's job or having a new one) and also more financial insecurity for the increasing number of low-educated - and older workers. In addition, this helps to create even more polarized society. Consequently, education and training are becoming a market products to be bought by people who can afford them. (Tikkanen et al. 1996, 105-106.)

The results of prognoses for the future indicate that the following qualifications of work will be needed (Naegele 1988): broad vocational qualifications, theoretical knowledge relevant to the job, job flexibility, systemic and holistic thinking, fast reactions, the power of concentration and abstraction, precision, the ability for co-operative relationships at work, and knowledge of data-processing including programming skills. Straka (1990) points out that there could arise some problems for older workers, considering the relation between the negative characteristics of older workers and the qualifications required. (Straka 1990, 72.)

Significant number of employees in mid-life have to face the continuing technological and organizational changes to stay at work until retirement age. They need the technical and personal skills to compete equally with younger workers in working life where career changes and flexibility are likely to become a norm. Therefore, the employers should take a more positive view of older workers as a key human resource to be trained, sustained, and developed. (Pearson 1996, 45.)

Plett (1990) argues that older people should recognize the importance of the skill enhancement within technological changes. They also have the responsibility to take advantage of the training opportunities available. Older people should acknowledge the possible job and even career changes early in life to retain a greater sense of control over their personal destinies and well-being. (Plett 1990, 94.)

Nordhaug (1994) has recognized three developmental trends in the workplaces related to the changing vocational qualifications required of the employees. The first one is the change towards high-tech skills, which are needed in operating complex production systems, for example. The second one is the change towards applying more varied and integrated skill combinations required by the new technology and the emerging new jobs. The third trend involves utilizing employees in a large range of tasks and environment. (Ropo 1996, 7 - 8.)

These trends, and therefore changes, create new competence needs in working life. Basic practical skills acquired from vocational training are no longer enough. These

skills are important, but it is more essential to combine the practical skills with thinking and theoretical knowledge. (Jaakkola 1995, 121.) Therefore, the employees could be qualified for the work tasks requiring decision making and problem solving. They should also be multiskilled, well educated and ready for change. Job rotation and new work tasks demand that the skills applied are contextually situated and at the same time applicable and transferable to the new contexts. (Ropo 1996, 8.) Specific skills are important, but the core of vocational knowledge is the combination of skills, the competence (Henderson & Clark 1990, 11).

3.2 Organizational and personal competence

3.2.1 Definitions of competence

Competence is defined most commonly as consisting of three elements: knowledge, skills and aptitudes. In this classification, knowledge refers to the information on the subject matter, skills are the capacities to act in the certain way and aptitudes are the potential capabilities to acquire specific knowledge or / and skills. (Eraut 1994, 179; Nordhaug 1991, 164 - 165; Nordhaug & Grønhaug 1994, 91; Ropo 1996, 9.)

Willis and Dubin (1990) have broadened the concept. Professional competence refers to the ability to function effectively in the task considered essential within a profession. It involves two domains: proficiencies and general characteristics of an individual. The first domain includes similar three elements: knowledge, skills and abilities. The second domain represents issues that facilitate individuals' development and maintenance of professional competence: intellectual ability, personality traits, motivation, attitudes and values. (Willis & Dubin 1990, 3.)

The concept of competence was introduced in the 1980s. It was developed from the concept of key qualifications. According to Tessaring (1998) five competence categories can be distinguished. The first one is the subject-specific competencies which help to perform a specific job properly. These kind of competencies are

acquired in vocational or on-the-job training. The second one consists of the self-responsibility or participative competencies, which are meant to promote self-directed learning and self-responsible work. These include also an ability to make decisions and to assume responsibilities. (Tessaring 1998, 176.)

The third one is the team or social competencies. These should nurture the ability to work, co-operate and communicate in a team and to act socially. The fourth part includes the systems or methodological competencies. These competencies refer to the ability to understand cause and effect processes and apply experience to new tasks. It also includes the ability to organize projects and work efficiently and to know about procedures and divisions of responsibilities (e.g. in authorities, state etc.). The last category includes the reflexivity competencies, which should develop a critical review of one's own work in order to improve its quality and to identify and test more efficient procedures. (Tessaring 1998, 176.)

Straka (1990) has a similar model of competencies, which consists of professional, methodical and social competence. Professional competence refers to the skills and knowledge which the skilled workers need to cope with the concrete tasks relating to the job. Methodical competence comprises three abilities; the ability to use the existing skills and knowledge in complex working processes, to obtain and use information, and to evaluate completed actions to derive consequences for future actions. Social competence is the ability to co-operate effectively with superiors and colleagues, to make allowances for different interests, and to deal openly and fairly with factual and personal conflicts. (Straka 1990, 74.)

International qualifications include vocational competencies such as knowledge of legal and administrative practices in other countries, technical norms or a proven excellence in the chosen field. Language skills are also a part of these qualifications, as well as the intercultural competencies, which refer to the understanding of mentalities, cultures, values and attitudes of people from other countries. This kind of qualifications are more and more important in an era where international trade is increasing and production processes are restructured and integrated across borders. The ability to act transnationally and to possess this kind of international

qualifications becomes a key qualification for large sections of the workforce, even if they will not actually move across borders. (Tessaring 1998, 212.)

From the organizational viewpoint, the individual knowledge and skills might be seen only as one dimension of the organizational core competence. This core capability has been defined as a competitive advantage that the company has. It includes four dimensions, which are the employees' knowledge and skills, the technical systems and knowledge, the managerial systems and the organizational values and norms. The first one, employees knowledge and skills, is most relevant to a new product development. The technical systems and knowledge are a result of accumulation and structure of the tacit knowledge in people's minds over years. This kind of production or information systems represent compilations of knowledge which are derived from multiple individual sources. (Leonard-Barton 1992, 113.)

The third dimension consists of managerial systems, which represent the informal and formal ways of creating knowledge, including networks with partners. In addition, the control of knowledge in the form of incentive systems and reporting structures is a part of managerial systems. The fourth one includes the organizational values and norms. Values are a part of the organization, relating to the content and the structure of knowledge dominating in the decision making and also they are an expedient to collect and control the knowledge. This core competence is a part of the organization's taken-for-granted reality, which is an accretion of decisions made over time and events in the corporate history. (Leonard-Barton 1992, 113 - 114.)

According to Ekstedt (1988), the knowledge of an organization can be based on the real capital, on the organization or on the individual. For example the consult organization is based on individuals, whereas process industry (paper industry, for example) is based on capital. Competence based on organization is seen to be central in organizations where competence is within the organization as a result of a learning process. (Åkerberg 1993, 13 - 14.)

The learning organization (Senge, 1990) is recognized as one where work and learning always go hand in hand to support the continuous change and improvement

of the organization at the individual, group, and organizational levels. Thus, the organization's competitive advantage grows from its ability to acquire, utilize and generate knowledge. (Rowden 1996, 8.) Learning organizations are possible because of our natural ability and want to learn (Senge, 1990, 4). There is an opportunity to learn when we notice a knowledge or skill gap between what we know and can do and what we are supposed to know or do. In addition to this, we have to have the motivation, the urge, to learn and the ability to do that. On organizational level chances for learning are such as a new competitor, new technology, market downturns, a new idea, a new vision that leave a knowledge gap between the current and the wanted situation. (Watkins 1996, 93.)

Senge (1990) suggests that learning is no longer only a manager's responsibility but is an important role of every employee at all levels of the organization. The learning organizations are described as organizations where people continually expand their capacity to create results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together. (Senge 1990, 3.)

The learning organization concept has shifted the focus from training to learning. Organizations can be considered as organisms that grow as they learn. Nevertheless, it seems rational, that it is the people who learn and without people an organization does not exist. (Rowden 1996, 8.) The organization has no brains in itself, but the group intelligence and the shared competencies of the personnel form the brains for the organization to learn and respond to the changes in environment.

According to Fiol and Lyles (1985) organizational learning is not simply the sum of each individual's learning. In order to keep learning continuous, the organizations must create a system where they are saving the gains, as Japanese put it, of the organization history. That is, to refer to stored information such as the knowledge which has worked in the past when certain types of situations occur. The critical point is to capture in a permanent way learning of individuals and groups within the organization to embed learning. Organizational memory refers to stored information on an organization history. Maintaining learning in an organization, intellectual

capital should be stored in organization routines and databases rather than only in individuals. (Watkins 1996, 91.)

Ellström (1997a) defines two ways of learning within organization: adjustmentally and developmentally oriented learning. The former is about how an individual acquires knowledge, solves problems and learns to handle certain situations in which the tasks and goals are given and it is neither possible nor wanted to criticize or try to change the given conditions. The latter defines the situation in which an individual has a critical and experimental insight into goals and tasks and has a possibility to autonomous decision making. In stead of asking how to act in a certain situation, an individual is reflecting what kind of situation it is. (Ellström 1997a, 69 – 70.)

Adjustmentally oriented learning is typical for enterprises in which production process and utilized technology are relatively simple and well mastered and the context of the organization is stable. Developmentally oriented learning is required in the enterprises with complex technology and continuously changing environment in order to keep up with the competition. (Ellström 1997a, 94 – 95.)

3.2.2 Occupational competence

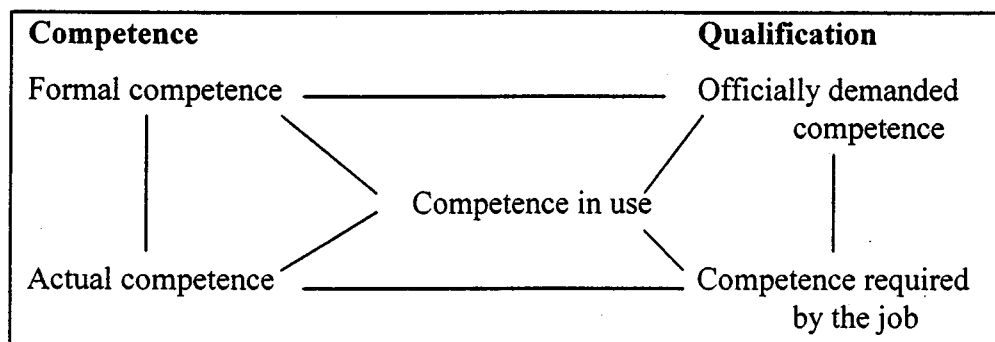
In this study, two competence models were chosen to describe the different meanings of competence. Nordhaug's model deals with competence in the context of organization and work tasks and Ellström with change-oriented occupational competence.

As a point of departure, Ellström (1997b) defines competence as the potential capacity of an individual to handle successfully certain situations or complete a certain task or job. This capacity is a complex function of perceptual motor skills, cognitive and affective factors, personality traits and social skills. Thus occupational competence refers to a relation between the capacity of an individual and the requirements of certain situations or tasks. It also refers both to the knowledge and intellectual skills and non-cognitive factors such as motivation and self-confidence. Certain conditions may also be present, for example a challenging task or a work

organization with a certain autonomy. Therefore competence is divided into two parts; what is actually required by the work task or is implicitly or explicitly prescribed by the employer. (Ellström 1997b, 48 - 49.)

Ellström goes further developing five meanings of occupational competence, which are distinguished in Figure 1.

Figure 1 Different meanings of occupational competence (Ellström 1997b, 49)



These five meanings of competence can be divided into three views. The first view is that competence is an attribute of individuals, a human resource that workers bring to their jobs. Distinction can be made between formal and actual competence. The former may be measured by the years of schooling completed or by the credentials achieved by an individual. The actual competence means the potential capacity of an individual to handle successfully a certain situation or to complete a certain task. It includes both the outcomes of education and the learning outcomes of work and a wide range of informal, everyday activities. (Ellström 1997b, 49 - 50.)

In the second view occupational competence is analyzed in terms of qualifications as prescribed or actual job requirements, which can be divided into the official demand for competence, for example as a basis for requirement or for the setting of wages, and the competence actually required by the job. Some disturbing factors may occur in both cases in a way that the officially prescribed competence requirements may in many cases be expected to be different than the actual job requirements. For example, the official demands for competence are affected by the demand and supply

of qualified people in the labor market and the actual requirements of the job may be unknown without a current job analysis. (Ellström 1997b, 50.)

The third one is an interactive view, which emphasizes the competence-in-use, which is neither exclusively an attribute of the individual worker, nor an attribute of the job. The focus is on the interaction between the individual and the job, and on the competence that is actually used by the worker in performing the job. Competence-in-use might be seen as a dynamic factor mediating between the potential capacity of the individual and the requirements of the job. These both parts may facilitate or limit the extent to which the individual uses his or her actual competencies. Individual factors like previous experiences and for example self-confidence are important. Job related factors may have a strong impact on the actual competence of individuals at work including the formal and informal organization of the workplace, which consists of worker autonomy, participation, task characteristics and feed back. (Ellström 1997b, 51.)

3.2.3 Organizational and work task competence

According to Nordhaug (1991), the use of competence in work-life has two central dimensions (Figure 2). The first dimension is the organization-specificity of the competence, which refers to the application possibilities in one or several work organizations. The second dimension, the task-specificity, refers to the degree to which a competence can be used to solve limited or a broad range of work tasks. The competence is divided into four parts; meta-competence, standard technical competence, intraorganizational competence and unique competence. (Nordhaug 1991, 165.)

Figure 2 Competence typology (Nordhaug 1991, 166)

		Organization - specificity	
		Low	High
Task - specificity	Low	Meta-competence	Intraorganizational competence
	High	Standard technical competence	Unique competence

Characteristics of meta-competence are low firm-specificity and low task-specificity. It has a very broad field of application in different work organizations and tasks. This kind of 'infrastructural' knowledge, skills and aptitudes on the individual level include for example the following competencies:

- analytical aptitudes
- reading and writing skills
- communication skills
- creativity
- learning capacity
- cooperative capabilities
- control of change
- planning skills
- language skills

Meta-competencies can be important both in individual and organizational performance by increasing the flexibility and adaptability at both levels. (Nordhaug 1991, 167.)

Standard technical competence includes knowledge, skills and aptitudes which can be applied across work organizations but are limited to accomplish certain work tasks. These competencies consist of general, but technical, vocational and

professional skills such as accounting principles and rules, computer skills, applying standard technology and craft skills. (Nordhaug 1991, 168 - 169.)

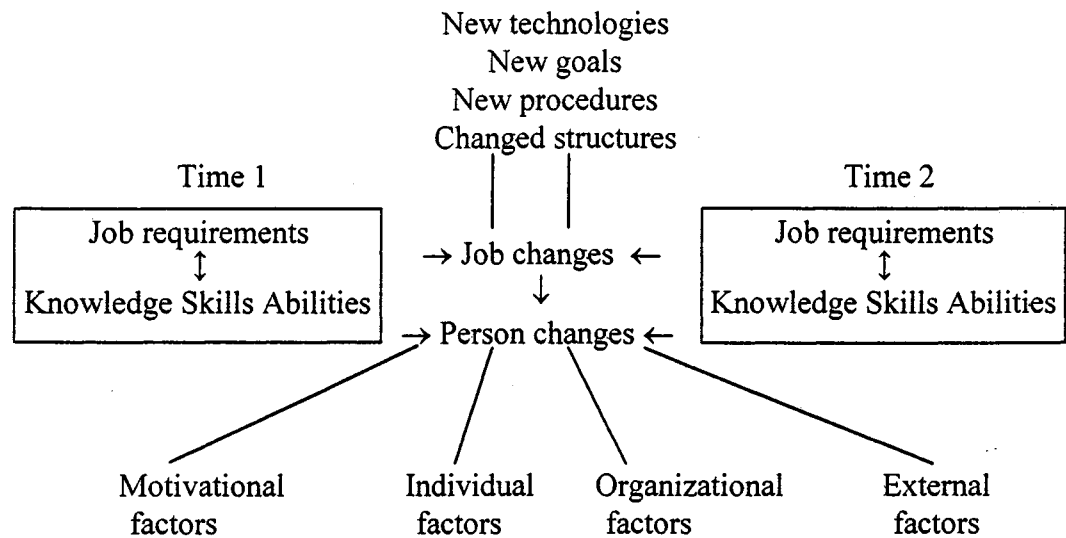
Intraorganizational skills can be applied in different work tasks but only in one organization. These skills are generated and developed through social interaction between colleagues inside the work organization; for example knowledge about the organizational operations, the internal division of labor and the mission, goals and strategies of the organization and moreover knowledge about the informal organization including culture, subculture and social networks. (Nordhaug 1991, 169 - 170.)

Characteristics of the unique competencies are the high firm and task-specificity. These competencies develop in the same manner as intraorganizational competence, in other words inside the organization. This competence class includes knowledge and skills in using local, tailored filing system, skills in applying specific equipment and knowledge about the idiosyncratic rules, routines and procedures for accomplishing tasks. (Nordhaug 1991, 170.)

3.3 Competence needs of older worker

As a conclusion to the previous chapters, which have concerned older workers in enterprises, changes in working life, organizational and personal competence, the figure of skills obsolescence is presented here (Figure 3).

Figure 3 Factors involved in skills obsolescence (Fossum & Arvey 1990, 45)



Several factors (Figure 3) might influence changes in a person's job-related competence (knowledge, skills and abilities) such as motivational, individual, organizational, and other external factors. New technologies, goals, procedures and changing structures within the organization might have an impact on the changes in work tasks, duties and responsibilities. The greater the gap between the rate of changes in job and the rate of changes in a person's competence, the more obsolescence could be expected to occur. The direction of causality from the job to the individual means that the individual has to adapt to changes in job requirements. Although, personal response is limited due to the configuration of abilities, aptitudes, and the learning rate, while job changes can be quite rapid. (Fossum & Arvey 1990, 45 - 46.)

Outcome of the failure to maintain professional competence is professional obsolescence. Dubin (1977) has defined it as the discrepancy between a person's stock of knowledge, skills and abilities and that person's capability to perform the required tasks of the professional. However, competence and obsolescence are not polar opposites. Obsolescence may contribute to professional incompetence occasionally, but lack of competence may reflect other factors, such as health or work environment. (Willis & Dubin 1990, 4.)

Training needs of work force can be divided into subjective and objective training needs. The former defines the need experienced by an employee. The latter is one that is evaluated by an outside expert. The employee should fill these needs to do the job as demanded. The measured training needs can also be defined as discrepancy training needs: there is a gap between the current and the wanted competence and the gap should be bridged by training. (Scissons 1982, 20; Silvennoinen & Naumanen 1993, 172.)

Competence needs can be viewed from the point of a person, enterprise and society. The need can be the urge to redress the unsatisfactory situation or deficiency. For example, the current actions or results of an enterprise are inadequate and therefore the change is wanted. There is an ideal level as a comparing point, to which it is strived for by the training and development. If the training and development of personnel is based only on repairing the current situation, the development procedures can be left behind the rapid changes in the environment of an organization. (Aalto, Hätönen & Vaherva 1996, 28.)

In 1990 the half of the work force (1,3 million employees) in Finland felt the need for competence or career development. The old paradox is that those who have already had the most education, also needed it the most. One explanation for this is that those who have had a long education are placed in demanding and rapidly changing jobs and therefore need continuous education and training. It should be noted, however, that education can be also seen as a stimulant; the more it is consumed, the more it is needed. In the same year 1990, the needs for further vocational training were the highest in the age group of 30 - 34 years. The needs decreased evenly when concerning the younger and the older employees. (Silvennoinen & Naumanen 1993, 173.)

In the research of forecasting competence needs in Central Finland the greater part of enterprises (61,8 %) estimated that special professional competence has to be developed a lot. In addition, important competence needs were the improvement of quality, the special qualifications in information technology (IT). The other

competence needs mentioned were marketing, internal entrepreneurship and managerial skills. The knowledge of languages was moderately important, specially in traveling, metal and information technology businesses, especially the language skills in English, German, Swedish and Russian. The competence in foreign trade was not considered so important. Although, in the wood industry and the information technology, it was moderately important developmental need. (Ritsilä 1998, 38 - 40.)

Lahn (1996) examined a biotechnical laboratory, where work is mostly done by engineers. As a result of research, he found out that both the younger and the older engineers thought that their work competence should be updated, this was partly attributed to the introduction of new equipment. The younger employees wanted to learn a formal tool, statistics, whereas the older engineers wanted to enter leadership, therefore the management skills were the competence need. (Lahn 1996, 59.)

When studied needs of enterprises and education in working life, in the near future the most important developmental needs of enterprises from different branches were related to marketing, sales, export and human resource development (HRD). In HRD there were special needs in enhancing professional skills, espousing the internal entrepreneurship and developing the work community. Especially in the branch of electromechanics, the strengths were competence, technology and developmental ability. There was a need for development in the following areas: IT, pace of delivery, quality, new technics of packing and adequacy of trained personnel. (Hakuli & Kettunen 1997, 15, 20.)

The most important strategic areas of development among the electromechanicians included improved networking, the competence of the personnel (special skills in IT, internal entrepreneurship, knowledge in English), and the development of production. The present personnel needed further training in new technology and IT, and the employers needed training in communication skills. (Hakuli & Kettunen 1997, 20 - 21.)

In the metal and machine shop industry the strengths were the level of education of personnel, flexibility, marketing, and quality. The strategic areas of development

were development of production, sales, marketing and personnel. The present personnel had competence needs in following areas: IT, CNC, CAD, NC, internationality and the knowledge of languages, teamwork, planning, quality, economy, and leadership skills. (Hakuli & Kettunen 1997, 21.)

When examined technicians in the transition of working life and education (Opetushallitus 1996) 88% of recipients thought that work tasks had increased and become more extensive and interesting in recent years. Future predictions included decrease in leadership tasks of technicians. Work tasks in relation to planning, expertise, development, quality, team work, and cooperation were going to increase. In this research employees had obsolescence in the knowledge of languages, in the IT skills, and in the technical competence. The employers had competence needs in social skills (management skills, co-operational skills), and teamwork. (Opetushallitus 1996, 72 - 73, 85 - 86.) Studies concerning competence needs have been conducted in relation to all employees of organizations. Therefore, special attention has to be paid towards older employees and their competence needs.

4 Conducting research

4.1 Purpose of this study

The purpose of this study was to examine the competence needs of older workers in two enterprises, in which the type of work was informational and manual. The differences between younger and older workers' competence needs were one aspect of this study. In addition, one object was to understand the context which defines the competence needs of the workers, i.e. the enterprise. Research strategy was to survey the competence needs, to compare the competence needs between selected groups, and to describe the working environment, the competence and the background of the competence needs. Few studies have been conducted earlier with special attention to the older workers as a target group in relation to the competence needs.

There could be several areas from which the competence needs of the employees arise: changes in work tasks and in organization, participation in training, and the life situation of an older worker (health). Special attention was indicated to the age and educational background of the employees regarding the competence needs. Managers' viewpoint was examined with questions about competence needs, changes in work tasks and in organization. The viewpoints of managers and employees regarding these issues were compared.

Research questions:

1. What are the strengths and sources of competence of the employees?
2. a) What are the competence needs of older workers in SMEs?
 - b) Are there differences between older and younger workers in competence needs?
 - c) What are the differences in competence needs between two SMEs (informational and manual work)?
 - d) Do the competence needs of employees and those of managers come across?
3. What is on the background of the competence needs?

4.1.1 WORKTOW - project

One of the main challenges in working life in the near future will be the aging of the workforce, and the developing of useful solutions from this point of view. Information, possibilities, and choices to find these kinds of solutions are looked for in the WORKTOW project (Working Life Changes and Training of Older Workers). The University of Jyväskylä, Department of Education, coordinates this EU-project. The time frame for completing the work is 3 years (1997 - 2000). The other participating countries are The United Kingdom and Norway. They constitute a balance of universities and national research institutes which have expertise either in gerontological or work-related research and development, or both. The partners are the University of Keele (Department of Geriatric Medicine) and the University of Lancaster (Department of Continuing Education) in U.K. and Norwegian Social Research Institute in Norway.

The main goals are to investigate the extent to which the knowledge, skills, experience, and attitudes of older workers can be recognized, valued, and utilized in work and learning situations as well as to investigate the ways in which older workers learn within work settings. Additionally, to investigate the extent to which human resource development practice and educational interventions involving older workers can facilitate lifelong learning and productivity, and to investigate the ways in which the diversity of the workforce in terms of age and acquisition of knowledge, skills, experience, and attitudes can contribute to the development of learning organizations in the work context and, more generally, to the creation of the learning society.

4.1.2 Target enterprises

The co-ordinator of the WORKTOW in the University of Jyväskylä contacted and requested several enterprises in central Finland to be part of the pilot project. Two SME's in the near area of Jyväskylä were chosen by the co-ordinator of WORKTOW in November, 1998. The criteria for the selection was the size of an enterprise, type

of work, and the age profile. The size of an enterprise should be from 1 to 200 employees, the type of work was informational, manual or service, and the age profile was defined to minimum of three older workers (45 years or over). Enterprise 1 represents informational work (60 employees), and enterprise 2 is mainly based on manual work (40 employees). The criteria was reached in both enterprises.

4.2 Research methods

Both quantitative and qualitative research methods were included in this study. Questionnaires and semi - structured interviews for the employees and the managers were conducted.

4.2.1 Questionnaire

In the enterprises of the pilot study, both the employees and the managers were asked to fill out partly different questionnaires (Appendices: employees 1 & 2, managers 3 & 4). Structured questionnaires were designed to acquire specific and empirical knowledge of the employees and the organizations in order to meet the requirements of the objects of the project.

When planning the research questionnaires, we cooperated with WORKTOW team in Jyväskylä. The international research team developed structural questionnaires for the employees and the managers, which were identical in the researches conducted by the partners. Specific questions about competence needs, competence, changes in work tasks and the state of health were added to the end of the questionnaires (questions 45 - 52) in order to meet the purpose of this study. Additionally, for this study, there was an opportunity to use the information from the other parts of the questionnaire as well. The WORKTOW team is continuing their project (fall 1999). The questions concerning competence needs are still a part of their questionnaire.

The managers answered on behalf of the enterprise and the employees from their individual viewpoints. The questionnaires were taken to the enterprises by WORKTOW team. In the enterprise 1 (informational work), the employees and the managers filled out the questionnaires in the work place during the work day, the questionnaires were collected afterwards by a WORKTOW team member. In the enterprise 2 (manual work) the employees and the managers got the questionnaires with addressed and stamped envelopes. After filling out the questionnaires on their spare time, they mailed the responses to the co-ordinator of WORKTOW in the University of Jyväskylä. Altogether, 65 questionnaires out of 100 were received, and therefore, the total response rate was 65 %. In the enterprise of informational work, the response rate was 75 % ($n = 45$), and in the enterprise of manual work 50 % ($n = 20$). Altogether 10 managers and 55 employees answered to the questionnaires. Requestioning was not arranged, because of the nature of pilot testing.

To examine the background of competence needs, the professional competence (no. 46) as well as changes in work in the past (no. 47) and in the future (no. 48) were asked of the employees only with open questions in the questionnaire. The question concerning professional competence was based on the competence definitions of Ellström (1997), Nordhaug (1991), Tessaring (1998), and Willis and Dubin (1990), and it was developed to answer to the research question number 1. The changes in work, in the past and in the future, have been recognized, for example, by Argyris (1992), Nordhaug (1994), and Kasvio (1994). The changes were related to the research question number 3.

Furthermore, employees' participation in training was examined by the structural questions concerning the possibilities to participate in continuing training (no. 27) and the participation rates in training and courses (no. 29 & 30). These questions were based on Adult Education Survey (1995) and the study of Tikkanen (1998), and gave an answer to the research question number 3.

In addition, the employees' state of health and its impact on the job performance were examined by structural questions number 50 and 52. This issue was related to

the research question number 3, and was widely recognized by Kuhn (1999), Pearson (1996), Straka (1990) and Warr (1998).

The question concerning the competence needs (no. 45 in the employees' questionnaire, no. 49 in the managers' questionnaire) was designed to answer to the research questions number 2a - 2d. These competence needs were analyzed in relation to age (question no. 1 in the questionnaire), educational background (no. 3) and status in the enterprise (no. 4). In the employees' questionnaire, question number 45 included more variables than question number 49 in the managers' questionnaire, both concerning competence needs. This was conducted in order to attain more specific information from the employees. The managers could have had difficulties to evaluate this kind of detailed information, which is why the variables concerned more general issues.

Eight joint variables of competence needs were formed from 43 competence needs variables (Table 3, Appendices 7 & 8). The joint variables and the competence needs areas were based on themes, which were both derived from previous studies and questionnaires (Opetushallitus 1996; Mäkilä 1997). Earlier studies about competence needs were conducted in different branches of industry. The questions were adapted to fit both target enterprises that operate in the branches of manual and informational work. The joint variables were then divided into several variables.

Table 3 Composition of joint variables and alpha-reliabilities

Joint variables	Title of joint variable	Variables included	α
1	managerial skills	managerial skills, knowledge of employment relationships, management of finances, knowledge of work safety regulations, personnel management skills, knowledge of EU-regulations, knowledge of labor legislation	.71
2	marketing	customer service skills, advertising, sales skills, knowledge of foreign trade and export	.53
3	production	knowledge of production process, quality development, product design, logistics, environmental issues, competence in automation, competence in using machines and technics	.65
4	international relations	international relations, language skills	.69
5	information technology (IT)	basic skills of IT, special skills of IT	.57
6	communication skills	written communication skills, presentation skills, negotiation skills	.65
7	social skills	teamwork skills, knowledge of project work, cooperation skills, occupational instruction and guidance ability, interpersonal relationship skills	.80
8	personal abilities	initiativeness, learning ability, problem solving skills, decision making skills, control of change, carefulness in work, work motivation, flexibility in work tasks, stress control, creativity in work tasks, productivity, flexibility in work community	.86 .83

The first theme, managerial skills, was divided into managerial skills, knowledge of employment relationships, management of finances, knowledge of work safety regulations, personnel management skills, knowledge of EU-regulations, and knowledge of labor legislation. The reliability test (Alpha) expresses whether the variables included in the joint variable are a homogeneous group. The nearer to 1 the test result is, the better it is. The alpha for managerial skills was 0.71, which can be considered to be fairly good. Marketing was the second theme consisting of customer service skills, advertising, sales skills, and knowledge of foreign trade and export. For this group, the alpha was relatively low: 0.53. The third joint variable, production skills, included knowledge of production process, quality development, product design, logistics, environmental issues, competence in automation, and competence in using machines and technics. The alpha was fairly good at 0.65 level.

International relations was the fourth theme including two variables: international relations and language skills. The alpha was 0.69, which was considered to be fairly good. The fifth group, information technology, was rather problematic with only two variables: basic skills and special skills of IT, and the alpha was 0.57. Communication skills was the sixth joint variable, which was divided into written communication skills, presentation skills, and negotiation skills. The alpha was fairly good at 0.65 level. The seventh group, social skills, had a good alpha of 0.80. This joint variable consisted of teamwork skills, knowledge of project work, cooperation skills, occupational instruction and guidance ability, and interpersonal relationship skills. The personal abilities formed the eighth joint variable. It included 12 variables: initiativeness, learning ability, problem solving skills, decision making skills, control of change, carefulness in work, work motivation, flexibility in work tasks, stress control, creativity in work tasks, productivity, and flexibility in work community. The reliability test with alpha was not possible with so many variables, therefore, the reliability analysis was executed with split-half test. Alpha for part one with first six variables was 0.86 and for part two it was 0.83, which were good levels.

A few problems were found with the questionnaires. This pilot phase of WORKTOW -project focused on the testing of questionnaires and interview questions. For us, this phase was the only chance for data collection. Some issues

might have influenced the reliability of the questionnaire: if the questions concerning the competence needs had included five variable classes instead of only four, the results would have included more specific information. Because of the low number of respondents, percentages might distort the results. Moreover, tiredness to answer emerged to some extent, because the questions were placed in the end of the questionnaire. Concerning the open questions (questions 46 - 48), tiredness was even more noticeable.

4.2.2 Interview

In addition to the quantitative data, semi - structured interviews were conducted to attain more qualitative information. The semi - structured interview could be placed between the general interview guide approach and the standardized open - ended interview (Patton 1990, 280 - 287). The interview was designed by the co-ordinator of WORKTOW in Jyväskylä. She prepared the list of questions and themes for the team members, which we could follow and keep as a guideline in the course of the interview (Appendices 5 & 6). The semi - structured interview included in advance specified questions and themes, although interviewers could relatively freely decide the order of the questions and ask additional questions when needed.

The co-ordinator contacted the selected two enterprises and was given a permission to interview the personnel in addition to having the quantitative data. Nine interviews altogether were conducted by five team members, including us. From the enterprise of informational work, four employees and one manager were interviewed, and two employees and two managers from the enterprise of manual work. The co-ordinator interviewed the managers.

These six employees were selected for the interviews by the managers. The interviews took approximately one hour (from 20 minutes to over one hour). The interviews were scheduled to take place during the working hours in the premises of the companies. The locations were quiet offices with no interruptions.

The interviews involved six themes: professional skills and competence, work experience, training, maintenance of the competence, age, and flexibility. The managers answered from the company's perspective and the employees from their individual point of view. The interview theme of professional competence was related to the studies of Nordhaug (1991) and Ellström (1997), and answered to the research question number 1. Questions concerning work experience had a connection with the studies of Baltes (1993), Jarvis (1990) and Warr (1998), and flexibility in work tasks and in the labor market was related to the studies of Tikkanen (1998) and Pearson (1996).

The interview data also created the basis for the understanding of the sources and the maintenance of competence, and how age was related to the job performance. The theme of the effects of age upon the job performance was derived from the studies of Kuhn (1999) and Straka (1990).

Reliability of interviews was influenced by the number of the interviewees. The team received the structure of the interview, but the questions asked were dissimilar. Moreover, most of the team members interviewed only once in the pilot study, thus development and revision of the interview questions were not done.

4.3 Data analysis

In this study, both quantitative and qualitative data were gathered. The former was the main data, which was utilized to survey and compare the data, and the latter described and shed light on the context of the enterprises and the employees.

4.3.1 Quantitative data

Quantitative data from the questionnaires was coded to SPSS for Windows by a researcher of WORKTOW in Jyväskylä. This SPSS data was utilized and analyzed in this study for the parts that were related to the research questions of this study. Age was an important variable, therefore the ages of the respondents were transformed

into two age groups in order to facilitate the process of analysis. The group of younger workers was formed from employees of 16 to 44 years of age and the older workers were from 45 to 65 years of age. Additionally, 43 competence need variables were transformed into eight joint variables in the beginning of the analysis, and the educational background of the employees was diminished from five variables to two. The first group consisted of lower educational background (no vocational education, vocational course, and vocational school), and the second group was formed into higher educational background (higher vocational degree and university degree).

In order to describe the employees and the managers, the frequencies and the percentages were observed about the status, age, gender, educational background, professional title, work experience in years, and the employment relationships. The quantitative data also showed the branch of business and the number of organization levels. Additionally, the employees' opinions about new problems, challenges, and learning at work were noticed in terms of percentage to describe the working environment.

Older and younger employees were examined through crosstabs. The age groups were the independent variables and the chances to participate in continuing training, the educational background, and the state of health and its impact on the job performance were the dependent variables. These three areas were studied separately in the enterprise 1 or 2 to answer to the research question number 3.

Pearson's chi-square tests of the crosstabs were executed. The differences between the age groups were not statistically significant, except in the educational background of the employees in the enterprise 1, because of the low number of the frequencies.

T-tests were carried out in the joint variables of the competence needs. The examination concerned only employees according to the enterprises, educational background and age. Employees of the enterprise 1 and 2 were examined both simultaneously and separately to answer to the research questions 2a, 2b, and 2c. In addition, the viewpoints of the competence needs between the managers, the employees and especially the older workers were compared. Levene's test for

equality of variances was executed to determine the statistically significant differences, except for the comparison between the managers and the employees. The managers replied from the point of view of the enterprise, while the employees answered from the individual viewpoint. Although statistical differences could not be tested, the comparison of means was made to examine whether the competence needs of these two parties came across (research question number 2d).

Competence need areas were also examined through regression analysis in which the independent variables were the age of employees and educational background, and the competence need areas were the dependent variables. The select cases included employees from both enterprises.

The managers' opinions about the changes in work tasks and in organization in the past and in the future were tested with structural questions in the questionnaire. This data was analyzed only with frequencies because of the low number of the respondents.

Similarly, the employees answered to the open questions in the questionnaire about the changes in work tasks. These responses were typed and classified according to the respondents' ages. The classification was based on the competence needs areas supplemented with the organization of work. These results were then compared to the responses of the managers. These questions gave an answer to the research question number 3. The open question concerning professional competence was analyzed similarly as the question about the changes in work tasks to answer to the research question number 1.

4.3.2 Qualitative data

The semi - structured interviews ($n = 9$) were conducted with the researchers of WORKTOW in Jyväskylä. Interviews were taped and transcribed. We carried out two employee interviews that we then transcribed. The rest of the interviews were done and transcribed by the researchers. All the interviews were in our use. For the

study, we read the interviews and then picked out and classified the parts that were relevant to the research questions. These parts were professional competence, changes in work tasks in the past and in the future, sources for current competence, maintenance of competence, and age effects on the job performance. The analysis was done separately by numbering the interviews by the enterprise and the status of the respondents in the company. The similarities and differences of the responses were classified according to the enterprise and the status of the respondents.

The interview data concerning the professional competence and changes in work tasks was an addition to the quantitative data gained from the questionnaires. The similarities and additional expressions in relation to the quantitative data were examined. Other themes, sources for current competence, maintenance of competence, and age effects to the job performance were examined only through the interviews. These themes were processed separately without connections to the quantitative data.

5 Results

5.1 Description of data

The target enterprises of this study were selected from two different branches: informational and manual work. The respondents were described by status in the company, age, educational background, and work experience in the enterprise. Employees were divided into two age groups; 16 – 44 and 45 – 65 years.

Table 4 Description of respondents in enterprises of informational (1) and manual (2) work

Variable	Enterprise 1 % (n)	Enterprise 2 % (n)	Total % (n)
<i>Status</i>			
Employee	87 (39)	80 (16)	85 (55)
Manager	13 (6)	20 (4)	15 (10)
Total	100 (45)	100 (20)	100 (65)
<i>Age</i>			
16 - 44	51 (22)	50 (10)	51 (32)
45 - 65	49 (21)	50 (10)	49 (31)
Total	100 (43)	100 (20)	100 (63)
<i>Educational background</i>			
No vocational degree	2 (1)	26 (5)	10 (6)
Vocational course or diploma	81 (33)	74 (14)	78 (47)
University degree	17 (7)	0	12 (7)
Total	100 (41)	100 (19)	100 (60)
<i>Work experience in the enterprise (years) (Employees only)</i>			
0 - 10	42 (16)	31 (5)	39 (21)
11 - 20	18 (7)	37 (6)	24 (13)
21 - 30	21 (8)	19 (3)	20 (11)
31 -	18 (7)	13 (2)	17 (9)
Total	100 (38)	100 (16)	100 (54)

5.1.1 Enterprise 1

In the enterprise 1 the work type was mainly informational work. Their major tasks included designing and developing key components for the automobile manufacturing. After redevelopment and changes in the organization in the early 1990's, the company was focusing on the growth and the maintenance of the good image. Employees worked in teams with high technical equipment. Work was mainly project-oriented, and timetables determined the work. The strength of the company was the personnel that consisted of invators and employees who carried out the plans in practice.

Organization consisted of three levels, which were divided into six departments. 45 employees out of the total 60 replied to the questionnaire. The response rate was 75 %. There were only 3 women and 42 men in this data, and therefore, the gender differences were not examined. Among the respondents, 39 were employees and 6 were managers.

Table 4 describes the respondents in both enterprises. The respondents' ages varied from 25 to 58 years. Almost half of them were 45 years or over. Their educational background varied in a way that only 2 % of the respondents did not have any vocational education, 81 % had vocational course or diploma, and 17 % had a university degree. 39 % of the employees had worked in the same enterprise for more than 21 years. Working contracts of the employees were mostly permanent. More than half of the employees were designers or design engineers. The rest of the respondents were managers, product development engineers, administration designers, mechanics, and technicians.

In order to describe the working environment of the employees, challenges and learning possibilities at work were examined. In the enterprise of informational work, 67 % agreed that they have to deal with new problems and challenges to a large extent in their jobs, and 60 % thought that their job involves learning new things to a large extent.

5.1.2 Enterprise 2

Enterprise 2 was smaller than enterprise 1 including 40 employees. The type of work was mainly manual in the metal industry branch. There were four organization levels. The response rate was 50 %. In this enterprise the majority of the employees were also men. As shown in Table 4, there were 16 employees and four managers. The age of the respondents varied from 27 to 59 years, which was similar to the age-range of the employees in the enterprise of informational work. Likewise, the respondents were 45 years old or over in half of the cases. The educational background of the respondents was lower than in the enterprise of informational work, 74 % had vocational training, and the rest of the respondents had no vocational training. None of them had a university degree. 32 % of respondents had worked for more than 21 years in this particular enterprise. All of the respondents had a permanent working contract. Most of them were working with the production process as turner, grinder, metalman, or stock-keeper. The rest of the respondents were managers, designers, and sales persons.

Contrary to the enterprise of informational work, in the enterprise of manual work, only 11 % of the employees agreed that their job includes new problems and challenges, and none of the respondents thought that they have to learn new things to a large extent at work. 50 % of the respondents concluded that learning at work concerns them only little or not at all.

5.1.3 Educational background of employees

Employees' educational background was divided into two groups. Group 1 consisted of the employees with vocational course or school or without vocational education, and group 2 was formed from the employees with a higher vocational or a university degree.

Table 5 Employees' educational background in enterprise of informational work

Age groups	Educational background		Total
	1 %	2 %	
16 - 44	11	89	100 (19)
45 - 65	40	60	100 (15)
Total	24 (8)	76 (26)	100 (34)

1 = vocational course or school or no vocational education

2 = higher vocational or a university degree

$\chi^2 = 4.05$, $df = 1$, $p = .04^*$

In the enterprise of informational work (Table 5), 89 % of the younger workers had a higher level of education, whereas among the older workers, the rate was 60 %. This difference between the age groups was statistically significant at .05 level. However, it should be taken with reservations because the frequencies were relatively small in this case.

Table 6 Employees' educational background in enterprise of manual work

Age groups	Educational background		Total
	1 %	2 %	
16 - 44	62	38	100 (8)
45 - 65	100	-	100 (7)
Total	80 (12)	20 (3)	100 (15)

1 = vocational course or school or no vocational education

2 = higher vocational or a university degree

$\chi^2 = 3.28$, $df = 1$, $p = .07$

In the enterprise of manual work, there were only 15 respondents out of which eight were younger and seven were older employees (Table 6). Contrary to the employees in the enterprise of informational work, 80 % of the employees had a lower level of education. 62 % of the younger workers had the lower level of education, and 38 % the higher one. Among the older workers, no one had the higher level of education. The differences were not statistically significant.

In summary, the educational background of the younger employees was generally better than that of the older employees in both enterprises. However, the majority of older workers in the enterprise of informational work had a higher level of education, whereas all of the ageing workers in the enterprise of manual work had a lower educational background. In the enterprise of informational work, the employees had a generally better educational background than the employees in the enterprise of manual work.

5.2 Employees' participation in training or courses

The employees were asked about their possibilities in the company to participate in continuing training, including for example study leave or financial support. The possibilities were considered to be good by 74 % of the younger employees and 65 % of the older ones in the enterprise of informational work. On the other hand, 26 % of the younger employees and 29 % of the older ones thought that the chances to participate in continuing training were "not so good". One older employee thought that there were no chances to participate in training.

In the enterprise of manual work, none of the employees considered the possibilities as "very good" or "good". 33 % of the younger employees considered the chances to participate as "not so good" and 67 % as "not at all". The corresponding figures in the older age group were 29 % and 71 %. Thus, the possibilities were considered similarly inadequate in both age groups. The statistical measurements (chi-square) were conducted in order to examine the significance, but no significant differences could be found because of such few cases involved.

The participation rates were examined by inquiring participation in training (including exams, certifications, or formal qualifications) during the last three years, and participation in courses (without formal qualifications) during the last 12 months. The results showed that the employees in the enterprise of informational work had

participated in training (54%) and courses (71%) relatively more frequently than the workers in the enterprise of manual work (13%, 13%).

Table 7 Younger and older employees' participation in training during the last three years and participation in courses during the last 12 months in enterprises of informational work (1) and manual work (2)

Participation	Age groups	Enterprise 1 (%)		Enterprise 2 (%)	
		Yes	No	Yes	No
Participation in training	16 – 44	58	42	22	78
	45 – 65	44	56	-	100
Participation in courses	16 – 44	79	21	22	78
	45 – 65	65	35	-	100

As shown in Table 7, the younger workers in the enterprise of informational work participated in training slightly more than the older ones ($\chi^2 = 0.67$, $df = 1$, $p = .41$). Similarly, participation in courses was higher among the younger employees than the older ones ($\chi^2 = 0.91$, $df = 1$, $p = .34$). In the enterprise of manual work, only 22 % of the younger workers, and none of the older ones had participated in training and courses ($\chi^2 = 1.78$, $df = 1$, $p = .18$). No statistically significant differences could be found.

In conclusion, the possibilities to participate in continuing training were dissimilar in the examined enterprises. The possibilities were considered mostly good in the enterprise of informational work, and in the enterprise of manual work, nearly non-existent. The participation in training and courses was more frequent in the enterprise of informational work than in the other enterprise. In both enterprises, the younger workers had participated in training and courses more often than the older ones. The older employees in the enterprise of manual work had participated neither in training nor in courses.

5.3 Changes in enterprise and in work tasks

5.3.1 Changes in work tasks and in organization according to managers

To explore the organizational changes in the enterprises, the managers were asked several questions concerning the organizational changes occurred during the last three years, and what changes they expected to take place during the following three years. Also, qualitative information about organizational changes and changes in work tasks was gathered from the managers by interviews.

On the basis of the questionnaire, numerous changes had taken place in the enterprise of informational work during the past three years. The managers ($n = 5$) indicated that there had been some changes in products, market, and quality systems. There had also been an increase in training investments, "outsourcing", teamwork, organizational climate, and educational level of the employees. There were no changes in product technology or working hours, and the average age of the employees had not increased. Some contradictory responses were expressed, for example, about the increase in the incentive systems based on job results.

Interview results ($n = 1$) indicated that the number of employees had increased from 30 to 60 employees during the last five years. In addition, the image and reputation of the company had improved, and the parent company had changed. Also, the use of IT had increased, the product development had improved, and new work tasks had emerged.

In the future, the questionnaire results showed expectations about an increase in the educational level of the employees in the future. The managers disagreed on the other areas of the organizational changes. Two out of five managers saw changes in products or market, product technology, and quality systems, and an increase in "outsourcing", teamwork, and improved organizational climate. Three of the five managers thought that there will be an increase in the incentive systems based on job results. No changes were predicted to take place in working patterns or in the average

age of the employees. Three out of four managers stated that there will be no increase in training investments. The interview data showed that an increase in the use of IT and new technology will take place, and therefore new personnel will be needed. The work will possibly become harder and thus, the risk of burnout will grow.

Results from the questionnaire about changes in the past three years, are dissimilar in the enterprise of manual work compared to the ones of the enterprise of informational work. The managers ($n = 2$) indicated that there had been no major organizational changes during the last three years, in areas such as working hours, production technology, quality systems, and incentive systems. In addition, there had not been increase in training investments, teamwork, or educational level of the employees. The managers disagreed on whether the company had had changes in products or markets, and whether the "outsourcing" had increased. Managers agreed that the average age of the employees had increased and the organizational climate had impaired.

Interview results ($n = 2$) showed that the number of employees had diminished from 60 to 40 employees during the last 20 years, and work load had increased in the enterprise of manual work. Some other changes were noticed as well, such as minor changes in products and an increase in the amount of work tasks and job rotation.

In the future, the questionnaire results showed that the increase of the average age of the employees was predicted to take place. The managers disagreed on the changes in several areas, such as in educational level, organizational climate, "outsourcing", and working hours. No changes were expected to occur in the other areas of work. Based on the interview data, the use of IT and further training are expected to increase.

In sum, there had been several organizational changes in the enterprise of informational work, contrary to the enterprise of manual work. The managers in the enterprise of informational work predicted that there will be many changes in the organization and work tasks, whereas in the enterprise of manual work, less changes were expected to take place in the future.

5.3.2 Changes in work tasks according to employees

In the questionnaire, the employees ($n = 55$) were asked by open questions to mention three main changes in work tasks that had occurred during the last three years, and also, what changes they expected to take place in the following three years. More qualitative information about changes in work tasks and future predictions was gained by interviews with six employees.

From the enterprise of informational work, 82 % of the respondents (16 younger and 14 older employees) replied to the question concerning the three notable changes in work tasks during the past three years. The most commonly mentioned issues were connected with the changes in organization of work (22 mentions). These changes included, for example, the extension of working hours, increase in the amount of work, and changes in work groups. The younger workers mentioned these changes more often (15 mentions) than their older colleagues. The second often stated changes concerned IT skills (17 mentions), in which older workers had noticed more changes (13 mentions) than the younger employees. Changes in IT skills were related to the adoption of more complex design programs, such as CAD and Catia, as well as to more widespread use of IT in general. Changes in the demands of personal abilities were mentioned 11 times, including increasing responsibilities and more independent decision making. 16 % of the respondents answered that there had not been any major changes in work tasks during the last three years.

Employees agreed with managers that the use of IT and teamwork had increased in the past three years. Weekly working hours had extended according to the employees, whereas the managers had not noticed such changes.

The interview data of the employees ($n = 4$) in the enterprise of informational work also showed that the use of IT had increased, and the machinery, and thereby the products, had renewed in the past few years. Furthermore, the demand for knowledge of larger entities had increased, and the developmental discussions with superiors had been elevated.

In the enterprise of manual work, only 63 % of the respondents (three out of 10 respondents were older employees) replied to the question about changes in the past three years, and three of them (two younger and one older worker) stated that no major changes had occurred in work tasks. Otherwise, the changes were seen to relate mostly to changes in the organization of work, which had increased the work pace and tasks. A few mentions concerned new products, decrease in quality, and increased use of IT. No age related differences were found. Interview data (n = 2) showed similar results supplemented with an increase in job rotation. Contrary to the managers' responses about the organizational climate, the interviewed employees stated that the organizational climate and team spirit were very good. Both groups had similarly noticed an increase in the amount of work tasks.

72 % of the respondents (half of them were over the age of 45) from the enterprise of informational work had reflected the possible changes in work tasks in the following three years. The most often stated changes (19 times) concerned the organization of work, such as an increase in the quantity of work and work pace. Employees thought that the use of IT programs will probably increase (17 mentions). There were no age differences in these two areas. Changes related to production were mentioned only by the older workers, whereas mostly younger workers considered social skills as relevant to the future work tasks. The interview data (n = 4) showed that future changes were related to new products and work tasks, and therefore, more need for training could arise. Managers agreed with the employees that the work pace and the use of IT will increase. The employees considered that more training could be relevant by contrast with the managers' plans for the future.

In the enterprise of manual work, only 56 % of the respondents (three older and six younger employees) replied to the question about future changes in work tasks. One older worker and three younger ones did not expect any changes to take place in the following three years. The rest of the respondents (n = 5) stated some changes, such as an increasing work pace and more extensive work tasks. No age differences could be distinguished. The interview data gained from the workers (n = 2) showed no reflective thoughts about the changes in the work tasks in the future. Similarities in

the responses of managers and employees were related to an increase in work pace. Otherwise, changes in work in the future were irrelevant or unclear.

When comparing the enterprises, the enterprise of informational work seems to be orientated strongly to the future. Both the employees and the managers have a positive insight into the growth of the firm with plans for the future and predictions of the changes to come. Especially, the change in IT technology will play an important role in the company's future. The work type, developmental work, directs the view towards the future. The employees have to be one step ahead of the market when designing and developing new products. The enterprise of manual work is not quite as much orientated to the future, but they operate "one day at a time" without predicting major changes to come or planning the future. Its branch and the products may be the kind of manual work that it will have a future without major changes in organization or work tasks.

5.4 Professional competence of employees

Professional competence was examined by an open question. Respondents ($n = 55$) were asked to mention three areas of professional competence that they knew the best. Results concerning the strengths, the sources, and maintenance of competence were gained by interviews ($n = 6$). Answers to the state of health and its impact on the job performance were gained from the questionnaire.

5.4.1 Strengths of professional competence of employees

In the enterprise of informational work, 82 % of the respondents (similar groups of older and younger workers) answered to the question concerning professional competence. Employees considered that they were the most competent in personal abilities (27 mentions) including areas such as creativity, carefulness, and work motivation. The younger workers mentioned these abilities slightly more often than the older ones. The second best competence area was production skills (20

mentions), which included, for example, product design, production technology, and knowledge of production process. These competencies were mentioned more often by the older workers. The third area was IT skills (14 mentions), including special knowledge of design programs, for instance, CAD and 3D -programs. The younger workers mentioned these skills as the best area of competence more often than the older workers. Only a few mentions were related to international relations, presentation skills, marketing or managerial skills. Furthermore, the interview data ($n = 4$) showed that the strengths of competence were related to work experience, which had led to efficiency, accuracy, and understanding of entireties in work tasks.

In the enterprise of manual work, 69 % of the employees replied to the question concerning their best areas of professional competence. Only three of the respondents were over 45 years of age, and eight under 45. Similarly, compared to the enterprise of informational work, the production skills (11 mentions, including product knowledge, quality demands, planning, drawing, and product process) and personal abilities (7 mentions, including flexibility, persistence, concentration ability, carefulness, and initiativeness) were most commonly mentioned. The former was mentioned similarly by both age groups and the latter was mentioned only by the younger workers. There were no differences in the quantity of mentions concerning production skills made by the younger or the older workers. Other competence areas were mentioned as the best mastered only a couple of times. Competence strengths gathered from the interviewees ($n = 2$), included, for example, technical competence, accuracy, and creativity.

In summary, the strengths of professional competence of the employees were related to the personal abilities and production skills in both enterprises. Additionally, IT skills and work experience were perceived as the best competence areas in the enterprise of informational work.

5.4.2 Sources and maintenance of competence of employees

In the interviews, the respondents from both enterprises ($n = 5$) were asked to give the percentages of the sources of their current competence. These sources were education, work experience, and personal abilities, which were thought to form 100 % of the competence. In all responses, experience got the highest percentages (58 %). The second important source was personal abilities (22 %), followed by education as the third source (20 %).

According to the interviewees ($n = 6$) from the enterprises of informational and manual work, competence was best maintained by working with challenges, having conversations with colleagues, and by training. When examining the competence-in-use, nearly all respondents thought that they are able to use all their competence in work tasks. One employee thought that not all competence is in use because the organizational structure (enterprise of informational work) prevents the flow of competence across the borders.

5.4.3 Job performance and state of health of employees

Job performance was impaired by dysfunction of the machinery, and indistinctively described work tasks (enterprise of informational work). One interviewee (enterprise of manual work) had noticed that external matters, such as home and family situations, could have an impact on job performance. Furthermore, ageing was related to job performance by weakening physical matters, such as eyesight and tiredness in demanding work environments. Positive outcomes of age were also considered, such as persistence and certainty in work tasks.

Also, health and its impact on job performance were examined. Among the employees ($n = 37$) in the enterprise of informational work, 65 % of the employees considered that their health was good, and moderate among the rest of the employees. In the enterprise of manual work ($n = 16$), 31 % of the employees stated that their

health was good, and 6 % stated that it is weak. Differences between older and younger employees were not statistically significant.

Table 8 Impact of state of health on job performance in enterprises of informational and manual work among all employees and between age groups

	Enterprise of informational work				Enterprise of manual work			
	All empl.	16-44	45-65	Total	All empl.	16-44	45-65	Total
Impact of state of health on job performance								
improves	46	71	29	100	19	67	33	100
does not influence	51	37	63	100	50	63	37	100
impairs	3	-	100	100	31	40	60	100
Total	100				100			

As shown in Table 8, in the enterprise of informational work, the current state of health was considered to improve the job performance within 46 % of the employees, of whom 71 % were younger and 29 % older employees. 51 % of the employees thought that the state of health had no impact on the job performance. Only one older worker stated that the current state of health impaired the job performance.

According to the employees in the enterprise of manual work, the state of health helped to improve the job performance within 19 % of the employees, and impaired the job performance in 31 % of the cases (Table 8). Age-related differences were similar concerning these issues. Since the frequencies were low in the categories, statistically significant differences between the age groups could not be found.

To conclude, the state of health impaired the job performance in one-third of the employees in the enterprise of manual work, whereas in the enterprise of informational work, it seemed to improve or to have no impact on the job performance of the employees.

5.5 Competence needs of employees in two enterprises

The competence needs were examined through eight joint variables, which were managerial skills, marketing, production, international relations, IT skills, communication skills, social skills, and personal abilities (the composition of joint variables, see Appendix 8).

Table 9 Differences in competence needs of employees between enterprises of informational (1) and manual (2) work

Joint variable	Enter- prise	N	Mean	Std. Deviation	t	df	p
Managerial skills	1	38	0.81	0.31	-1.15	51	0.254
	2	15	0.92	0.34			
Marketing	1	33	0.64	0.38	-2.75	26	0.011*
	2	14	0.96	0.36			
Production	1	39	1.19	0.32	3.02	53	0.004**
	2	16	0.89	0.33			
International relations	1	39	1.23	0.50	3.06	46	0.004**
	2	9	0.67	0.50			
IT skills	1	38	1.34	0.55	3.35	49	0.002**
	2	13	0.76	0.48			
Communication skills	1	39	0.96	0.35	1.09	49	0.280
	2	12	0.83	0.36			
Social skills	1	39	1.00	0.45	1.40	53	0.166
	2	16	0.82	0.39			
Personal abilities	1	39	0.96	0.41	0.28	53	0.780
	2	16	0.92	0.44			

* $p \leq .05$; ** $p \leq .01$

When comparing the differences of the employees regarding competence needs in the enterprises of informational and manual work, the former had more needs in IT skills, international relations, and production, and the latter in marketing. In these areas, the differences were statistically significant (Table 9).

5.5.1 Age-related differences of employees in competence needs in enterprises

Employees in both enterprises ($n = 53$) were divided into two age groups, 16 - 44 ($n = 28$) and 45 - 65 ($n = 25$) years of age in order to examine possible differences in competence needs.

Table 10 Competence needs of younger workers (16 - 44) and older workers (45 - 65) in enterprises of informational and manual work

Joint variable	Age groups	N	Mean	Std. Deviation
Managerial skills	16 - 44	26	0.89	0.30
	45 - 65	25	0.78	0.34
Marketing	16 - 44	25	0.59	0.40
	45 - 65	20	0.89	0.34
Production	16 - 44	28	1.04	0.37
	45 - 65	25	1.18	0.33
International relations	16 - 44	24	1.10	0.47
	45 - 65	22	1.16	0.64
IT skills	16 - 44	27	1.20	0.61
	45 - 65	22	1.18	0.59
Communication skills	16 - 44	26	0.87	0.43
	45 - 65	23	1.00	0.27
Social skills	16 - 44	28	0.89	0.48
	45 - 65	25	1.02	0.39
Personal abilities	16 - 44	28	0.86	0.40
	45 - 65	25	1.04	0.42

Marketing: $t = -2.74$, $df = 43$, $p = .009^{**}$

As shown in Table 10, two age groups had statistically significant differences only in marketing ($t = -2.74$, $df = 43$, $p = .009^{**}$), in which area, older employees had more needs. There were no statistically significant differences in competence needs in the other areas. However, older workers had more needs in marketing, international relations, communication skills, production, cooperation skills, and personal abilities. Both groups had the most notable needs in IT skills. Younger workers had more needs in managerial skills and IT skills compared to the older workers.

Further, the amount of the needs in the competence areas had been examined separately in relation to the age groups from both enterprises. In the younger age groups, the three most needed competence areas were IT skills (mean 1.20), international relations (mean 1.10), and production skills (mean 1.04). Among older workers, the three major competence needs areas were the same, only in a different order: IT skills (mean 1.18), production (mean 1.18), and international relations skills (mean 1.16).

In addition, age-related differences in the competence needs were examined within these two enterprises. In the enterprise of informational work, the most significant differences between age groups were found in marketing skills, in which older workers had more needs ($t = -2.27$, $df = 28$, $p = .031^*$). However, the need in marketing skills was the lowest of all competence areas within both age groups (mean 0.5 / younger workers and mean 0.78 / older workers). In the other areas, no statistically significant differences were found between age groups. Nevertheless, the employees had competence needs more than to some extent in several areas. Both the younger and the older workers had the most notable needs in IT skills (mean 1.36 / younger and mean 1.33 / older workers). The older workers had slightly more competence needs in international relations (mean 1.31), production (mean 1.27), personal abilities (mean 1.07), social skills (mean 1.05), and communication skills (mean 1.02) than the younger workers.

Since there were only 16 respondents in the enterprise of manual work, no statistically significant differences between age groups could be found. Nonetheless, the younger employees had the most notable need in management skills (mean 1.04). The older workers felt that the most notable need was in marketing (mean 1.11). In the other competence areas, means were relatively low. Competence needs were especially low among older workers in international relations and IT skills (mean 0.50).

In conclusion, in both enterprises, the older employees had more competence needs than their younger colleagues in several areas. However, the differences were statistically significant only in marketing skills. IT skills, production, and

international relations were the three areas in which both the younger and the older workers had the most notable needs, although in a slightly different order. Nevertheless, the competence needs of the employees within the two enterprises were different. The greatest need of both age groups in the enterprise of informational work was IT skills, whereas in the enterprise of manual work, it was managerial skills in the younger age group and marketing in the older one.

5.5.2 Competence needs by educational background of employees

Educational background was divided into two groups (see previously). The differences in competence need areas were examined according to the educational background. Among all the employees, statistically significant differences were found in marketing ($t = 3.05$, $df = 36$, $p = .004^{**}$) and international relations ($t = -2.04$, $df = 41$, $p = .047^{*}$). The competence need in marketing was larger among employees with a lower level of education, and in international relations, the need was greater in the group of higher educated employees.

In the enterprise of informational work, 24 % of the employees had the lower educational background and 76 % the higher one. Among these two groups, the difference in the competence need in marketing was statistically significant ($t = 2.54$, $df = 16$, $p = .022^{*}$), although the need was relatively low in both groups. Among the employees with the background of lower education, the mean was 0.88 and with higher education, the mean was 0.57. Regardless of the level of educational background, the competence needs were relatively high and similar in three areas. In IT skills, the competence need was the largest within both groups (lower education 1.44 / higher education 1.30). The second largest need was in international skills (lower education 1.17 / higher education 1.29), and then in production skills (lower education 1.20 / higher education 1.20).

In the enterprise of manual work, the level of educational background was the opposite compared to the employees in the enterprise of informational work. 80% of the employees had the lower level of education and only 20 % had the higher educational level. Statistically significant differences could not be found among these

two groups because of the low number of respondents in the other group. However, the means were somewhat higher among the better educated employees than the means that lower educated employees had in management skills (higher education 1.18 / lower education 0.79), in IT skills (higher education 1.17 / lower education 0.61), and in international relations (higher education 1.00 / lower education 0.40)

In sum, both groups in the enterprise of informational work had similar competence needs, whereas in the enterprise of manual work, the competence needs were relatively low in all areas among employees with lower level of educational background. Additionally, these employees were all older workers.

5.5.3 Differences in competence needs between managers and employees

Competence needs were also examined by inquiring from the managers the competence needs of the enterprise. Since there were only six managers in the enterprise of informational work and three in the enterprise of manual work, only mean differences were calculated in order to reveal the possible tendencies.

Table 11 Competence needs according to employees and managers in enterprise of informational work

Joint variables	Status	N	Mean	Std. Deviation
Managerial skills	Employee	38	0.81	0.31
	Manager	6	0.86	0.16
Marketing	Employee	33	0.64	0.38
	Manager	6	1.00	0.00
Production	Employee	39	1.19	0.32
	Manager	6	1.03	0.20
International relations	Employee	39	1.23	0.50
	Manager	6	1.42	0.38
IT skills	Employee	38	1.34	0.55
	Manager	6	1.25	0.42
Communication skills	Employee	39	0.96	0.35
	Manager	6	1.17	0.41
Social skills	Employee	39	1.00	0.45
	Manager	6	1.12	0.20
Personal abilities	Employee	39	0.96	0.41
	Manager	6	1.28	0.32

As shown in Table 11, international relations (mean 1.42), personal abilities (mean 1.28), and IT skills (mean 1.25) were the three areas in which the managers considered the employees in the enterprise of informational work to have major developmental needs. In turn, the employees stated the three major competence needs to be in IT skills (1.34), international relations (mean 1.23), and production skills (mean 1.19). In general, the managers thought that the employees had more developmental needs in several areas than the employees stated. The employees felt that they had more competence needs only in production and IT skills.

The older workers' and the managers' opinions of the competence needs were also compared. Results showed that the differences were more often smaller when comparing the results of the older workers and the managers than between all the employees and the managers in the enterprise of informational work. In production skills, the older workers (mean 1.28) had somewhat more needs compared to the managers' estimation of the competence needs in the company (mean 1.03). Also, in IT skills, the older workers had more needs (mean 1.33) than the managers stated on behalf of the company (mean 1.25), but the difference was not notable. On the other

hand, in marketing skills, the managers considered (mean 1.00) the company to have more needs than the older workers individually thought (mean 0.77). In the other competence need areas, the differences of opinions were minimal between the older workers and the managers.

Table 12 Competence needs according to employees and managers in enterprise of manual work

Joint variable	Status	N	Mean	Std. Deviation
Managerial skills	Employee	15	0.92	0.34
	Manager	3	1.25	0.25
Marketing	Employee	14	0.96	0.36
	Manager	3	1.33	0.33
Production	Employee	16	0.89	0.33
	Manager	3	1.14	0.13
International relations	Employee	9	0.67	0.50
	Manager	3	1.00	0.00
IT skills	Employee	13	0.77	0.48
	Manager	3	1.50	0.50
Communication skills	Employee	12	0.83	0.36
	Manager	3	1.00	0.00
Social skills	Employee	16	0.82	0.39
	Manager	3	1.20	0.20
Personal abilities	Employee	16	0.92	0.44
	Manager	3	1.19	0.21

In the enterprise of manual work, the managers stated that IT skills (mean 1.50), marketing (mean 1.33), and managerial skills (mean 1.25) were the most needed developmental areas of the employees. The employees themselves thought that they needed to develop most (but only less than to some extent) in marketing skills (mean 0.96), personal abilities (mean 0.92), and managerial skills (mean 0.92), as shown in Table 12. In general, the managers saw more developmental needs than the employees in all of the competence areas.

Similarly, the older workers' and managers' opinions in competence needs were dissimilar; the managers thought that the older workers had more needs in every

competence area than they themselves stated. When only the older workers were examined in relation to the managers' opinions, the differences were greater than when all the employees were studied. Especially in four competence need areas, the differences of opinions were extensive:

Managerial skills	Older workers	Mean 0.79
	Managers	Mean 1.25
International relations	Older workers	Mean 0.50
	Managers	Mean 1.00
IT skills	Older workers	Mean 0.50
	Managers	Mean 1.50
Social skills	Older workers	Mean 0.93
	Managers	Mean 1.20

In sum, the managers in both enterprises thought that the employees or the company had more competence needs in several areas than the workers had evaluated, especially in the enterprise of manual work. Older workers and managers had relatively large differences of opinion about the competence needs in production and marketing skills in the enterprise of informational work, and in managerial, international relations, IT, and social skills in the enterprise of manual work.

5.5.4 Employees' age and educational background in relation to competence needs

Competence needs were examined by regression analysis in which the independent variables were the employees' age and their educational background. In the analysis, R describes the correlations of observed and given values by regression model, and R^2 indicates how much these two independent variables (age and educational background) simultaneously explain the variation of the dependent variable.

Table 13 Age and educational background as predictors for the competence need in production skills of employees (enterprises of informational and manual work)

Regression summary for dependent variable: production			
R = 0.42	R ² = 0.18	F = 4.93	p-level = .012*
	Beta	t	p-level
Age	.436	2.92	.005**
Educational background	.350	2.34	.024*

*p ≤ .05 ; **p ≤ .01

In the case of production skills (Table 13), R² explained 18 % of the variation of needs in production skills. Regression model was statistically significant at the .05 level (p = .012*). This means that by these two independent variables (age and educational background) it is possible to predict the competence need in production. The results indicated that both age and educational background had a statistically significant effect on the production skills need. Additionally, the older the worker was in question, the more he / she had needs in production skills, and consequently, the better educational background the employees had, the more they had developmental needs in production skills.

Table 14 Age and educational background as predictors for competence need in international relations of employees (enterprises of informational and manual work)

Regression summary for dependent variable: international relations			
R = 0.40	R ² = 0.16	F = 3.79	p-level = .031*
	Beta	t	p-level
Age	.250	1.45	.154
Educational background	.474	2.75	.009**

*p ≤ .05 ; **p ≤ .01

In Table 14, R square showed that age and educational background explained simultaneously 16 % of the variation of the need in international relations skills. Regression model was statistically significant at the .05 level (p = .031*). Educational background (beta = .474; p ≤ .01) explained more of the competence

need in international relations skills than age did. The better the educational background, the more needs the employees had in international relations.

Table 15 Age and educational background as predictors for competence need in communication skills of employees (enterprises of informational and manual work)

Regression summary for dependent variable: communication skills			
R = 0.42	R ² = 0.17	F = 4.37	p-level = .019*
	Beta	t	p-level
Age	.460	2.85	.007**
Educational background	.339	2.10	.042*

*p ≤ .05 ; **p ≤ .01

As shown in Table 15, age and educational background explained simultaneously 17 % of the variation of competence need in communication skills. The regression model was statistically significant at .05 level (p = .019*). Age explained somewhat more about communication skills need than educational background, although both were statistically significant.

Table 16 Age and educational background as predictors for competence need in personal abilities of employees (enterprises of informational and manual work)

Regression summary for dependent variable: personal abilities			
R = 0.35	R ² = 0.12	F = 3.23	p-level = .049*
	Beta	t	p-level
Age	.370	2.40	.021*
Educational background	.048	0.31	.757

*p ≤ .05 ; **p ≤ .01

As shown in Table 16, age and educational background explained simultaneously 12 % of the variation of the developmental need in personal abilities. The regression model was statistically significant at .05 level (p = .049*). In this case, age had had an impact on the developmental need in personal abilities, and was statistically

significant ($p = .021^*$). The more ageing workers were, the more they had needs in personal abilities.

To sum up the results of the regression analysis, age of the employees was the main explanatory factor in three competence need areas: production, communication skills, and personal abilities. According to the beta-coefficients the age was slightly better predictor than the educational background. Educational background explained more of the need in international relations only. The other competence need areas were not presented here because the regression models were not statistically significant.

6 Discussion

The purpose of this study was to examine the competence needs of older workers in the enterprises of informational and manual work.

6.1 Main results and conclusions

The employees in the enterprises of informational and manual work in both age groups (16 - 44 and 45 - 65 of age) considered that the strengths of their professional competence were related to the personal abilities and production skills. Personal abilities, such as creativity, learning ability and work motivation, were mentioned probably therefore that this kind of abilities are generally positive and desirable. Production skills are an essential part of the job tasks in both enterprises, thus it was regarded as a strength of competence. Additionally, in the enterprise of informational work, IT is widely utilized in the work tasks, and probably therefore these skills were seen as a competence strength. Even though employees considered IT skills as the strengths of their competence, they also had major needs in the same area. These results may be due to the rapid changes in IT technology and programs. Although employees were good at IT, they have to keep up with the changes and perhaps that is why they felt the need to develop in IT skills.

The most noticeable competence needs of older workers were found firstly in IT skills, secondly in international relations, and thirdly in production skills when both enterprises were examined together. When studied separately, the competence needs of older workers in the enterprise of informational work were also largest in IT skills, then in international relations, and in production skills. In the enterprise of manual work, competence needs of older workers were significant only in marketing. Statistically significant differences in competence needs between older and younger workers were found only in marketing (enterprise of informational work).

Similarly, competence needs in IT, foreign languages, and production skills have been recognized in several studies, especially in the branch of informational work (Hakuli & Kettunen 1997; Opetushallitus 1996; Ritsilä 1998). In these studies, employees are not examined by age. These findings support the results of this study, and lead to a conclusion that the competence needs of older workers are similar to those of younger ones. The similarities in competence needs could refer to the similar challenges and tasks in work faced by younger and older employees.

When the competence needs were examined in relation to the educational background, statistically significant differences among all employees were found in marketing and in international relations. Competence need in marketing was larger among the employees with lower level of education, and in international relations the need was larger among higher educated employees. As Silvennoinen and Naumanen (1993) have observed the old paradox: those who have had more education, also needed it the most, which can probably be explained in a way that the employees with the higher education are placed in demanding and rapidly changing jobs, including growing demands in international relations skills.

When examined further how age and educational background together explain the competence needs, the results showed that the older the workers were, the more competence needs they had in production, communication skills, and in personal abilities. These last two competence need areas are related to the meta-competences that can be broadly applied in different work organizations and tasks. Production skills are included in standard technical competence that has also low organization specificity, but is related to certain work tasks. Standard technical and meta-competence have been introduced in the competence typology by Nordhaug (1991).

The age-effect on the competence need in production could have been arisen because the older workers had their education in many cases several years ago and technology, machines, and organization of work have changed during that time and therefore continuous learning is needed. The importance of communication skills has grown as the team work has become a very common way of organizing work tasks. This might be one reason why the competence need in communication skills was

larger among the older workers than among their younger colleagues, whose education has emphasized more the skills in communication. Tikkanen, Valkeavaara and Lunde (1996) and Argyris (1992) have noticed similar changes in organizations and team work.

The competence need of older workers in personal abilities could come from decrease in tolerance of changes and willingness to learn, as well as lack of learning strategies because a long time has gone since they had their education (Kuhn 1999; Warr 1998). General changes in working life and in work tasks, such as growing demand of efficacy, increasing work load, more extensive work tasks, continuous demand of learning, and flexibility may have led to the needs in personal abilities especially among older workers. During their working years a lot of changes had taken place and their "old" education could not have helped older workers to cope with these changes. Younger workers might have been given tools to cope with the changes in their education.

Educational background of employees explained more of the competence need in international relations skills than age did. Therefore, the better the educational background, the more needs the employees had in international relations. Most of the employees in the enterprise of informational work had a higher vocational education, whereas among the employees of the enterprise of manual work only 20 % had it. In the former enterprise, most of the older and the younger employees had the higher vocational education in contrast with the latter enterprise, in which none of the older workers had the higher vocational education.

Thus, the competence need in international relations among better educated employees can be interpreted as a consequence of better knowledge in languages studied in the higher vocational training. Additionally, these employees could be in positions in the organizations that demand language skills and knowledge of international relations, and therefore they have better chances to participate and develop in issues related to the international relations. Especially the enterprise of informational work has international business contacts. Tessaring (1998) has emphasized that this competence area is a key qualification among the large part of

the work force. The competence need in this case might not be the lack of language skills, but an obsolescence of them and a want to develop these skills.

In the enterprise of informational work, the managers thought that the employees had more competence needs than the employees self stated, except in production and IT skills. When compared especially older workers' competence needs and the opinion of managers, they had relatively large differences of opinion in production and marketing skills. In the enterprise of manual work, the managers saw that the employees had more competence needs in all the competence areas. The differences of opinion between older workers and managers were large in managerial, international relations, IT, and social skills.

These comparisons were made to examine the objective (managers) and subjective (employees) competence needs (Scissons 1982; Silvennoinen & Naumanen 1993). Our results could be in relation to the actual competence and competence required by the job that have been defined by Ellström (1997). In both enterprises the differences of opinion would indicate that the managers are more aware of the changes and therefore competence needs that the company has to face. On the other hand, the managers may not know what the actual competence of the employees and the competence required by the job are because specific examinations have not been made. Furthermore, the employees might have lower goals in their work, and therefore less competence needs, than the managers would have hoped.

Statistically significant differences in competence needs between the enterprises of informational and manual work were found in IT skills, international relations, production, and in marketing. Marketing was the only competence area in which the employees of the enterprise of manual work had more needs than the employees of the other enterprise. In general, the enterprise of manual work did not have any noticeable competence needs, unlike the enterprise of informational work.

In the enterprise of informational work, numerous changes had occurred in the past three years, and they will be an essential part of the future as well, contrary to the enterprise of manual work. The enterprise of informational work can be considered

as a proactive "one step ahead" -organization, in which the technology changes rapidly, and the developmental work demands continuing learning. This type of an organization and learning within it is described by Ellström (1997a) as developmentally oriented learning organization. Especially the change in IT technology will play an important part in the future, which is seen in the amount of competence need in IT skills. This enterprise has also several business contacts with partners abroad, which might explain the competence need in international relations. It would appear, therefore, that changes in work tasks and in organization seem to have a connection with the competence needs, as Fossum and Arvey (1990) have also noticed.

Enterprise of manual work was more like a reactive "day at a time" -organization in which changes are few and take place slowly. In the branch of manual work, the products and enterprises may have a future without major changes in organization or work tasks. Probably because of such a stable organization, no major competence needs could be found. Learning in the enterprise of manual work can be described in Ellström's (1997a) term adjustmentally oriented learning. The context of the company is relatively stable and it is not possible or even wanted to change the given conditions. As Tessaring (1998) has noticed, the polarization between performing and information processing work seems to be growing.

In addition to the changes in work, participation in training was considered to be on the background of competence needs of the employees. The possibilities to participate in training in the enterprise of informational work were mostly good, unlike in the enterprise of manual work. Likewise, participation in training and courses was more frequent in the enterprise of informational work. In both enterprises younger workers had participated in training and courses more often than their older colleagues. In the enterprise of manual work, the older workers had participated neither in training nor in courses. These findings are supported by earlier studies by Juhela (1993) and Tikkanen (1998). As expected, in the enterprise of manual work, where work tasks are stable, there are no significant competence needs, and therefore maybe there are no needs for training.

The state of health impaired the job performance on one-third of the employees in the enterprise of manual work, where the working conditions were physically demanding (hot temperatures) and at the same time accuracy was needed (eyesight). In the enterprise of informational work the state of health seemed to improve or to have no impact on the job performance of the employees. The work tasks included mainly planning, which is not similarly physically demanding. These different kind of working conditions have an essential impact on the job performance of older workers especially, and therefore professional competence could be effected, as have been indicated by Willis and Dubin (1990). Similarly, the physical characteristics of older workers and the impact on job performance have been studied earlier, for example, by Kuhn (1999), Pearson (1996), and Straka (1990). In conclusion, it could be implied that especially in the enterprise of manual work, the working conditions and physical demands of work should be taken into account.

6.2 Limitations of research methods and generalization of results

The research methods in this study were chosen and designed by the project personnel of WORKTOW. The structured questionnaire included already several research areas that were part of the project when questions about competence needs, competence, changes in work tasks, and health and its impact on the job performance were attached to the questionnaire. Therefore the existing form of the questionnaire limited the extent of our questions. There are always some limitations with the questionnaires. It is possible that the respondents have misunderstood some questions, or replied in a way that they thought is acceptable or desirable. Tiredness to answer could have also had an impact on the extent how the employees filled out the last questions.

When the data was gathered for this study, the research methods were in use for the first time. The semi - structured interview could have been more efficient if this was not the pilot phase of the project and interviewers had conducted more than one interview. Thus, improvements or development for the research methods were not made during the time when data collection for this study was in question.

As far as generalization of the results in this study is concerned, these results can not be widely generalized over all enterprises in the branches studied (informational and manual) although we used a rough categorization of the branches. The present study investigated only two, perhaps unique, enterprises, which made this study a type of a case study.

Overall, positive aspects were gained for this study for being part of the WORKTOW project. We had a great opportunity to work in a large international project with the experts of gerontological research. It was a pleasant and instructive experience to work together with the team of WORKTOW in Jyväskylä. Furthermore, the contacts with the enterprises were already done and the consent for this study was given. Also, some help was received in the process of data analysis (coding).

6.3 Implications for theory and practice concerning older workers

Age is not the only factor that should be examined when concerning older workers and their professional competence and the needs. Ageing does not refer only to biological age, which is why the other social and contextual factors should always be taken into account when older workers are examined.

In this study, the competence needs, competence, and background factors were surveyed in two different enterprises. The implications for practice are therefore related to these specific enterprises. In the enterprise of informational work, the competence needs of employees, not only older workers, should lead to practical affairs, such as training in needed competence areas. In the enterprise of manual work the managers should be more aware of the value of experience and competence of older workers, and their working conditions because a large part of them is retiring earlier than probably expected. If young employees are not hired and trained with the help of the knowledge and experience of older workers, the valuable know-how of older workers is vanishing.

This survey was one part of the pilot study of WORKTOW. Our questions are used in the actual study as well, and the purpose of the project is to utilize the gathered information to plan, organize, and evaluate training for workers, as well as to reshape the working environment to keep the experienced older workers longer in working life.

6.4 Implications for further studies

The main challenge is to keep older workers longer in working life, and therefore ageing in relation to the other factors should be examined further and more precisely. These other factors are attitudes towards and among older workers, possibilities to participate and participation in training, motivational factors, learning skills and abilities, and life situations. In addition, working conditions at work should be taken into account. Especially attitudes and motivation of older workers should be examined in the context of organizations to reveal the obstacles to participate in training and continuous learning. This leads to the question how these obstacles can be excluded.

If further education or training for older workers is arranged, the results and effectiveness should be examined. Every employer would like to have the most competent employees and every employee would like to say that he / she is the kind. As previous studies have shown, though, competence is a multidimensional concept. This is why it is very important to clarify especially the competence required by the job and the actual competence of the employee. Competence needs are relatively often examined, but further studies should be made about competence. Moreover, studies should be made about the possibilities to register the existing competence in a way that managers are more aware of it. Additionally, there could be more than one way to handle the register, thus alternative ways should be compared.

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JYVÄSKYLÄN YLIOPISTO

KASVATUSTIETEEN
LAITOS

19.11.1998



Hyvä Vastaanottaja,

Työelämä ja siellä tarvittava osaaminen muuttuvat tänä päivänä nopeasti ja samanaikaisesti työväestö ikääntyy. Tilanteeseen kehitetyt ratkaisut ovat toistaiseksi keskittyneet ruumiillista ja henkistä työkykyä ylläpitäviin toimenpiteisiin. Näistä huolimatta vanhempia työntekijöitä poistuu tai poistetaan työmarkkinoilta yhä enemmän ja yhä nuorempina. Vanhemman työväestön ammattitaitoon ja työssä osaamiseen on toistaiseksi kiinnitetty vähän huomiota työelämän muutoksia ja työväestön vanhenemista koskevassa keskustelussa ja toteutetuissa toimenpiteissä.

Jyväskylän yliopiston kasvatustieteen laitos on mukana kolmivuotisessa eurooppalaisessa tutkimushankkeessa *Työelämän muuttuminen ja ikääntyvän työväestön koulutus*, jossa huomio kohdistetaan nimenomaan tälle alueelle. Hankkeen tarkoituksena on selvittää, miten ja mitä yli 45-vuotiaat työntekijät oppivat työssään, miten vahvaan työkokemukseen perustuvaa osaamista pystyttäisiin tarkemmin kartoittamaan ja paremmin arvostamaan sekä edelleen hyödyntämään ja kehittämään työpaikoilla. Oheinen kyselylomake liittyy tähän hankkeeseen. Kyselylomakkeella pyritään kokoamaan taustatietoa eri yrityksissä tällä hetkellä vallitsevasta tilanteesta.

Olemme tehneet lomakkeeseen vastaamisen mahdollisimman helpoksi. Useimpiin kysymyksiin on annettu valmiit vastausvaihtoehdot ja riittää, kun merkitsette rastin siihen ruutuun tai ympyrän sen vaihtoehdon kohdalle, joka parhaiten vastaa omaa tilannettanne tai näkemystänne.

Tutkimuksen tiedot ovat täysin luottamuksellisia ja ne kootaan nimettöminä. Koottuun aineistoon on pääsy vain tutkimusryhmän jäsenillä. Tutkimuksen tuloksista laaditaan yrityskohtaiset raportit vuoden loppuun mennessä.

Työnantajanne on antanut suostumuksen tämän tutkimuksen suorittamiseen työpaikallanne.

Halutessanne lisätietoja tutkimusprojektista voitte kääntyä allekirjoittaneen puoleen. Hanketta on esitelty myös Internetissä osoitteessa <http://www.jyu.fi/~tikkanen/tser>.

Paljon kiitoksia vaivannäöstänne ja mukavaa joulun odotusta!

Tarja Tikkanen

KT, Erikoistutkija

Puh. 014 - 60 1698 tai 310 0431

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40351 Jyväskylä	Toimitus
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WORKTOW

Työelämän muutos ja ikääntyvän työväestön koulutus -tutkimusprojekti
(Working Life Changes and Training of Older Workers - WORKTOW)
1997-2000 - TSER, DGXII, EU



KYSELYLOMAKE TYÖNTEKIJÖILLE

Taustakysymykset

1. Ikä _____ vuotta
2. Sukupuoli ☐ nainen ☐ mies
3. Mikä on ammatillinen pohjakoulutuksesi?
☐ ei ammatillista koulutusta ☐ ammatti-kurssi ☐ ammatti-koulu ☐ ammatti-opisto ☐ korkea-koulu
4. Mikä on ammatinimekkeesi/asemasi organisaatiossa _____
5. Voisitko kuvailla työstäsi lyhyesti?

6. a. Kuinka kauan olet työskennellyt nykyisessä asemassasi organisaatiossanne? _____ vuotta
 b. Kuinka kauan olet työskennellyt nykyisen työnantajan palveluksessa? _____ vuotta.
7. Kuinka monta vuotta yhteensä olet ollut työssä elämäsi aikana? _____ vuotta
8. Oletko hakenut muita työpaikkoja viimeisen 12 kuukauden aikana? ☐ Kyllä ☐ En
9. Onko sinut irtisanottu toisesta työstä viimeisen kolmen vuoden aikana? ☐ Kyllä ☐ Ei
10. Onko nykyinen työsuhteesi ☐ kokoaikainen
☐ osa-aikainen
☐ tilapäinen
☐ vuokratyösuhte
☐ muu, mikä? _____

Työn vaihtelevuus ja oppimismahdollisuudet

- | 11. Kontrolloiko työtäsi ... | Suuresta määrin | Jossain määrin | Vähän | Ei lainkaan |
|--|-----------------|----------------|-------|-------------|
| a. määrääjat | 1 | 2 | 3 | 4 |
| b. kanssatyöntekijät, työtoverit | 1 | 2 | 3 | 4 |
| c. asiakkaat tms | 1 | 2 | 3 | 4 |
| d. koneet, tekniset laitteet | 1 | 2 | 3 | 4 |
| e. työjohto | 1 | 2 | 3 | 4 |
| f. kiinteät rutiinit/toistuvaisuusluontoiset työtehtävät | 1 | 2 | 3 | 4 |
| 12. Pitääkö sinun tehdä työssäsi paljon erilaisia asioita? | 1 | 2 | 3 | 4 |
| 13. Onko sinulla niin paljon työtehtäviä, että työsi on kiireistä ja stressaavaa? | 1 | 2 | 3 | 4 |
| 14. Pitääkö sinun työssäsi olla tekemisissä uusien ongelmien ja haasteiden kanssa? | 1 | 2 | 3 | 4 |
| 15. Sisältyykö työhösi uusien asioiden oppimista? | 1 | 2 | 3 | 4 |
| 16. Käytätkö tietokonetta työssäsi? | 1 | 2 | 3 | 4 |

- | | Suuresta
määrin | Jossain
määrin | Vähän | Ei
lainkaan |
|---|--------------------|-------------------|-------------------|----------------|
| 17. Onko sinulla työpaikallasi mahdollisuus osallistua omaa työtäsi koskevaan päätöksentekoon? | 1 | 2 | 3 | 4 |
| 18. Jos vastasit edellisessä kysymyksessä "suuresta määrin" tai "jossain määrin", osallistutko työtäsi koskevaan päätöksentekoon? | 1 | 2 | 3 | 4 |
| 19. Kuinka kauan arvioisit menevän nykyisten työtehtäviesi oppimiseen uudelta työntekijältä, jolla olisi vaadittava pohjakoulutus? | | | | |
| <input type="checkbox"/> Muutama tunti
<input type="checkbox"/> Muutama päivä
<input type="checkbox"/> Muutama viikko
<input type="checkbox"/> Muutama kuukausi
<input type="checkbox"/> 1-2 vuotta
<input type="checkbox"/> Enemmän kuin kaksi vuotta
<input type="checkbox"/> Vaikea sanoa/En tiedä | | | | |
| | Erittäin
hyvät | Hyvät | Ei kovin
hyvät | Ei
lainkaan |
| 20. Millaiset mahdollisuudet sinulla on käyttää työssäsi niitä tietoja ja taitoja, jotka olet saanut koulutuksessasi? | 1 | 2 | 3 | 4 |
| 21. Millaiset mahdollisuudet sinulla on käyttää työssäsi niitä tietoja ja taitoja, jotka olet hankkinut työkokemuksesi kautta? | 1 | 2 | 3 | 4 |
| 22. Millaiset mahdollisuudet sinulla on työssäsi kehittää ammatillisia taitojasi haluamillasi alueilla? | 1 | 2 | 3 | 4 |
| 23. Millaiset mahdollisuudet sinulla on saada neuvoa ja ohjausta vaikeissa työtehtävissä? | 1 | 2 | 3 | 4 |
| 24. Millaiset mahdollisuudet sinulla on tehdä työtäsi koskevia aloitteita | 1 | 2 | 3 | 4 |
| 25. Millaiset mahdollisuudet sinulla on luovuuteen ja itsesi toteuttamiseen omassa työssäsi | 1 | 2 | 3 | 4 |
| 26. Millaiset mahdollisuudet sinulla on saada välttämätöntä koulutusta suoriutuaksesi työstäsi kunnolla | 1 | 2 | 3 | 4 |
| 27. Millaiset mahdollisuudet sinulla on yrityksessänne kaiken kaikkiaan osallistua jatkuvaan koulutukseen (esim. saada opintovapaata tms tai taloudellista tukea opiskellaksesi lisää)? | 1 | 2 | 3 | 4 |
| 28. Tällä hetkellä korostetaan paljon työntekijöiden ja -johdon oppimisen tukemisen tärkeyttä, jotta myös pk-yritykset selviytyisivät elinvoimaisina ja voisivat kehittyä. Verrattuna muihin tyypillisiin yrityksiin alallanne, onko mielestäsi yrityksenne samassa vai vähemmässä/ enemmän määrin luonnehdittavissa "oppivaksi organisaatioksi"? | | | | |
| <input type="checkbox"/> Huomattavasti vähemmän <input type="checkbox"/> Jonkin verran vähemmän <input type="checkbox"/> Yhtä paljon <input type="checkbox"/> Jonkin verran enemmän <input type="checkbox"/> Huomattavasti enemmän <input type="checkbox"/> En osaa sanoa | | | | |

Osallistuminen koulutukseen

29. Oletko kolmen viimeisen vuoden aikana osallistunut koulutukseen tai kursseille, jotka ovat olleet muodollisesti pätevöittäviä (olet saanut todistuksen, tutkinnon tms.)?

☐ Kyllä ☐ En

Jos vastasit "kyllä" edelliseen kysymykseen,

a. kuinka kauan tämä koulutus tai kurssit kestivät yhteensä? _____ viikkoa

b. kustansiko työnantajasi tämän koulutuksen tai kurssituksen? ☐ Kyllä ☐ Ei

30. Oletko viimeisen 12 kuukauden aikana osallistunut koulutukseen tai kursseille, jotka eivät ole olleet muodollisesti pätevöittäviä (ei todistuksia tai tutkintoja, tms.)?

☐ Kyllä ☐ Ei

Jos vastasit "kyllä" edelliseen kysymykseen,

a. kuinka kauan nämä kurssit kestivät yhteensä? _____ tuntia

b. kustansiko työnantajasi nämä kurssit? ☐ Kyllä ☐ Ei

31. Oletko viimeisen 12 kuukauden aikana osallistunut koulutukseen, joka on järjestetty työssä koulutuksena?

☐ Kyllä ☐ En

Jos "kyllä" niin kuinka kauan koulutus kesti yhteensä? _____ tuntia

32. Jos vastasit "kyllä" mihin tahansa koulutusta koskevaan kysymykseen (kysymykset 29, 30, 31), johtiko koulutus mihinkään seuraavista:

- a. keskusteluun työnjohdon kanssa mahdollisuuksista soveltaa opittuja asioita työssä ☐ Kyllä ☐ Ei
- b. uusiin työtehtäviin ☐ Kyllä ☐ Ei
- c. lisääntyneeseen ammatilliseen vastuuseen ☐ Kyllä ☐ Ei
- d. lisääntyneeseen vastuuseen henkilöstöstä ☐ Kyllä ☐ Ei
- e. siirtoon toiseen yksikköön ☐ Kyllä ☐ Ei
- f. uudenlaiseen asemaan ☐ Kyllä ☐ Ei
- g. korkeampaan palkkaan ☐ Kyllä ☐ Ei
- h. parempiin mahdollisuuksiin saada työtä toiselta työnantajalta ☐ Kyllä ☐ Ei
- i. ylennykseen ☐ Kyllä ☐ Ei
- j. muuhun _____ ☐ Kyllä ☐ Ei
- k. ei muutoksia/seurauksia toistaiseksi ☐

Oppimiskulttuuri

Missä määrin olet samaa mieltä/eri mieltä seuraavista väittämistä

	Täysin samaa mieltä	Samaa mieltä	Eri mieltä	Täysin eri mieltä
33. Yrityksessämme kiinnitetään huomiota siihen, että vastakoulutetun työntekijän tietoja ja taitoja myös hyödynnetään työssä.	1	2	3	4
34. Yrityksessämme työntekijöiden työkokemukselle annetaan suuri arvo.	1	2	3	4
35. Yrityksessämme työntekijöille annetaan riittävästi palautetta, jotta he suoriutuvat työstään kunnolla.	1	2	3	4
36. Yrityksessämme rohkaistaan kysymysten esittämiseen.	1	2	3	4
37. Yrityksessämme rohkaistaan esittämään työtä koskevia uusia ideoita	1	2	3	4
38. Yrityksemme rohkaisee työntekijöitä parantamaan ja kehittämään työtään	1	2	3	4
39. Yrityksessämme vanhempien työntekijöiden koulutusta pidetään yhtä tärkeänä kuin nuorempien työntekijöiden koulutusta	1	2	3	4
40. Yrityksessämme vanhempien työntekijöiden menestys uusien asioiden oppimisessa on yhtä hyvä kuin nuorempien	1	2	3	4
41. Yrityksessämme vanhemmilla työntekijöillä on vaikeuksia oppia uusia taitoja, joita vaaditaan muissa kuin esimiestehtävissä	1	2	3	4

42. Jos ajattelet tässä yrityksessä (ei-esimiestehtävissä) tarvittavia taitoja, minkä ikäisenä arviot työntekijän olevan liian vanha oppimaan uusia taitoja?

_____ -vuotiaana

Ei ikäeroja oppimisessa ☐

En tiedä ☐

Itseohjautuva oppiminen

	Hyvin usein	Usein	Harvoin	En koskaan
43. Kun kohtaat uusia ongelmia työssäsi, ratkaisetko mieluummin ongelman itse kuin kysyt neuvoa muilta?	1	2	3	4
44. Teetkö itse aloitteita pitääksesi yllä tietojasi ja taitojasi, jotka liittyvät työhösi?	1	2	3	4
Jos vastasit edelliseen kysymykseen "hyvin usein" tai "usein", miten pidät tietojasi ja taitojasi yllä?				
a. Kysyn työkavereiltani neuvoja tai ohjausta	1	2	3	4
b. Kysyn neuvoja tai opastusta uusiin asioihin esimiehiltäni ..	1	2	3	4
c. Keskustelen oman alani asiantuntijoiden kanssa	1	2	3	4
d. Käytän internetiä löytääkseni tarkoituksenmukaista tietoa .	1	2	3	4
e. Luen käyttöohjeita ja muuta tietoa tavarantoimittajilta	1	2	3	4
f. Luen ammattilehtiä	1	2	3	4
g. Osallistun kursseille, opetukseen ja koulutukseen omasta aloitteestani	1	2	3	4
h. Muulla tavoin, miten	1	2	3	

Osaamisalueet ja -tarpeet

45. Seuraavassa on lueteltu joukko ammatillista osaamista kuvaavia osa-alueita ja työssä vaadittavia ominaisuuksia. Missä määrin koet tarvetta kehittää itseäsi ja osaamistasi mainituilla alueilla.

	paljon	jonkin verran	en lainkaan	en tarvitse työssäni		paljon	jonkin verran	en lainkaan	en tarvitse työssäni
1. johtamistaidot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11. ulkomaankaupan viennin tuntemus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. henkilöstöhallintoon liittyvät taidot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12. kansainvälinen kanssakäyminen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. EU-säädösten tuntemus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13. taloushallinto	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. työlainsäädännön hallitseminen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14. automaation hallinta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. työsuhdeasioiden tuntemus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15. laadun kehittäminen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. myyntitaidot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16. tuotesuunnittelu	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. asiakaspalvelutaidot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	17. työsuojelusäädösten tuntemus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. tuotantoprosessin tuntemus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	18. tietotekniikan perustaidot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. koneiden ja tekniikan hallinta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	19. tietotekniikan erityisosaaminen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. mainonta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	20. logistiikka	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
					21. ympäristöasiat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	pal- jon	jonkin verran	en lain- kaan	en tarvitse työssäni		paljon	jonkin verran	en lain- kaan	en tarvitse työssäni
22. kielitaito, mikä kieli?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	30. aloitteellisuus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. kirjallisen viestinnän taidot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	31. kyky oppia uutta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. esiintymistaito	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	32. ongelmanratkaisutaidot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. ryhmä- ja tiimityö- taidot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	33. päätöksentekokyky	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. projektityöskentelyn hallinta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	34. muutoksenhallinta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. yhteistyötaidot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	35. huolellisuus työssä	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. neuvottelutaidot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	36. työnohjausvalmiudet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. muu ammatillinen erityisosaaminen, mikä? _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	37. työmotivaatio	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
					38. joustavuus työ- tehtävissä	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
					39. joustavuus työ- yhteisössä	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
					40. stressinhallinta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
					41. luovuus työn suori- tamisessa	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
					42. tuottavuus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
					43. ihmissuhdetaidot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

46. Mitkä ovat mielestäsi kolme ammattitaitoosi liittyvää seikkaa, jotka hallitset parhaiten?

1. _____
2. _____
3. _____

47. Miten luonnehtisit kolme huomattavinta muutosta työtehtävissäsi kolmen viimeisen vuoden aikana?

1. _____
2. _____
3. _____

48. Millaisia muutoksia ennakoit tapahtuvan työtehtävissäsi seuraavan kolmen vuoden aikana? Mainitse 3 tärkeintä seikkaa:

1. _____
2. _____
3. _____

49. Mikä on mielestäsi sopivin eläkeikä työstäsi? _____ vuotta.

50. Millaiseksi arvioit terveydentilasi tällä hetkellä? ☐ heikko ☐ keskinkertainen ☐ hyvä

51. Millaiseksi arvioisit terveytesi suhteessa muihin samanikäisiin työntekijöihin työpaikallasi? ☐ heikompi ☐ yhtä hyvä ☐ parempi

52. Miten nykyinen terveytesi vaikuttaa työtehtävistäsi suoriutumiseen? ☐ auttaa suoriutumaan paremmin ☐ ei vaikuta työsuoritukseeni ☐ heikentää työsuoritustani

Appendix 2: Questions from employees' questionnaire in English related to this study

EMPLOYEES

Background questions

1. Age ____ years
2. Gender: female / male
3. Your educational background: what is your highest education or training?
(no vocational training / vocational course / vocational school / higher vocational degree / university degree)
4. What is your professional position in the organization?
- 5b. How long have you been working for the current employer?
10. Is your present job contract:
(full-time job / part-time job / temporary job / agency worker / other (please specify))

Work complexity and learning opportunities

14. Do you have to deal with new problems and challenges in your job?
(to a large extent - to some extent - to a little extent - not at all)
15. Does your job involve learning new things? (to a large extent - to some extent - to a little extent - not at all)
27. How strong are the overall possibilities (study leave, sabbatical, financial support) in your company to participate in continuous education?
(to a large extent - to some extent - to a little extent - not at all)

Participation in training (formal and informal)

29. During the last three years have you participated in educational programmes or courses that have given you a certificate, an academic degree / exams, professional authorisation? (yes - no)

30. In the last 12 months have you participated in some shorter courses that have not given you any certification or formal qualification? (yes - no)

Competence areas and competence needs

45. Here is a list of areas of professional competence (see Appendix 7). To a what extent do you see a need to develop yourself in the following areas?
(to a large extent - to some extent - not at all - I don't need it in my work)
46. In your opinion, what three areas of your professional competence you know the best?
47. How would you describe three the most significant changes that have taken place in your work during the last three years?
48. What kind of changes would you predict to happen in your work tasks in the following three years? Mention three the most important issues.
50. What kind of state of health do you have at the moment? (weak - average - good)
52. How does your state of health have an impact on your job performance?
(improves my job performance - does not have an impact on my job performance - impaires my job performance)



19.11.1998



Hyvä Vastaanottaja,

Työelämä ja siellä tarvittava osaaminen muuttuvat tänä päivänä nopeasti ja samanaikaisesti työväestö ikääntyy. Tilanteeseen kehitetyt ratkaisut ovat toistaiseksi keskittyneet ruumiillista ja henkistä työkykyä ylläpitäviin toimenpiteisiin. Näistä huolimatta vanhempia työntekijöitä poistuu tai poistetaan työmarkkinoilta yhä enemmän ja yhä nuorempina. Vanhemman työväestön ammattitaitoon ja työssä osaamiseen on toistaiseksi kiinnitetty vähän huomiota työelämän muutoksia ja työväestön vanhenemista koskevassa keskustelussa ja toteutetuissa toimenpiteissä.

Jyväskylän yliopiston kasvatustieteen laitos on mukana kolmivuotisessa eurooppalaisessa tutkimushankkeessa *Työelämän muuttuminen ja ikääntyvän työväestön koulutus*, jossa huomio kohdistetaan nimenomaan tälle alueelle. Hankkeen tarkoituksena on selvittää, miten ja mitä yli 45-vuotiaat työntekijät oppivat työssään, miten vahvaan työkokemukseen perustuvaa osaamista pystyttäisiin tarkemmin kartoittamaan ja paremmin arvostamaan sekä edelleen hyödyntämään ja kehittämään työpaikoilla. Oheinen kyselylomake liittyy tähän hankkeeseen. Kyselylomakkeella pyritään kokoamaan taustatietoa eri yrityksissä tällä hetkellä vallitsevasta tilanteesta.

Olemme tehneet lomakkeeseen vastaamisen mahdollisimman helpoksi. Useimpiin kysymyksiin on annettu valmiit vastausvaihtoehdot ja riittää, kun merkitsette rastin siihen ruutuun tai ympyrän sen vaihtoehdon kohdalle, joka parhaiten vastaa omaa tilannettanne tai näkemystänne.

Tutkimuksen tiedot ovat täysin luottamuksellisia ja ne koetaan nimettöminä. Koottuun aineistoon on pääsy vain tutkimusryhmän jäsenillä. Tutkimuksen tuloksista laaditaan yrityskohtaiset raportit vuoden loppuun mennessä.

Työnantajanne on antanut suostumuksen tämän tutkimuksen suorittamiseen työpaikallanne.

Halutessanne lisätietoja tutkimusprojektista voitte kääntyä allekirjoittaneen puoleen. Hanketta on esitelty myös Internetissä osoitteessa <http://www.jyu.fi/~tikkanen/tser>.

Paljon kiitoksia vaivannäöstänne ja mukavaa joulun odotusta!

Tarja Tikkanen

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WORKTOW

Työelämän muutos ja ikääntyvän työväestön koulutus -tutkimusprojekti
(Working Life Changes and Training of Older Workers - WORKTOW)
1997-2000 - TSER, DGXII, EU



KYSELYLOMAKE TYÖNJOHDOLLE

Taustakysymykset

- Ikä _____ vuotta
- Sukupuoli ☐ nainen ☐ mies
- Mikä on ammatillinen pohjakoulutuksesi?
☐ ei ammatillista koulutusta ☐ ammatti-kurssi ☐ ammatti-koulu ☐ ammatti-opisto ☐ korkea-koulu
- Mikä on ammattinimekkesi/asemasi organisaatiossa _____
- Voisitko kuvailla työstäsi lyhyesti?

- Kuinka kauan olet työskennellyt nykyisessä asemassasi organisaatiossanne? _____ vuotta

[- OLE HYVÄ JA SIIRRY VASTAAMAAN KYSYMYKSEEN14 -]

Organisaatio

- Mikä on yrityksenne toimiala?
 a. Tuotanto ☐
 b. Rakennus ☐
 c. Tukku- tai vähittäiskauppa ☐
 d. Hotelli tai ravintola ☐
 e. Kuljetus, varastointi, viestintä, tietoliikenne ☐
 f. Rahoitus, vakuutus, kiinteistö, liikepalvelut ☐
 g. Palvelut ☐
 h. Muu ☐
- Kuinka paljon työntekijöitä yrityksessänne on kaikkiaan? _____ henkilöä
- Mikä on yrityksenne henkilöstön ikärakenne? Naiset Miehet
 16-30 _____ % 16 - 30 _____ %
 31-44 _____ % 31 - 44 _____ %
 45-65 _____ % 45 - 65 _____ %
- Kuinka suuri osuus yrityksenne ei-esimiestehtävissä toimivista työntekijöistä on:
 a. kokopäiväisiä _____ %
 b. osa-aikaisia _____ %
 c. tilapäisiä _____ %
 d. vuokratyöntekijöitä _____ %
 e. muita _____ %
- Millaiset ovat yrityksenne henkilöstön työaikajärjestelyt?
 a. vain vuorotyö ☐ Kyllä ☐ Ei
 b. vain toimistoaika ☐ Kyllä ☐ Ei
 c. molemmat ☐ Kyllä ☐ Ei
 d. liukuvat/joustavat työajat ☐ Kyllä ☐ Ei
 e. muu, mikä? _____ ☐ Kyllä ☐ Ei

12. Millaista palkkausjärjestelmää yrityksessänne sovelletaan?

- | | | |
|--------------------------------------|--------------------------------|-----------------------------|
| a. Toimialakohtaiset yleissopimukset | <input type="checkbox"/> Kyllä | <input type="checkbox"/> Ei |
| b. Työntekijäkohtaiset sopimukset | <input type="checkbox"/> Kyllä | <input type="checkbox"/> Ei |
| c. Tulospalkkaus | <input type="checkbox"/> Kyllä | <input type="checkbox"/> Ei |
| d. Erilliset palkkiot | <input type="checkbox"/> Kyllä | <input type="checkbox"/> Ei |
| e. Muu, mikä? _____ | <input type="checkbox"/> Kyllä | <input type="checkbox"/> Ei |

13. Millainen on organisaationne rakenne? (Rengasta sopiva vaihtoehto)

- | | | | | | | | |
|--------------------------------------|---|---|---|---|---|---|---|
| a. Eri organisaatiotasojen lukumäärä | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| b. Yksiköiden ja osastojen lukumäärä | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Organisaation muutokset

14. Onko organisaatiossanne tapahtunut seuraavanlaisia muutoksia viimeisen kolmen vuoden aikana?

15. Mitä nämä muutokset ovat vaikuttaneet yli 45 -vuotiaiden työntekijöiden asemaan yrityksessänne?

		Asema parantunut	Ei vaikutusta	Asema huonontunut	En tiedä
Yritys on jaettu pienempiin yksiköihin	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pienempiä yksiköitä on yhdistetty suurempiin	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Muutoksia tuotteissa tai markkinoilla	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Joustavampiin työaikoihin siirtyminen	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suuria muutoksia tuotantoteknologiassa	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laatujärjestelmien kehittäminen	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lisääntyneet koulutusinvestoinnit	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tulokseen perustuvan palkkiojärjestelmän laajentaminen	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ostopalvelujen lisääminen (aiemmin yritysten sisäisiä töitä on korvattu yrityksen ulkopuolta ostettavilla palveluilla)	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ryhmätyön lisääntyminen	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Parantunut organisaation ilmapiiri	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Huonontunut organisaation ilmapiiri	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Työntekijöiden keski-ikä kasvu	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Työntekijöiden koulutustason nousu	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Muita muutoksia Jos kyllä, mitä _____	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

16. Ennakoitko seuraavien muutosten tapahtuvan yrityksessänne?

17. Miten arvioisit näiden muutosten vaikuttavan yli 45 -vuotiaiden työntekijöiden asemaan yrityksessänne?

		Asema parantuu	Ei vaikutusta	Asema huonontuu	En tiedä
Yritys jaetaan pienempiin osiin	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pienempiä yksiköitä yhdistetään suurempiin	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Huomattava muutos tuotteissa ja markkinoilla	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Joustavammat työjärjestelyt	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Huomattava muutos tuotantoteknologiassa	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laatujärjestelmien kehittäminen	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lisääntyvät koulutusinvestoinnit	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Työn tulokseen perustuvan kannustejärjestelmän laajentaminen	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ostopalvelujen lisääminen (aiemmin yritysten sisäisiä töitä korvataan yrityksen ulkopuolta ostettavilla palveluilla)	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ryhmätyön lisääminen	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Organisaation ilmapiirin parantuminen	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Organisaation ilmapiirin huonontuminen	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Työntekijöiden keski-ikäen nousu	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Työntekijöiden koulutustason nousu	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Muita muutoksia	<input type="checkbox"/> Kyllä <input type="checkbox"/> Ei	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Jos kyllä, mitä _____

[- OLE HYVÄ JA SIIRRY VASTAAMAAN KYSYMYKSEEN 21 -]

Henkilöstöhallinto ja -koulutus

18. Onko organisaatiollanne...

- | | | |
|---|--------------------------------|-----------------------------|
| a. erillinen koulutusbudjetti | <input type="checkbox"/> Kyllä | <input type="checkbox"/> Ei |
| b. kirjallinen koulutussuunnitelma | <input type="checkbox"/> Kyllä | <input type="checkbox"/> Ei |
| c. mentorointi- tai ohjausjärjestelmä | <input type="checkbox"/> Kyllä | <input type="checkbox"/> Ei |
| d. kirjallinen sitoutuminen kaikkien työntekijöiden kehittämiseen | <input type="checkbox"/> Kyllä | <input type="checkbox"/> Ei |
| e. koulutusvastaava | <input type="checkbox"/> Kyllä | <input type="checkbox"/> Ei |
| f. Kirjallinen julkilausuma henkilöstön tasavertaisista kehitysmahdollisuuksista ikään katsomatta | <input type="checkbox"/> Kyllä | <input type="checkbox"/> Ei |
| g. henkilöstötilinpäätöskäytäntö | <input type="checkbox"/> Kyllä | <input type="checkbox"/> Ei |

19. Toteutetaanko organisaationne tarjoama koulutus

- ☐ pääosin työn yhteydessä
☐ pääosin työpaikan ulkopuolella
☐ työn ulkopuolella, mutta yrityksen lähtökohdista käsin
☐ jokseenkin tasaisesti kaikkien edellä olevien vaihtoehtojen mukaisesti

20. Keitä ovat yrityksenne käyttämät kouluttajat?

	Aina	Usein	Joskus	Ei koskaan
a. Yrityksen henkilökuntaa	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Kouluttajia paikallisista koulutuslaitoksista	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Asiakkaita tai tavarantoimittajia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Asiantuntijoita konsulttitoimistoista	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Muita asiantuntijoita, ketä? _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Oppimisympäristöt ja -olosuhteet

21. Seuraavissa kysymyksissä (kysymykset 22-44) tarkastellaan yrityksestänne oppimisympäristönä ja sen oppimiskulttuuria. Näiden piirteiden arviointi kuitenkin riippuu siitä työstä, johon arviointi kohdistetaan. Siksi pyydämme, että ensiksi täsmentäisitte, mikä seuraavista työtyypeistä kuvaa parhaiten yrityksessänne hallitsevan työn luonnetta.

- ☐ teollinen työ
☐ toimistotyö tai liike-elämän palvelut
☐ palvelu

22. Kontrolloiko työtä ja sen tekemistä yrityksessänne...

	Suuresta määrin	Jossain määrin	Vähän	Ei lainkaan
a. määrääjat	1	2	3	4
b. kanssatyöntekijät, työtoverit	1	2	3	4
c. asiakkaat tms	1	2	3	4
d. koneet, tekniset laitteet	1	2	3	4
e. työnjohto	1	2	3	4
f. kiinteät rutiinit/toistuvaisuonnoiset työtehtävät	1	2	3	4
23. Tekevätkö yrityksenne työntekijät useita erilaisia asioita työssään?	1	2	3	4
24. Onko yrityksenne työntekijöillä niin paljon töitä, että heidän työnsä on kiireistä ja stressaavaa?	1	2	3	4
25. Tarvitseeko yrityksenne työntekijöiden olla tekemisissä uusien ongelmien ja haasteiden kanssa työssään?	1	2	3	4
26. Sisältyykö työntekijöidenne työtehtäviin uusien asioiden oppimista?	1	2	3	4
27. Käyttävätkö työntekijänne tietokoneita työssään?	1	2	3	4
28. Onko yrityksenne työntekijöillä mahdollisuus osallistua omaa työtään koskevaan päätöksentekoon?	1	2	3	4
29. Jos vastasitte edellisessä kysymyksessä "suuresta määrin" tai "jossain määrin", osallistuvatko työntekijänne työtään koskevaan päätöksentekoon?	1	2	3	4

	Erittäin hyvät	Hyvät	Ei kovin hyvät	Ei lainkaan
30. Millaiset mahdollisuudet yrityksenne työntekijöillä on käyttää työssään tietojaan ja taitojaan, jotka he ovat saaneet koulutuksessaan?	1	2	3	4
31. Millaiset mahdollisuudet yrityksenne työntekijöillä on käyttää työssään tietojaan ja taitojaan, jotka he ovat saavuttaneet työkokemuksensa kautta?	1	2	3	4
32. Millaiset mahdollisuudet työntekijöillänne on työssään kehittää ammatillisia taitojaan haluamillaan alueilla?	1	2	3	4
33. Millaiset mahdollisuudet työntekijöillänne on saada neuvoa ja ohjausta vaikeissa työtehtävissä?	1	2	3	4
34. Millaiset mahdollisuudet työntekijöillänne on tehdä oma työtään koskevia aloitteita	1	2	3	4
35. Millaiset mahdollisuudet työntekijöillänne on luovuuteen ja itsensä toteuttamiseen omassa työssään	1	2	3	4
36. Millaiset mahdollisuudet työntekijöillänne on saada tarpeellista koulutusta suoriutuakseen työstään kunnolla ..	1	2	3	4
37. Millaiset mahdollisuudet työntekijöillänne on osallistua jatkuvaan koulutukseen (esim. saada opintovapaata tms)?	1	2	3	4

38. Tällä hetkellä korostetaan paljon työntekijöiden ja -johdon oppimisen tukemisen tärkeyttä, jotta myös pk-yritykset selviytyisivät elinvoimaisina ja voisivat kehittyä. Verrattuna muihin tyypillisiin yrityksiin alallanne, onko mielestäsi yrityksenne samassa vai vähemmässä/ enemmässä määrin oppiva organisaatio?

- ☐ Huomattavasti vähemmän
 ☐ Jonkin verran vähemmän
 ☐ Yhtä paljon
 ☐ Jonkin verran enemmän
 ☐ Huomattavasti enemmän
 ☐ En osaa sanoa

Oppimiskulttuuri

Missä määrin olet samaa mieltä/eri mieltä seuraavista väittämistä?

	Täysin samaa mieltä	Samaa mieltä	Eri mieltä	Täysin eri mieltä
39. Yrityksessämme kiinnitetään huomiota siihen, että vastakoulutetun työntekijän tietoja ja taitoja myös hyödynnetään työssä.	1	2	3	4
40. Yrityksessämme työntekijöiden työkokemukselle annetaan suuri arvo.	1	2	3	4
41. Yrityksessämme työntekijöille annetaan riittävästi palautetta, jotta he suoriutuvat työstään kunnolla.	1	2	3	4
42. Yrityksessämme rohkaistaan kysymysten esittämiseen.	1	2	3	4
43. Yrityksessämme rohkaistaan esittämään työtä koskevia uusia ideoita	1	2	3	4
44. Yrityksemme rohkaisee työntekijöitä parantamaan ja kehittämään työtään	1	2	3	4
45. Yrityksessämme vanhempien työntekijöiden koulutusta pidetään yhtä tärkeänä kuin nuorempien työntekijöiden koulutusta	1	2	3	4
46. Yrityksessämme vanhempien työntekijöiden menestys uusien asioiden oppimisessa on yhtä hyvä kuin nuorempien	1	2	3	4
47. Yrityksessämme vanhemmilla työntekijöillä on vaikeuksia oppia uusia taitoja, joita vaaditaan muissa kuin esimiestehtävissä	1	2	3	4
48. Jos ajattelet tässä yrityksessä (ei-esimiestehtävissä) tarvittavia taitoja, minkä ikäisenä arviot työntekijän olevan liian vanha oppimaan uusia taitoja?				

_____ -vuotiaana

Ei ikäeroja ☐

En tiedä ☐

Osaamisalueet ja -tarpeet

49. Seuraavassa on lueteltu joukko yrityksissä tarvittavaa osaamista kuvaavia osa-alueita ja työntekijöiden ominaisuuksia. Missä määrin arvioitte yrityksessänne olevan tarvetta **kehittää/lisätä** mainittuja taitoja ja ominaisuuksia.

	paljon	jonkin verran	ei lainkaan	ei koske tämän yrityksen henkilöstöä		paljon	jonkin verran	ei lainkaan	ei koske tämän yrityksen henkilöstöä
1. esimiestaidot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14. tietotekniikan erityisosaaminen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. työsuhteasioiden tuntemus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15. logistiikka	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. asiakaspalvelu	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16. ympäristöasiat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. markkinointi	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	17. kielitaito	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. ulkomaankauppa	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	18. viestintätaidot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. kansainvälinen kanssakäyminen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	19. ryhmätyötaidot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. taloushallinto	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	20. yhteistyötaidot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. tuotantoprosessin tuntemus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	21. projektityöskentelyn hallinta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. tuotantotoiminnot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	22. muu ammatillinen erityisosaaminen,	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. laadun kehittäminen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	mikä? _____				
11. tuotesuunnittelu	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
12. työsuojelusäädökset	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
13. tietotekniikan perustaidot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					

	paljon	jonkin verran	ei lain- kaan	ei koske tämän yrityksen henkilöstöä		paljon	jonkin verran	ei lain- kaan	ei koske tämän yrityksen henkilöstöä
23. aloitteellisuus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	31. halu kehittää työtehtäviä	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. kyky oppia uutta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	32. joustavuus työtehtävissä	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. ongelmanratkaisu- taito	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	33. stressinhallinta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. päätöksentekokyky	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	34. luovuus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. muutoksenhallinta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	35. tehokkuus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. huolellisuus työssä	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	36. ihmissuhdetaidot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. työnohjausvalmiudet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
30. työmotivaatio	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					

Appendix 4: Questions from managers' questionnaire in English related to this study

MANAGERS

Background questions

1. Age ____ years
2. Gender: female / male
3. Your educational background: what is your highest education or training?
(no vocational training / vocational course / vocational school / higher vocational degree / university degree)
4. What is your professional position in the organization?

Organization

8. Number of employees? _____

Organizational changes

14. Have the following changes taken place in your company during the last three years? (yes - no)

The company has been split into smaller units

Smaller units have been combined into larger ones

Changes in product or market

More flexible working hours

Major changes in production technology

Development of quality systems

Increased investment in training

Increase in the incentive systems based on job results

Outsourcing (previously in-company work have been replaced with out-company work bought from subcontractors)

Increased group work (teams, cells, etc.)
 Improved organizational climate
 Impaired organizational climate
 Increased average age of employees
 Increased level of education among employees
 Other changes

16. Do you expect the following changes to take place in your company?

The company has been split into smaller units
 Smaller units have been combined into larger ones
 Changes in product or market
 More flexible working hours
 Major changes in production technology
 Development of quality systems
 Increased investment in training
 Increase in the incentive systems based on job results
 Outsourcing (previously in-company work have been replaced with out-company work bought from subcontractors)
 Increased group work (teams, cells, etc.)
 Improved organizational climate
 Impaired organizational climate
 Increased average age of employees
 Increased level of education among employees
 Other changes

Competence areas and competence needs

49. Here is a list of areas of competence and personal abilities of the employees needed in enterprises (see Appendix 7). To a what extent do you estimate that there is a need to develop / increase these skills and abilities in your company? (to a large extent - to some extent - not at all - does not involve the employees of this enterprise)

Appendix 5: Semi - structured interview (in Finnish)

Haastattelu pilottiyrityksissä - WORKTOW - Marraskuu 1998

AMMATILLINEN OSAAMINEN

TYÖNTEKIJÄT

AMMATTITAITO JA OSAAMINEN

1. Miten voidaan mielestänne määritellä ammattitaito omalla alallanne?
 - A. Mistä tekijöistä / osa-alueista se muodostuu?
 - B. Miten voidaan määrittää, milloin nuo osa-tekijät täyttävät laatuvaatimukset l. ovat osaamista?
2. Entä omassa työssänne ja työtehtävissänne?
 - A. Mistä tekijöistä / osa-alueista se muodostuu?
 - B. Miten voidaan määrittää, milloin nuo osa-tekijät täyttävät laatuvaatimukset l. ovat osaamista?
3. Miten luonnehtisitte ja arvioisitte omaa ammattitaitoanne tällä hetkellä?

Mitkä ovat mielestänne oman osaamisenne vahvuudet / heikkoudet?
4. Onko työssänne asioita tai alueita, joilla koette tarvitsevanne uutta osaamista tai toisenlaista osaamista kuin teillä tällä hetkellä on?
5. Saatteko työssänne käyttää kaikkea sitä osaamista ja ammattitaitoa, mikä teillä on?
6. Koska käytössä oleva osaaminen eli kompetenssi ei ole aina maksimissaa, minkälaiset tekijät ovat oman työtehonne maksimoimisen kannalta keskeisimmät?
 - kuinka paljon arvioitte vaihtelua esiintyvän omassa työssänne?
 - vaihtelukaudet?
 - oletteko huomanneet ikänne vaikuttavan työtehokkuuteenne?

KOKEMUS

7. Ajatelkaa omaa ammattialaanne. Jos lohkotte alallanne välttämättömän osaamisen (100 %) kolmeen osaan siten, että ne heijastavat koulutuksen, työkokemuksen ja persoonallisten piirteiden osuutta tuon osaamisen hankkimisessa, miten tuo kakku jaettaisiin?

Millainen tuo jako olisi, jos se kuvaisi tämänhetkisen oman osaamisenne lähteitä?
8. Mikä on kokemuksen merkitys ammattitaidollenne?
 - koetteko, että oma osaamisenne on muuttunut kokemuksen karttumisen myötä?
 - Miten?
9. Minkälaisia asioita teidän alallanne voi oppia työstä / kokemuksesta?

10. Minkälaisia asioita työstä / kokemuksesta EI voi alallanne oppia?
11. Minkälaiset asiat voivat estää työssä oppimista?
12. Kokemusta karttuu periaatteessa joka päivä lisää. Milloin tai minkälainen (työ)kokemus tuottaa oppimista?
-miten tuo ”opettava kokemus” eroaa ei-opettavasta kokemuksesta?

KOULUTUS

13. Minkälaisia asioita alallanne voi oppia koulutuksessa?
14. Minkälaisia asioita alallanne EI voi oppia / opettaa?

OSAAMISEN YLLÄPITO

15. Miten työtehtävienne kannalta välttämätöntä osaamista voi parhaiten pitää yllä?
16. Mikä on mielestänne paras tapa teidän ammattialallanne pitää työntekijän työmarkkinakelpoisuutta yllä / mahdollisimman korkealla?
17. Jos ajattelette viimeksi kulunutta kolmea vuotta ja asioita, joita olette työssänne ja työtehtävienne kautta oppinut, minkälaisia asioita ne ovat?
18. Mikä olisi teille mieluisin tapa oppia uusia asioita ja kehittää itseänne työhönne liittyen?
19. Mikä olisi mielestänne paras tapa järjestää opetusta
-ammattialallanne?
-työtehtäviinne?

JOUSTAVUUS

Työelämässä puhutaan nykyisin paljon joustamisen ja työvoiman liikkuvuuden lisäämisestä. Se ei kuitenkaan ole yksinkertainen asia.

20. Miten näyttäytyy työmarkkinoilla kysytty jousto työntekijän näkökulmasta?
 1. henkilökohtainen ominaisuus (arvioi onko, riittävästi, tarvitaanko työssäsi)
 2. työssä joustaminen -työajoissa, työtehtävissä
 3. osaamisen, ammattitaidon jousto
 4. ammatillinen liikkuvuus

IKÄ

21. Onko iällä mielestänne merkitystä työssä suoriutumiselle?

22. Onko iällä mielestänne merkitystä työssä oppimiselle ja kehittymiselle teidän työtehtävissänne?

23. Minkälaiseksi arvioisitte tämänhetkisen
omalla alallanne ja / tai työtehtäviinne liittyen?
-opiskelumotivaationne
-opiskelutaitonne
-oppimiskykynne
-opettamiskykynne ja -kapasiteettinne

24. Minkälaiseksi näette tulevaisuudenvisiot
-työssänne?
-yrityksessänne?
-ammattialallanne?

Appendix 6: Semi - structured interview (in English)

Interviews in the pilot enterprises - WORKTOW - November 1998

PROFESSIONAL COMPETENCE

EMPLOYEES

COMPETENCE

1. In your opinion, how can professional competence be defined in your field of work?
 - A. What kind of areas is it consisted of?
 - B. How can be defined when those parts have fulfilled the quality demands, or are competence?
2. And in your work tasks?
 - A. What kind of areas is it consisted of?
 - B. How can be defined when those parts have fulfilled the quality demands, or are competence?
3. How would you describe and estimate your professional competence at the moment?
What are your strengths / weaknesses of your competence?
4. Are there issues or areas at work where you feel a need for a new competence or a different kind of competence from what you have at the moment?
5. Are you able to use at work all the competence you have?
6. The competence-in-use is not always on the maximum level, what kind of issues are essential to maximize your job efficiency?
 - how much do you estimate that variation occur in your work?
 - variation periods?
 - have you noticed if your age has an effect on your job efficiency?

EXPERIENCE

7. Think about your professional field. If you separate the essential competence in your field into three parts (100%) in a way that those parts reflect education, work experience and personal abilities, how would you cut the cake?
How would it be if it described the sources of your competence at the moment?
8. What is the meaning of experience for your professional competence?
Do you think that your competence has changed through experience? How?
9. What kind of issues can be learned at work or from experience in your field?

10. What kind of issues can NOT be learned at work or from experience in your field?
11. What kind of issues can prohibit learning at work?
12. Experience is gained basically every day. What kind of work experience means / produces learning?
How a learning experience differs from non-learning experience?

EDUCATION

13. What kind of issues can be learned in your field in school?
14. What kind of issues can NOT be learned or taught in your field in school?

MAINTENANCE OF COMPETENCE

15. What is the best way to maintain the essential competence in relation to your work tasks?
16. What is the best way to maintain the required qualifications of the employees in the labor market?
17. If you think about the last three years and issues that you have learned through your work and work tasks, what kind issues are in question?
18. What would be the most pleasant way to learn new things and develop yourself in regard to your job?
19. What would be the best way to organize training
 - in your professional field?
 - in your work tasks?

FLEXIBILITY

Flexibility and the increase of the mobility of the work force are discussed in the working life. However, these are not simple matters.

20. How does flexibility appear from the point of view of an employee?
 1. personal ability (estimate if it appears, enough, need in your work)
 2. flexibility at work -working hours, work tasks
 3. flexibility of competence
 4. professional mobility

Appendix 7: Competence need variables in Finnish and in English

Number of the variable, title in Finnish, and title in English

Number of variable	Title in Finnish	Title in English
TAR1	johtamis- / esimiestaidot	managerial skills
TAR2	työsuhdeasioiden tuntemus	knowledge of employment relationships
TAR3	asiakaspalvelutaidot	customer service skills
TAR4	tuotantoprosessin tuntemus	knowledge of production process
TAR5	mainonta / markkinointi	advertising
TAR5z	myyntitaidot	sales skills
TAR6	ulkomaankaupan / viennin tuntemus	knowledge of foreign trade and export
TAR7	kansainvälinen kanssakäyminen	international relations
TAR8	taloushallinto	administration finances
TAR9	laadun kehittäminen	quality development
TAR10	tuotesuunnittelu	product design
TAR11	työsuojelusäädösten tuntemus	knowledge of work safety regulations
TAR12	tietotekniikan perustaidot	basic skills of IT
TAR13	tietotekniikan erityisosaaminen	special competence of IT
TAR14	logistiikka	logistics
TAR15	ympäristöasiat	environmental issues
TAR16	kielitaito	language skills
TAR17	kirjallisen viestinnän taito	written communication skills
TAR17z	esiintymistaito	presentation skills
TAR17c	neuvottelutaidot	negotiation skills
TAR18	ryhmätyötaidot	teamwork skills
TAR19	projektityöskentelyn hallinta	knowledge of project work
TAR20	yhteistyötaidot	co-operation skills
TAR22	aloitteellisuus	initiativeness
TAR23	kyky oppia uutta	learning ability
TAR24	ongelmanratkaisutaidot	problem solving skills
TAR25	päätöksentekokyky	decision making
TAR26	muutoksen hallinta	control of change
TAR27	huolellisuus työssä	carefulness in work
TAR28	työnohjausvalmiudet	ability to occupational instruction and guidance
TAR29	työmotivaatio	work motivation
TAR30	joustavuus työtehtävissä	flexibility in work tasks
TAR31	joustavuus työyhteisössä	flexibility in work community
TAR32	stressinhallinta	stress control
TAR33	luovuus työtehtävien suorittamisessa	creativity in work tasks
TAR34	tuottavuus / tehokkuus	productivity

TAR35	ihmissuhdetaidot	interpersonal relationship skills
TAR36	automaation hallinta	competence in automation
TAR36c	koneiden ja tekniikan hallinta	competence in machines and technics
TAR37c	henkilöstöhallinto	personnel management skills
TAR37d	EU-säädökset	knowledge of EU-regulations
TAR37e	työlainsäädännön hallitseminen	knowledge of labour regulations

Variables TAR5z, TAR17z, TAR17c, TAR36, TAR36c, TAR37c, TAR37d and TAR37e have been asked only from the employees.

Appendix 8: Joint variables of competence needs

The joint variable 1: Managerial skills

- managerial skills
- knowledge of employment relationship
- management of finances
- knowledge of work safety regulations
- personnel management skills
- knowledge of EU-regulations
- knowledge of labour legislations

The joint variable 2: Marketing

- customer service skills
- advertising
- sales skills
- knowledge of foreign trade and export

The joint variable 3: Production

- knowledge of production process
- quality development
- product design
- logistics
- environmental issues
- competence in automation
- competence in using machines and technics

The joint variable 4: International relations

- international relations
- language skills

The joint variable 5: Information technology (IT)

- basic skills of IT
- special skills of IT

The joint variable 6: Communication skills

- written communication skills
- performance skills
- negotiation skills

The joint variable 7: Social skills

- teamwork skills
- knowledge of project work
- co-operation skills
- occupational instruction and guidance ability
- interpersonal relationship skills

The joint variable 8: Personal abilities

- initiativeness
- learning ability
- problem solving skills
- decision making skills
- control of change
- carefulness in work
- work motivation
- flexibility in work tasks
- stress control
- creativity in work tasks
- productivity
- flexibility in work community

TIIVISTELMÄ

Ojanperä, Tiina & Oksanen, Susanna. 2000. IKÄÄNTYVÄN TYÖNTEKIJÄN OSAAMISTARPEET PIENISSÄ JA KESKISUURISSA YRITYKSISSÄ. Aikuiskasvatuksen pro gradu -tutkielma. Jyväskylän yliopiston kasvatustieteen laitos. 111 sivua. Julkaisematon.

Ikääntyvät työntekijät (45+) muodostavat yhä suuremman osan Suomen työvoimasta. Työelämän muutokset, koulutukseen osallistuminen ja ikääntyvien elämäntilanne vaikuttavat työntekijöiden osaamisen kehittymiseen. Ammatilliseen osaamiseen katsotaan kuuluvan tiedot, taidot, kyvyt ja henkilökohtaiset ominaisuudet. Tutkimuksen kohdejoukkona oli erityisesti ikääntyvät työntekijät. Tutkimuksen tarkoituksena oli tarkastella ikääntyvien työntekijöiden osaamistarpeita kahdessa pienessä ja keskisuudessa yrityksessä. Yritykset valittiin informaationaalisesta ja manuaalisen työn alalta. Tutkimuksessa kartoitettiin ikääntyvien osaamistarpeita ja vertailtiin niitä valittujen ryhmien kesken. Näitä ryhmiä olivat työntekijät ja työnjohtajat sekä ikääntyvät ja nuoret työntekijät yritysten sisällä ja niiden välillä. Lisäksi kuvailtiin työympäristöä, osaamista sekä osaamisen taustatekijöitä, kuten työelämän muutoksia ja koulutukseen osallistumista. Tutkimus oli osa EU -hankkeen "Working Life Changes and Training of Older Workers" pilottitutkimusta.

Tutkimuksessa käytettiin sekä kvantitatiivista että kvalitatiivista tutkimusmenetelmää. Pääosa aineistosta kerättiin työntekijöiltä (n=55) ja johtajilta (n=10) strukturoidun kyselylomakkeiden avulla. Kaikkiaan 65 % molempien yritysten henkilöstöstä vastasi kyselyyn. Informaationaalisesta työn yrityksessä vastausprosentti oli 75% ja manuaalisen työn yrityksessä 50 %. Molemmissa yrityksissä puolet vastaajista oli yli 45 -vuotiaita. Kvalitatiivista aineistoa kerättiin puolistrukturoidun haastattelun avulla. Informaationaalisesta työn yrityksessä haastateltiin kahta ikääntyvää työntekijää ja kahta työnjohtajaa ja manuaalisen työn yrityksessä neljää ikääntyvää työntekijää ja yhtä työnjohtajaa.

Informaationaalisesta työn yrityksessä ikääntyvillä oli eniten osaamistarpeita ATK -taidoissa, kansainvälisissä suhteissa ja tuotantotaidoissa. Manuaalisen työn yrityksessä ikääntyvillä oli merkittäviä osaamistarpeita vain markkinoinnissa. Vaikka ikääntyvillä oli osaamistarpeita, ne olivat samankaltaisia kuin nuoremmilla työntekijöillä. Tämä saattaa johtua siitä, että sekä ikääntyvillä että nuoremmilla on samanlaisia työtehtäviä ja haasteita.

Työnjohtajat molemmissa yrityksissä näkivät ikääntyvillä olevan enemmän osaamistarpeita kuin he itse mainitsivat. Tämä voi olla seurausta siitä, että työnjohtajat ovat paremmin selvillä yrityksen tulevista haasteista ja siten myös osaamistarpeista. Informaationaalisesta työn yrityksessä oli tapahtunut paljon muutoksia viimeisen kolmen vuoden aikana ja muutoksia oli odotettavissa myös tulevaisuudessa, toisin kuin manuaalisen työn yrityksessä. Työntekijät informaationaalisesta työn yrityksessä osallistuivat myös enemmän koulutukseen kuin manuaalisen alan työntekijät. Koska osaamistarpeita ilmeni paljon informaationaalisesta työn yrityksessä sekä ikääntyvillä että nuoremmilla, pitäisi tähän vastata esim. järjestämällä koulutusta halutuilla osaamisen alueilla. Manuaalisen työn yrityksen johdon pitäisi olla enemmän selvillä työolosuhteista sekä ikääntyvien osaamisen ja kokemuksen merkityksestä yritykselle. Ikääntyvät saattavat olla halukkaita jäämään eläkkeelle odotettua aiemmin ja mikäli uutta työvoimaa ei palkata ja kouluteta ikääntyvien kokemuksen ja tiedon avulla, arvokas tietotaito katoaa yrityksestä ikääntyvien mukana.

Asiasanat: ikääntyvä työntekijä; osaaminen; osaamistarve; työelämän muutokset; koulutukseen osallistuminen; pienet ja keskiuuret yritykset