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Work after 45?

Proceedings from a scientific conference held in Stockholm 22–25 September 1996
Volume 1

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Preface

These two volumes contain a selection of the contributions presented during the international conference ”Work after 45?” on September 22-25, 1996 in Stockholm, Sweden. The conference was jointly organized by The National Institute for Working Life and the Department of Sociology, University of Göteborg.

The conference dealt with broad issues related to ageing and work, including relationships among ageing, work demands and health. The themes selected and highlighted at the conference concerned issues of ageing at work and, in particular, the impact of social, economic and organizational factors on health and psychological and social functioning. These issues are now more important than ever due to the ongoing changes in labour markets throughout the world, that carry with them implications for the labour market prospects of the ageing work force. An inter-disciplinary scope was sought in composition of programme sessions, workshops and mini-symposia involving participant researchers active in biomedical, behavioural and social sciences.

The selection of presentations for publication was based on a review of all papers, carried out by the international scientific committee commissioned by the organizers.

The conference was organized as a blend of plenary sessions, workshops, mini-symposia and free paper sessions following a pragmatically composed structure of themes and disciplines. At the outset of editing these proceedings we wanted to follow this structure and the course of the conference programme as it actually materialized. This idea was soon abandoned, however, since it was judged not to provide the reader with a satisfactory framework. In many sessions the papers, as they were actually presented, emphasized aspects which were also dealt with in other sessions, emphasizing the multidiciplinary nature of many contributions. We therefore decided on a simple logic of editing the proceedings with contributions ordered alphabetically by name of first author.

We were fortunate to have three key-note lecturers of great distinction participating in the conference, professors Peter F Hjort (Norway), Alan Walker (UK) and Timothy Salthouse (USA). Their three addresses have been included unabridged in the proceedings books, with only a minimum of technical editing.

Our thanks are due to all those who participated in the ”Work after 45?” conference, all who submitted papers to be included in these proceedings, the international scientific committee members reviewing all papers, Gunnar Aronsson (Sweden), Willem J A Goedhard (Netherlands), Juhani Ilmarinen (Finland), Jon Eivind Kolberg (Norway), Jette Nielsen, (Denmark), Clas Håkan Nygård (Finland), Carl Nørregaard (Denmark), Gunnar Olofsson (Sweden), Per Erik Solem (Norway) and Eskil Wadensjö (Sweden).

Our thanks are due to Dan Hultgren for his skilful technical editing of these volumes and for valuable help throughout its preparation. Ann-Britt Mossberg and Eric Elgemyr have also devoted time and effort to this publication. We also wish to thank the Swedish Council for Work Life Research, the Swedish Council for Social Research, and the Nordic Council of Ministers, for their support.

Most important, we thank all those who contributed to the conference for presenting their experiences and views, and subjecting them to scrutiny during exchanges with colleagues. We think that the results of this sharing of knowledge and insights in this research field will be of great practical and political importance and will have direct implications on life at work of the elderly work-force.

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Age and work – good or bad for whom?

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Introduction

It is my challenge to analyze the relationships between work and worker as the worker gets older. My background is social and geriatric medicine, and my experiences and perspectives are clinical - what I have learned from being a doctor to old people. I cannot claim to be an entirely impartial observer, since I am 72 and still enjoy my work. Thus, I am not only old, but old-fashioned. But I shall try to arrive at honest - hopefully even true - conclusions.

The problems of age and work are not new. In the year 44 B.C. Cicero wrote a book on old age (2). Here he presented a recipe for a good old age in two short sentences: ”Be active!” ”Start early in life!”. However, Cicero is dead, and let us now start with the facts.

The trends in retirement

Retirement statistics from the industrialized countries show that workers now retire earlier than they did a generation ago. This modern trend started about 1970 or a little earlier in some countries. Figure 1 shows statistics from Britain (16). The downward trend for men is most marked in the age group 60-64, but it is also quite clear for the age group 55-59. For women the statistics are more difficult to interpret, because women still struggle to get into the labour market, not to get out of it. However, the trend is similar for older women, as you see in Figure 2 from Sweden (21).

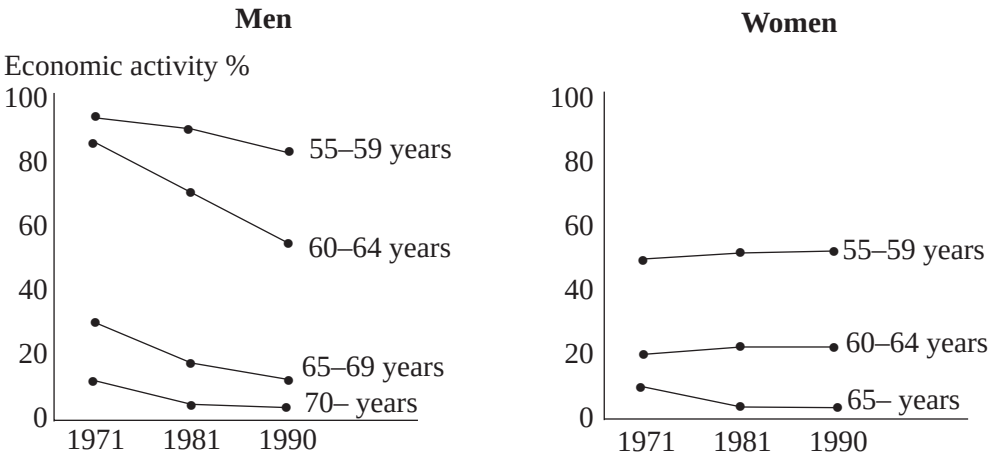


Figure 1. Economic activity rates in Britain 1971-90 (Phillipson C. 1993).

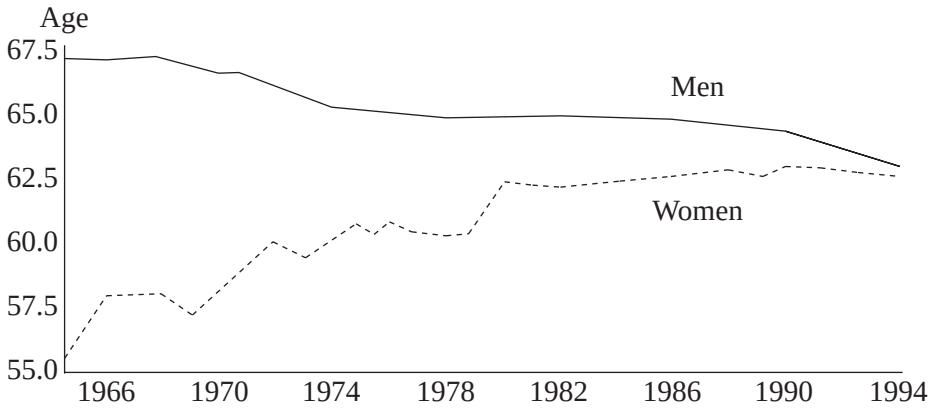


Figure 2. The age at which 50 % are in the labour force, Sweden 1965-94 (Statistics Sweden. Labour Force Surveys. From Wadensjö (1996)).

There are very large differences between the industrialized countries, and here I use Table 1, OECD-statistics to illustrate them (15). These differences tell us that the modern trend has social, economic and political causes, not biological or medical. Recent evidence also suggests that these trends began to slow down in most countries from about 1991 (5).

Table 1. Labour force participation rates at 55-64 years in 1991 in OECD-countries (OECD Employment Outlook, July 1995).

60-69 %	Japan 67, Norway 62, Sweden 67, Switzerland 65
50-59 %	Denmark 56, UK 52, USA 56
40-49 %	Australia 42, Canada 48, Finland 42, Greece 42, Ireland 42, New Zealand 47, Portugal 40
30-39 %	France 37, Germany 39, Spain 38
20-29 %	Belgium 23, Italy 23, Luxembourg 26, Netherlands 29

How can these fairly dramatic trends be explained? If one looks upon retirement as a complex game with four players, a remarkable consensus developed among them in the 1960's. I have summed up the elements of this conspiracy as follows:

- The state aims at reducing unemployment.
- The employers aim at increasing productivity and competitiveness ("downsizing").
- Trade Unions aim at rewarding the old and making room for the young.
- Workers aim at being relieved and rewarded with an ever lasting vacation while they are still young enough to enjoy it.

There is, however, evidence that at least one of the players - the State - has become worried about the economy of early retirement. Here, I illustrate these worries with some data from France (17). These trends may be summarized as:

- Much larger growth in economy than in employment during 1970-1992, 75% vs 7%.
- Transition to service economy - in 1995 64.5% services, 29.6% industry and 5.9% agriculture.
- Well developed welfare system - in 1993 35.4% of GDP.

- High rates of early retirement, in 1992: 55-59 yrs 64% employed; 60-64 yrs: 19% employed.
- High unemployment, in 1994 - 11%.
- Increasing financial worries.

I believe that this is a very short, but fairly correct description of what has happened and why it has happened.

The ageing process

I then turn to the ageing process, which goes on relentlessly in all of us - from the moment we are born. I shall briefly consider three aspects.

The first is the biology of ageing. It can best be presented and measured as the capacity for maximum muscular work or exercise. It is measured by the maximum oxygen uptake during vigorous exercise, and it falls with age - a little less than one percent per year. At 70 years the capacity for exercise is down to 55-60%. However, this capacity can be markedly increased by training. Men who have trained vigorously throughout their lives are at 65 as fit as an ordinary 25 years old (11), see Figure 3. At 80, one of these men was still competing sucessfully as a cross-country skier and said: ”I run as fast as I did before, but it takes a little longer time”. Thus, training markedly influences, but cannot stop or prevent the ageing process.

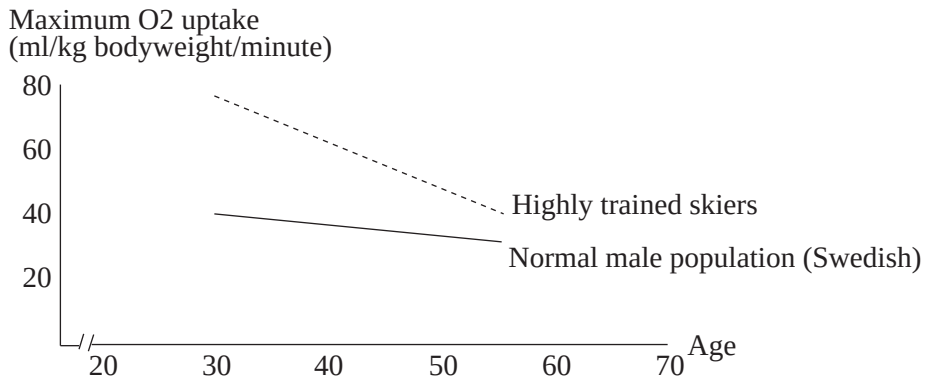


Figure 3. Maximum oxygen uptake: Effect of physical training, male population (Lie and Erikssen 1978, 1984).

Similar declines can be measured for all organs in the body. There is a steady decline in functional capacity, and two facts are important. First, the decline is small - less than one percent per year. Secondly, the functional capacity of the human organs is so large that the ageing process does not reach critical levels. The causes of the ageing process are still uncertain.

The second aspect is the psychology of ageing. The elderly become slower, but not more stupid. What they lose in speed, they gain in carefulness, experience and - for some - in wisdom. A very important aspect of mental ageing is in my experience a loss of self image. I believe this is culturally determined, and I think it is the greatest threat of all to the elderly.

The third aspect is the social, and many of you are experts in social gerontology. Therefore, I limit myself to one observation, which I call the paradox of discrimi-

nation. With this, I mean that the elderly not only accept discrimination, but believe it is justified. This, of course, destroys self esteem and courage.

The ageing diseases

The ageing process is common to all; the ageing diseases are not. The typical example is senile dementia.It is rare before the age of 70 and reaches about 5% at 80. Then, it increases rapidly (7). All the geriatric diseases have similar prevalence curves, and the important point is that they are rare before the age of 70. In fact, they do no increase rapidly until the age of 80. Therefore, geriatrics start at 80. The important conclusion is that geriatric diseases play little role in the discussion about age and work. There is one exception, and that is musculosceletal diseases which increase with age long before 70. Yet, these are specific diseases, and we should not let them influence the general discussion about age and work.

Differences in ageing

So far, I have reasoned in general terms, as if elderly people are a homogeneous group. This, of course, is not so. In fact, people differ more and more as they grow older. As a doctor, I am impressed by the almost incredible differences between elderly people.

One obvious reason is large differences in living conditions. When old age pensions were first proposed in Britain some 200 years ago, they were to start at 50 years (16). Today, living conditions have greatly improved, and we talk about ”successful ageing” (1). I think five groups of factors are important.

The first is inheritance, both genetic and social. As a doctor I observe families, and I see the importance of inheritance for body, mind, health and coping style.

The second is social class, and shocking social differences in mortality, diseases, disabilities and health have been documented in all industrialized countries (8, 24). In figure 4 data published by Wilkins from Canada illustrate this. Similar observations by House in US show that mortality, morbidity and dependency are to a significant extent socially determined (8).

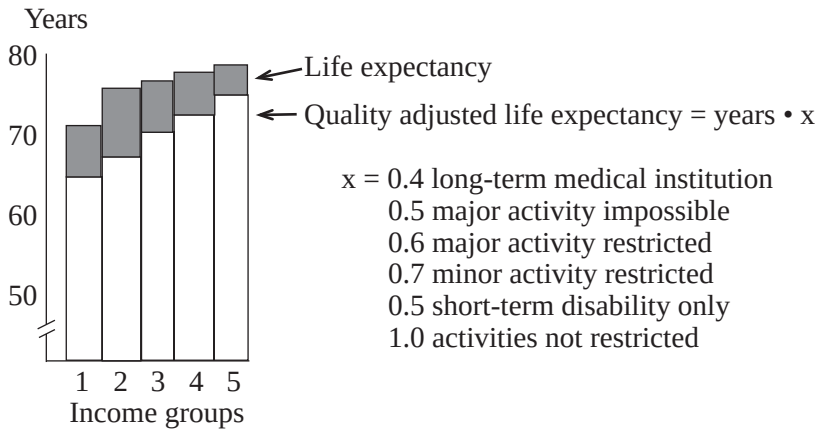


Figure 4. Life expectancy: Total and quality-adjusted. Canada. (Wilkins R, Adams OB. AJPH 1983;73:1073-80.)

Even in the more egalitarian Nordic countries there is almost a 10 years differencence in life expectancy between the upper and the lower classes in the larger cities (26). Such data suggest that people are born to a destiny. These differences have not become smaller - rather the opposite, but all classes have improved their health. The elderly have become healthier (9), but class differences persist.

The third set of factors is life style. Food, weight, smoking, alcohol and exercise are the most important elements. Based on clinical experience and a very large litterature (e.g. 6), I believe that physical inactivity is an important risk factor. What many people believe is due to age is in reality an effect of inactivity - ”the disuse syndrome” (22). This is important for the discussion about age and work, because inactivity - including a passive retirement - makes people older.

The fourth set of factors is social life and network, including social support, and the fifth is spirit, optimism and joy of life. This becomes more important the older you are.

These five sets of factors have a tendency to cluster in a positive or negative way. Together, they add upp to tremendous differences in health, quality of life and capacity for work. My conclusion is that ageing is an individual and personal affair, which is greatly influenced by social and political structures. To illustrate that, I show an ageing Sisyphos pushing his or her health and quality of life uphill, (See Figure 5). He or she is responsible for pushing, but society is responsible for the steepness of the hill, and for the lower classes the hill is very much steeper.

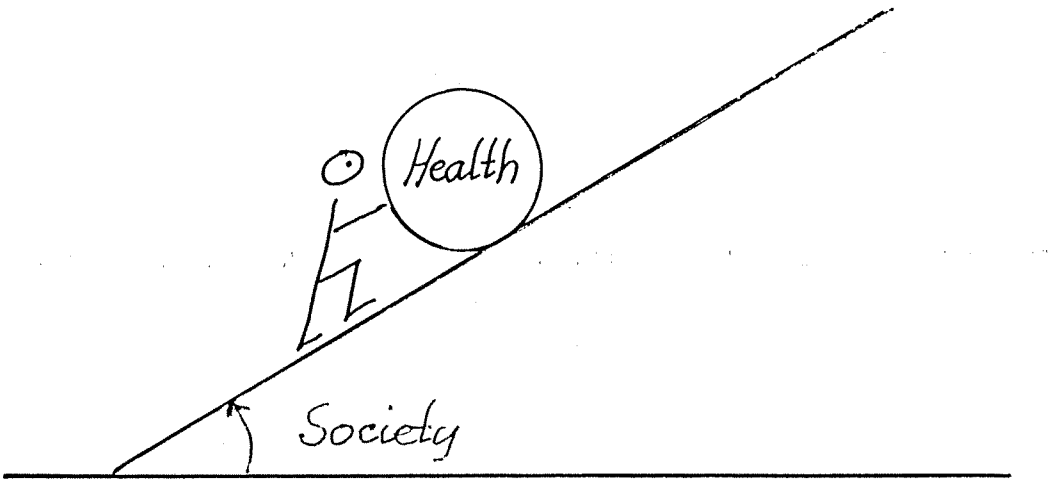


Figure 5. Helath: Responsibilities of individuals and society.

The concept of health

I must now insert a brief section on the concept of health, because health is such an important part of the discussion about age and work. My concept of health is based on clinical experience with elderly patients. The fact is that most elderly people - above perhaps 75 - do have at least one chronic health problem, and yet they are usually satisfied with their health. They have health in spite of disease.

Here, in Figure 6, you see a vertical scale starting in the negative - disease, passing through zero - no disease, and continuing in the positive - health. The point is that most elderly people have health problems below the zero line, but they cope with them because they have positive resources above the zero line. In my experi-

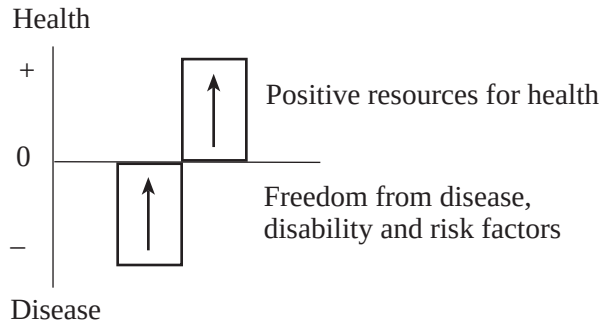


Figure 6. The concept of health.

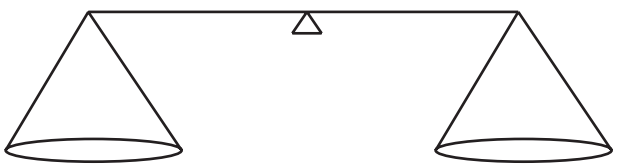
ence positive resources which people use can be summarized as I have done below. Work, activity, interests and social life are important aspects of these positive resources. Positive resources for health are:

- *Personal characteristics:* optimism and a positive self image
- *Well-being and security:* trust in one's ability to cope with life
- *Social network and support:* trust in one's fellows
- *Positive local environment:* to give and get support
- *Cultural fellowship:* to know one's roots and to belong in a culture
- *Political rights:* to belong and be respected in the society

The individual worker

These are my foundations for the discussion about age and work, and I now move on to consider the individual worker. I think it has been documented beyond any doubt that activity - physical, mental and social - is good for people. Obviously, work means activity, but it is not the only activity for people approaching retirement. Many factors influence the individual choices, and the decision process is complex and varies from person to person (12).

The individual worker has to balance his experience of work against the attractions of retirement - Figure 7.



The experiences of work

Push factors:

Health
Job demands, satisfaction, gratifications
Pressure (age discrimination)
(Strongest for lower class)

The attractions of retirement

Pull factors:

Finance
Opportunities
Freedom
(Strongest for upper class)

Figure 7. The early retirement decision process.

Often there are negative work factors, especially for lower social classes, that push away from work. At the same time there are positive factors that pull towards retirement, especially for the upper social classes. To favour the decision to continue to work, I believe two factors are essential, viz., satisfaction with work and gratification from work. If these factors are strong, people continue to work, even in their nineties. We see this devotion to work in actors, authors, artists and to some degree in doctors, farmers, fishermen, house wives and business people. I think retirement data from Norwegian doctors are most revealing. Doctors have training and traditions for hard work and late retirement, but this is now changing, and they increasingly prefer early retirement, see Figure 8. The reasons are that both satisfaction and gratification from work have decreased - for many reasons (10). Thus, if we believe in work, as I do, it is essential that the work gives both satisfaction and gratification. However, I emphasize that the decision must be personal, voluntary and informed. Information is essential, and people should understand the importance of continuing activity as they grow older.

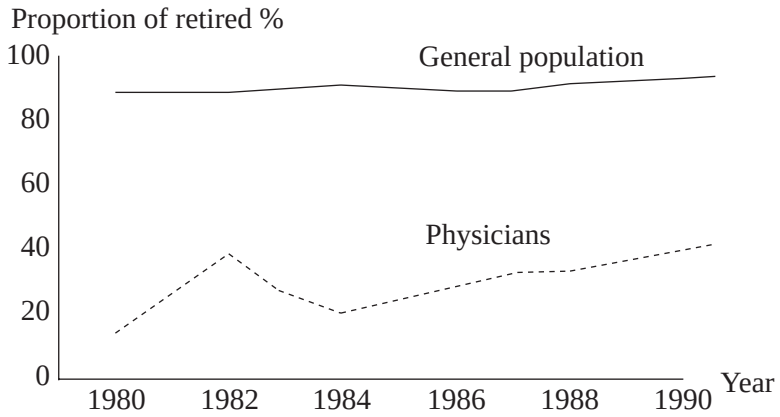


Figure 8. The proportion of physicians and of people in general who retired at the age of 67, Norway 1980-91 (Kristiansen JS, Hensrud A, 1996).

You may feel that I play the old doctor's old-fashioned paternalistic tune. However, I emphasize that the role of a doctor is to give advice, not to make decisions for people. People own themselves, and they should make their own decisions - right or wrong.

I have tried hard to find out whether there is a common and reasonable age for retirement, but I have come to the conclusion that there is no biological foundation for a general cut-off between work and retirement. The individual and social differences are much too large for that. Therefore, I believe we need four different ages for retirement (Figure 9):

- The first is the age at which you can opt for early voluntary retirement with reduced pension without having to give medical reasons. This age should probably be between 60 and 65 years.
- The second is the age at which you can voluntarily retire with full pension. This age is probably somewhere between 65 and 70 years.
- The third is the "official retirement age". At this age any worker can be dismissed because of age. A reasonable proposal for this age may be 70 years. It

is interesting that the USA has an ”Age discrimination in employment act”, which makes it unlawful to refuse to hire or to dismiss a person because of age.
- The fourth is the age at which you are no longer allowed to work because you may do harm to other people. This age varies greatly - from 55 for pilots to 75 for doctors. For many people there are no such limits, f.ex. for artists, farmers and house wives. The USA rejects such an age limit.

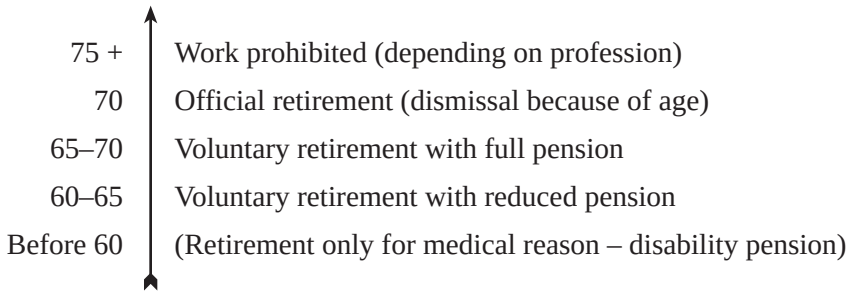


Figure 9. The four ages of retirement.

This thinking is of course not new, but during the last 20 years all the emphasis has been on downward flexibility and upward rigidity (3). I think the time has come to increase the upward flexibility.

Many writers argue that we need at new flexiblility throughout life (3, 19, 18, 4). The old and outdated model is to divide life rigidly in three almost equal parts - education, work and retirement. The retirement period has increased through earlier retirement and through a longer lifespan. The new model is to make the middle part much longer and to allow people to shift between work, education, family care and leisure. As they grow older, required work must be reduced and personal arrangements allowed for.

Such a model requires new thinking and new attitudes among workers, employers and authorities. It is not my task here to go further into the legal, technical and economic challenges in this model, but I think they can be solved if we so wish.

For example, in the report on ”Aging and working capacity” (25) the World Health Organization argues that retirement should be postponed through two measures:

- The workers should maintain their working capacity through health promotion, especially regular exercise,
- the employers should adapt the work in order to reduce the physical working demands.

The employer

What are the considerations of the employer? In the past 20 years, I think two considerations have coincided. The first is that elderly workers are slow and less efficient. The other is that competition requires that costs are cut by reducing staff. ”Downsizing” has been the mark of the young, dynamic and efficient leaders. These two considerations have led to the early retirement movement.

It seems to me - for many reasons - that this movement has gone too far. In the literature there are lists of the pros and cons of elderly workers (4, 23), Table 2 is one version of such lists. The evidence suggests, I think, that many businesses can

benefit from elderly workers. A natural example for me is the health service. All the Norwegian hospitals have older, highly experienced doctors who have learnt their hard lessons and pass on their careful judgements to the young and vigorous. It is interesting, I think, that Cicero remarks that he in his old age no longer goes to war, but he takes part in the decisions about which wars should be fought and which not (2). There are also examples in the literature which show that businesses may benefit from older workers and wish to keep them (13). This is especially true in Japan (20).

Table 2. The older worker: pros and cons.

Pros:	are reliable
	works hard
	are effective in their job
	have long experience
	think before they act, are more careful
	have interpersonal skills
	work well in teams
	can perform multiple tasks
	are less absent
	are more flexible
	have higher working morale
Cons:	learn and work more slowly
	are less able to grasp new ideas
	are less adaptable to change
	are less willing to accept new technology

In order to keep the older workers at work, it is necessary to adapt the working conditions. I think there are four essential steps:

- Education and training are essential, and I was interested to learn that the large Japanese Fuji film corporation (14) runs three types of education and training courses: technical, health and lifestyle, and quality of life.
- Flexible working tasks and conditions.
- Shorter working hours and longer vacations.
- Provisions for job satisfaction and job gratification: the worker must like the work and feel that it is appreciated.

I think it is time to reconsider the early retirement movement and to try to adapt the work in such a way that it is tempting for the elderly workers to stay on a bit longer. Obviously, this is a formidable challenge, since it is necessary to create a new culture for work in general, and especially for the elderly workers. In short, we need a cultural revolution in this part of the society, and it is essential that the labour unions take their part in it.

The society

What are the interests of the modern society in this question? A major interest is of course the financial consequences of early retirement. Many nations have learnt that early retirement may become very expensive, and from about 1990 we see the first attempts to reduce early retirement simply for financial reasons (5).

Many nations have also realized that early retirement does not automatically give employment to the young unemployed. Downsizing has so far not given room for that.

In some countries, especially Japan, there are also demographic reasons for encouraging elderly workers to continue to work (16).

For me, however, there are two important reasons for trying to reverse the early retirement movement. The first is that activity is good for all ages. The second is that I believe in a society which has room and need for all its people.

Conclusions

I have argued that activity is important for health at all ages. Work is an important form of activity, and elderly workers should be encouraged to continue in a working situation that is adapted to them. However, the decision to continue should be personal, volontary and informed.

To achieve this, we need a new culture, and I hope this conference will mark the beginning. Essential for this culture is Cicero's prescription for old age, and therefore I end where I started: "Be active!".

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Implications of adult age differences in cognition for work performance

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As is evident from the title, my presentation will be concerned with the implications of age-related differences in cognition for work performance. The first part of my remarks will discuss the expectations about relations between age and work performance based on research in cognitive psychology. Because we will see that those expectations have not been confirmed, in the second part of the article I will discuss possible reasons for the discrepancy between expectations and reality.

I will begin by documenting the existence of moderate to large age-related declines in many cognitive a bilities that are likely to be related to work. This phenomenon can be illustrated with data from recent studies of mine which each involved 200 or more adults between 18 and 80 years of age. In one study the cognitive task was free recall of a list of 12 unrelated words. This is a fairly common test used in research in memory, and moderate age-related declines are typically observed. Figure 1 portrays a plot of the individual's score on the free recall test as a function of age.

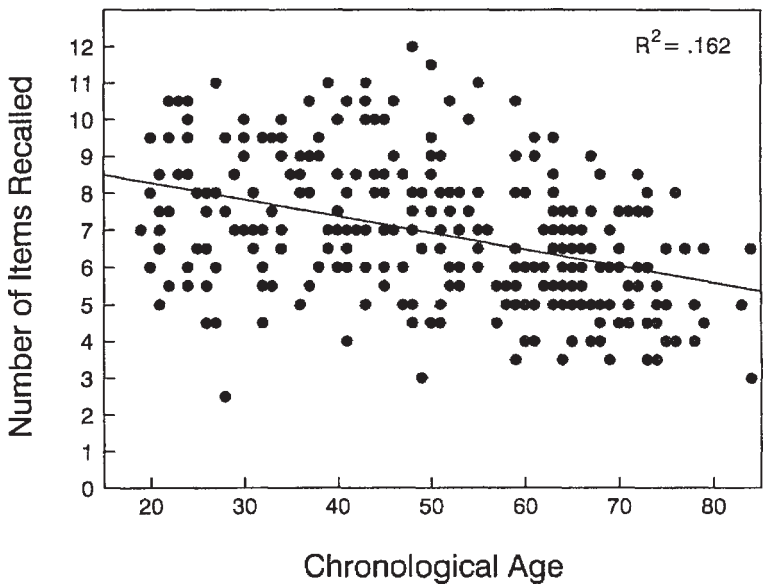

Figure 1. Individual scores on 'Free Recall Memory Test', as a function of age. Data from Salthouse (1993a).

In another study the cognitive task was the Raven's Progressive Matrices Test in which a matrix of geometric symbols is displayed with one missing cell, and the task is to select the best completion of the missing cell from a set of alternatives. The scatter plot of score as a function of age for this study is illustrated in figure 2.

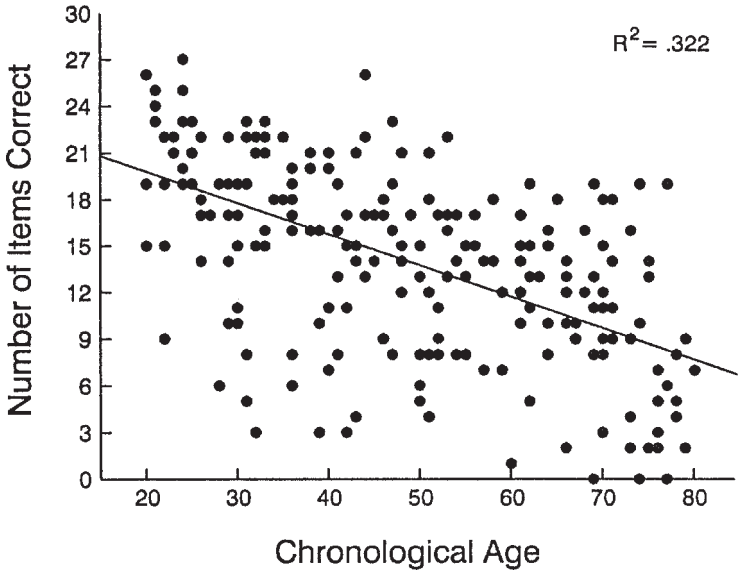

Figure 2. Individual scores on 'Raven's Matrices Test', as a function of age. Data from Salthouse (1993b).

Three points should be noted about these data. First, there is considerable variability at all ages, such that some older adults have very high levels of performance, and some young adults have relatively low levels of performance. One implication of this variability is that moderately large samples will be necessary to obtain precise estimates, with narrow confidence intervals, of the true magnitude of the age relations. It also means that some degree of inconsistency should probably be expected in the pattern of results obtained across studies if each study contains relatively small numbers of individuals in the various age groups.

The second point to note from these figures is that the aging effects are gradual, but for the most part are continuous and monotonic. That is, for most abilities there does not appear to be a critical age at which a dramatic drop in performance occurs. This feature is worth emphasizing because the continuous nature of age-related influences is not always appreciated with the use of extreme group designs involving only college students and retired adults.

The third and final point to note is that the age relations in these abilities are moderately large. This point can be further illustrated by expressing all of the scores in units of standard deviations from the distribution of adults in their 20s, and then plotting the average score in each decade. There are two reasons for converting the scores to these standard deviation units. The first is to facilitate comparisons across variables by expressing all scores in the same scale. The second reason is that this conversion allows estimates of the magnitude of the effects relative to a meaningful reference group. The young adult group is selected for this purpose because people of this age are likely to form the bulk of the applicants for entry-level positions in the work force. Several different sets of data could be used for this purpose, but the most convincing data are from large representative samples.

For example, the sample used to establish the norms for the Woodcock-Johnson Test of Cognitive Abilities was a nationally representative sample of over 1 500 adults. Figure 3 illustrates the age trends on composite measures of several abilities from this test in young adult standard deviation units. The data illustrate that for many abilities the average performance in the 50s is about 0.5 to 1.5 standard

deviations below the average of adults in their 20s, and the average adult in the late 60s and early 70s performes about 2.0 standard deviations below the average 20-year-old.

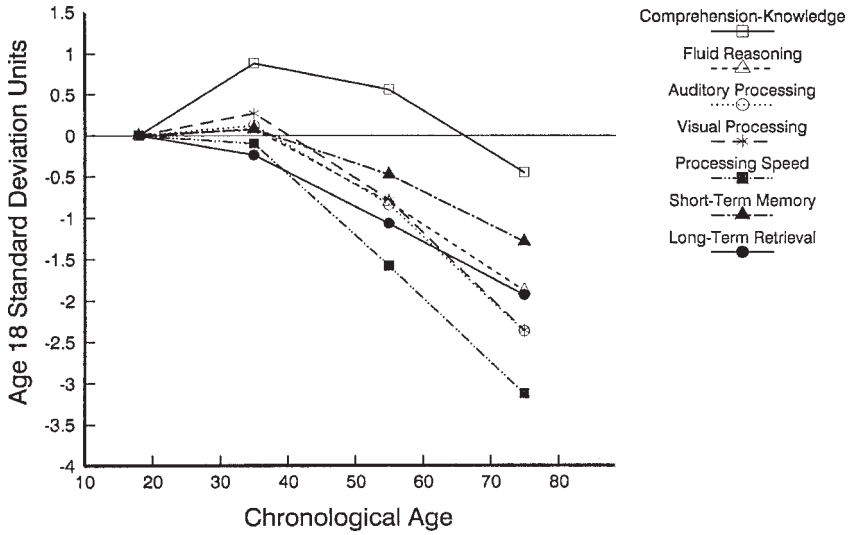

Figure 3. Age trends in Woodcock 'Johnson Test of Cognitive Abilities'. Data from Salthouse (in press).

In order to convey an appreciation of the magnitude of these differences, figure 4 illustrates the percentages from different distributions within specified levels of a reference distribution. Notice that if the goal is to select the top 10% of the population between 20 and 29 years of age, and if the distribution shifts by 1.5 standard deviations for adults in their 60s, then only 0.2% of 65-year-olds would be expected to perform at the desired level. The fact that cognitive differences of this magnitude could lead to a 50-to-1 change in the selection ratio suggests that they could have a substantial impact in many job situations.

The phenomenon of age-related differences is not just evident in abstract psychometric tests because it also occurs in measures closely related to work. One specific example of the effects of these types of differences in basic cognitive abilities is evident in a recent project in my laboratory that was designed to investigate adult age differences in synthetic work performance (Salthouse, Hambrick, Dell & Lukas, 1996). Synthetic work is a concept originally developed by human factors researchers as a way to simulate the abstract requirements of many work activities. In our project we used a computer program developed by Elsmore (1994) in which the research participant is required to perform four concurrent tasks: monitor periodic auditory signals and continuously changing visual information, respond to requests to retrieve information from memory, and perform self-paced arithmetic. These tasks can be quite challenging when they all occur simultaneously, and the participants in our studies reported that the situation realistically represents the demands encountered in a number of real-life situations such as driving in heavy traffic, working as a receptionist in a busy office, and, as reported by an elderly woman, babysitting nine grandchildren.

In two separate studies we found large age differences in the overall score even after three hours of practice in the situation. To the extent that this synthetic work situation is a realistic simulation of a variety of work activities, therefore, it seems

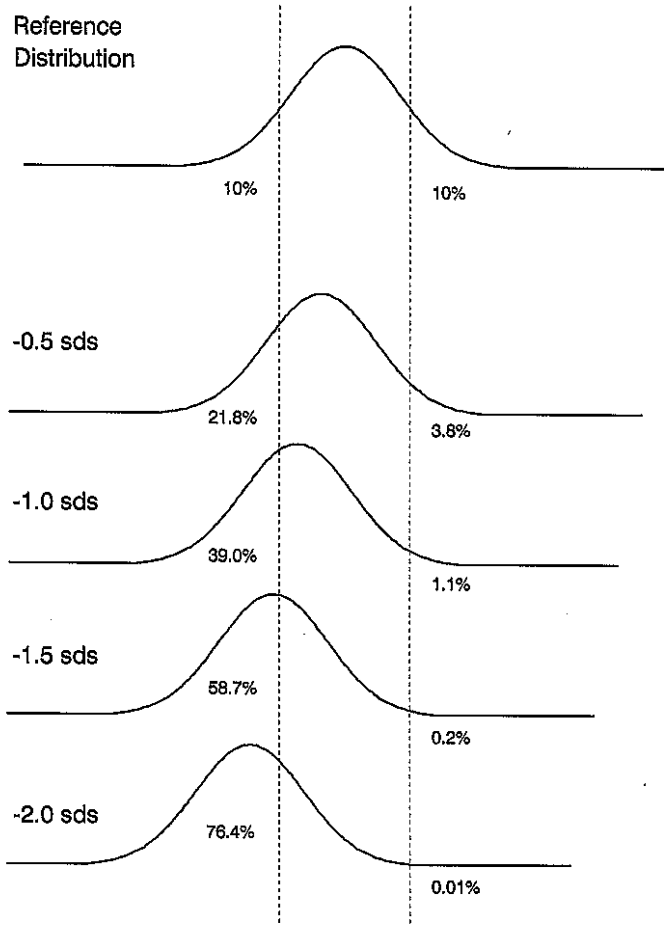

Figure 4. Illustration of the consequences for selection of a shift in the distribution of scores as a function of increased age.

reasonable to infer that there will also be age differences in at least the initial phases of many work situations.

The research I have summarized clearly indicates that moderate to large negative relations are evident between age and measures of basic cognitive abilities. Research by other investigators has revealed that cognitive ability is positively related to performance in work or job environments. A common method of indicating the magnitude of the relation between a predictor variable, such as a measure of cognitive ability, and job performance involves computing the correlation between the two variables, which in this context are referred to as validity coefficients. Most validity coefficients reported between measures of cognitive ability and measures of job proficiency have been positive, but estimates of the average magnitude of the relations have varied according to the procedures used to combine individual values. For example, over 20 years ago Ghiselli (1973) summarized results from thousands of studies, and reported a median correlation of approximately .24 between score on a single intellectual test and various measures of job proficiency. More recently, Hunter and Hunter(1984), employing procedures that corrected for measurement error and for restriction of range, concluded that the average validity of cognitive ability tests for the criterion of job proficiency was .45. Whatever the absolute value of the relation, however, it seems clear

that higher levels of cognitive ability, as measured by performance in cognitive tests, are associated with better performance in work situations.

Another way of representing the relations among age, cognitive ability, and functioning in the workplace is illustrated in figure 5. This figure is based on two separate analyses of the data from the Wechsler Adult Intelligence Scale - Revised standardization data. The top panel in the figure represents data from the tests comprising the Verbal Scale, which primarily reflect cumulative knowledge, whereas the bottom panel illustrates data from the tests comprising the Performance Scale, which reflect effectiveness of functioning at the time of assessment. The age trends in this figure are derived by converting the mean summed scale scores, from the WAIS-R manual, into IQs based on the distribution of scores for adults between 20 and 24 years of age. The occupational differences are based on analyses reported by Kaufman (1990), and represent the mean scores for people between 20 and 54 years of age in each occupational category.

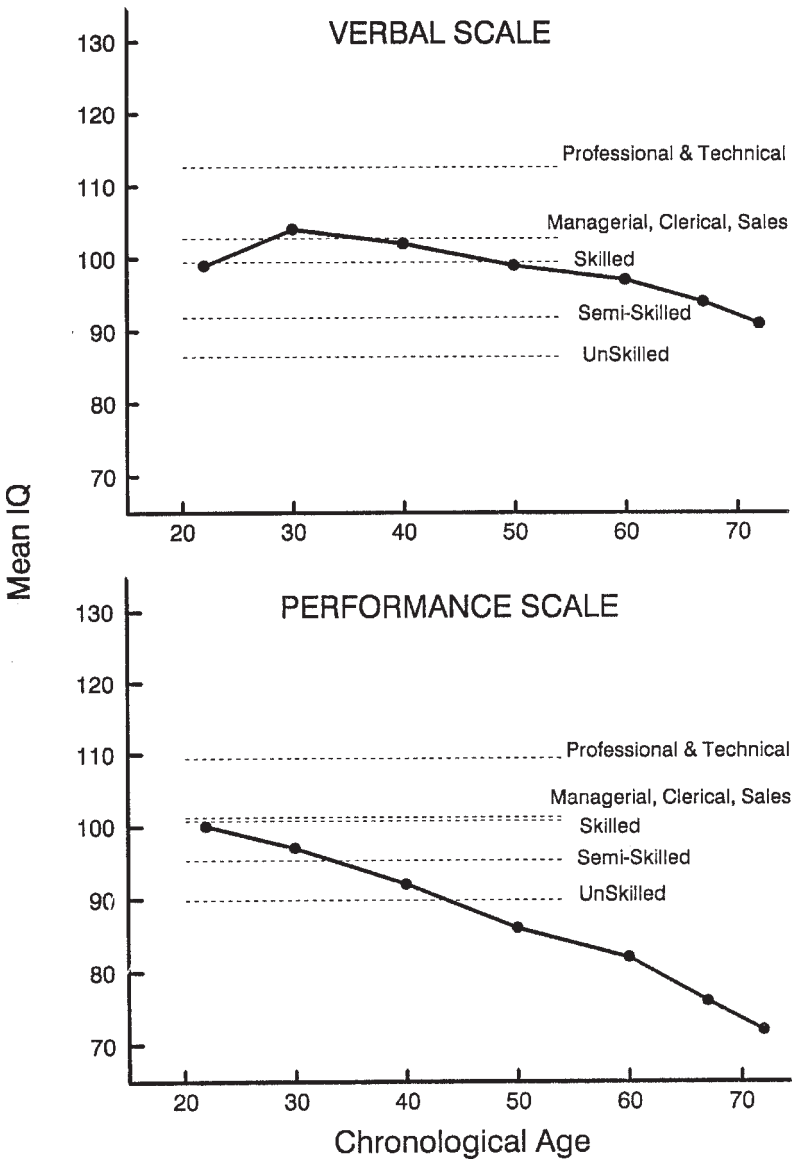

Figure 5. Verbal scale and Performance scale data based on analyses of the Wechsler Adult Intelligence Scale - revised standardization data. Figure from Salthouse (1994).

The variations in intellectual or cognitive ability associated with the occupational categories represented in the figure are not equivalent to validity coefficients because they merely reflect differences in the average ability level for incumbents in different occupationalclassifications, and not the degree to which cognitive ability is related to proficiency or success in those occupations. The two types of information are nevertheless similar in indicating that cognitive ability is related to functioning in work environments, either in terms of the level of performance achieved in a given job, or in terms of the likelihood of placement in higher-status positions. Moreover, the figure indicates that for some measures of cognitive ability the age-related differences are very large relative to the differences across occupational categories. In fact, the results with the Performance Scale measures indicate that the range from the highest to the lowest occupational level is about 20 points, and that the difference in average performance between age 20 and age 70 on these same measures is nearly 30 points.

To summarize, the two relations just described could be interpreted as implying an argument of the following form:

(1) increased age is associated with lower levels of proficiency in some cognitive measures;
(2) lower performance in those same cognitive measures is associated with poorer job performance or placement in less cognitively demanding occupations; and therefore,
(3) increased age can be expected to be associated with poorer job performance, or with shifts into occupations with reduced levels of cognitive demands.

In fact, over 25 years ago Fozard and Nuttall (1971) carried out some computations based on the age relations and predictive validities that had been determined for tests in the General Aptitude Test Battery. Their results indicated that the age-related effects in tests used for occupational selection are so large that the average 60-year-old could be expected to qualify for less than of the occupations for which predictive validity had been determined in this particular test battery.

However, informal observations suggest that in some occupations the most capable workers are older adults. Even more convincing, systematic investigations and several meta-analyses suggest that there is little relation between age and measures of work performance. That is, contrary to the implications of the preceding argument, most reviews of research on the relation between age and job performance have concluded that there is little convincing evidence that older workers are either less productive or less competent than young workers (e.g., Davies & Sparrow, 1985; McEvoy & Cascio, 1989; Rhodes, 1983; Waldman & Avolio, 1986).

This therefore leads to a critical question of what is responsible for the discrepancy between the expectations and the apparent reality? That is, why are there little or no relations between age and measures of work productivity or job performance in the face of large differences in measures of relevant abilities?

One possible explanation of this discrepancy has to do with methodological limitations of prior research in work performance. Among the weaknesses of past research is that many of the studies have involved small samples (and consequently low power to detect relations that might exist), a restricted age range with few

participants above the age of 50, potential selective attrition such that only the most competent individuals may have continued in many demanding fields, possibly nonequivalent responsibilities in that benefits of seniority could mean that the activities performed by adults of different ages are not truly comparable, and limited sampling of job type because most of the published studies have focused on unskilled or skilled workers, and few studies have been reported of people in professions or managerial occupations with high cognitive demands. Nevertheless, it is still surprising that there is so little evidence of negative relations between age and work performance in light of the moderately large age differences in many important cognitive variables.

Although we might be pleased by the apparent lack of age differences in work performance, it is important to determine the reasons for it because the implications for the future could be quite different depending on the answer. For example, if the lack of relations between age and measures of work performance in the past occurred because of selective attrition and in the future fewer older workers drop out of the occupation either for economic reasons or because of the elimination of mandatory retirement policies, then large age-related declines in job performance or work productivity might be predicted.

In the remainder of this article I will focus on three major categories of explanation for this discrepancy between expectations and reality. The first potential explanation is that most contemporary assessments of work performance are rather crude. For example, many supervisors are not concerned with the maximum of which the individual is capable, but instead are primarily interested in some minimally acceptable level of competence. Furthermore, in many work situations there is little agreement about how to assess performance, and even less about what would constitute maximum or optimum performance. Performance evaluations are often based on supervisor ratings, but these can contain biases either for or against older individuals (e.g.,consider the impact of questions asking about the individual's history of loyalty to organization,or his or her potential for advancement). In the field of cognitive or intellectual abilities the assessment procedures have been refined over nearly a century, and consequently many of the measures are quite sensitive. It is therefore possible that if improvements occur in the sensitivity of assessment of work performance in the future, then age-related declines comparable to those that have been found with cognitive abilities might be discovered.

A second category of explanation for the lack of negative relations between age and work performance could be that the cognitive abilities that decline with age may not be particularly important for many occupations. There are two distinct aspects of this interpretation. The first is that other factors, such as achievement motivation, goal-directedness, social intelligence, and various aspects of personality, may be important predictors of productivity in the work place. These characteristics are not easy to evaluate, but they may increase with age and/or job experience, and could contribute to much more of the variability in work performance than traditional measures of cognitive abilities. There is clearly considerable room for improvement in the prediction of job performance because even if the validity coefficients are .5, which is the upper estimate from the available meta-analyses, only 25% of the variance in job performance would be accounted for by cognitive ability measures.

A second aspect of this interpretation is that researchers may have focused on the ”wrong” type of cognition. That is, for many jobs it is likely that the bulk of the activities performed are routine, and hence may place greater demands on what are referred to as crystallized abilities as opposed to fluid abilities. Crystallized abilities largely reflect accumulated knowledge, and may include memories for solutions to problems encountered in the past. These are distinct from fluid abilities which are postulated to reflect the ability to solve novel and unfamiliar problems.

The distinction between crystallized and fluid abilities is apparent in the earlier figure I showed with results from the Woodcock- Johnson tests because the function for measures of comprehension and knowledge was higher than the level in the 20s until about age 70. A similar contrast is evident in the Wechsler Adult Intelligence Scale which contains two different scales. The verbal scale, consisting of tests of vocabulary and general information, can be interpreted as largely reflecting accumulated knowledge, and the performance scale, consisting of tests of spatial manipulation and assembly, can be thought of as assessing novel problem solving. Notice that the verbal scores are stable over most of adulthood whereas the performance scores decline rather dramatically.

This distinction between the two types of cognition is relevant because if many work situations are primarily dependent on crystallized or other age-stable abilities, then there would be no discrepancy to explain because little or no age relations are evident on measures of crystallized intelligence across most of the adult years. Unfortunately at the current time we have very little information about the types of cognitive requirements for most jobs.

A third possible explanation for the lack of the expected negative relation between age and measures of work performance is that increased age is associated with greater experience, and extensive experience may lead to alterations in the manner in which the work is done.

Although the idea that experience plays a major role in minimizing negative relations between age and work performance seems quite plausible, the mechanisms responsible for this influence are not yet obvious. For example, one possibility is that extensive experience leads to maintained proficiency of basic cognitive processes that would decline in the absence of that experience. An alternative possibility is that experience contributes to stable or improved levels of job performance without affecting the proficiency of basic cognitive processes.

These possibilities are both represented in figure 6, and are distinguished by the relative strengths of the (dotted) relations between experience and basic cognitive processes or between experience and work performance. That is, if experience primarily influences basic cognitive processes then the linkage between experience and work performance may be weak, whereas if experience directly affects work performance then there might be little influence of experience on basic cognitive processes.

Although both of these interpretations could account for the finding of little or no relation between age and work performance, they have quite different implications. For example, if it were discovered that experience primarily influenced work performance on specific jobs, then low levels of work performance might be predicted if older individuals were to switch to a new job where their previous experience was not applicable. On the other hand, considerable positive transfer

would be expected if experience served to maintain or increase basic cognitive processes that would decline in the absence of that experience. It therefore seems important to try to determine which of these interpretations is the more accurate characterization of the role of experience.

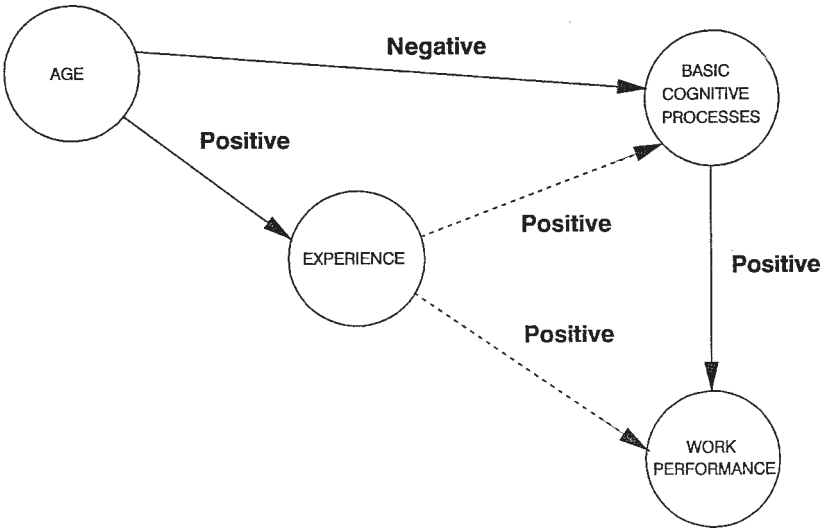

Figure 6. Relations between age, experience basic cognitive process and work performance.

An implication of the view that relations between age and the efficiency and/or effectiveness of basic cognitive processes are influenced by experience is that these relations might be modified by the amount of relevant experience the individual has accumulated. That is, people with a great deal of experience might be hypothesized to exhibit little or no age-related decline, but the negative age relations might be expected to be much more pronounced for people with lesser amounts of experience. A major focus of much of my research over the past 5 to 10 years can be characterized as searching for these types of interactions of age and experience.

I will summarize this research by briefly describing two research projects from my laboratory. In one study we were interested in the role of extensive experience on the relations between age and measures of spatial ability. The sample of highly experienced individuals in this study consisted of practicing architects who were compared with a similar group of college-educated males on several tests of spatial ability. A sample problem in one of the tests is illustrated in figure 7. The task for the examinee is to determine the correspondence between the numbers on the left drawing and the letters on the right drawing. The regression lines indicating the age relations in the two groups are illustrated in figure 8. It is clear that there was a large effect of experience because the architects performed at much higher levels than the non-architects. This is informative because it indicates that the experience is relevant to these particular measures of cognitive performance. However, the very similar age-related declines for the architects and the non-architects suggests that experience does not prevent age-related declines in basic cognitive abilities.

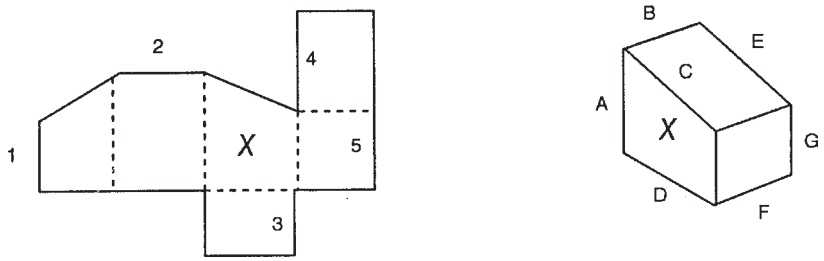

Figure 7. Example of a problem requiring spatial visualization.

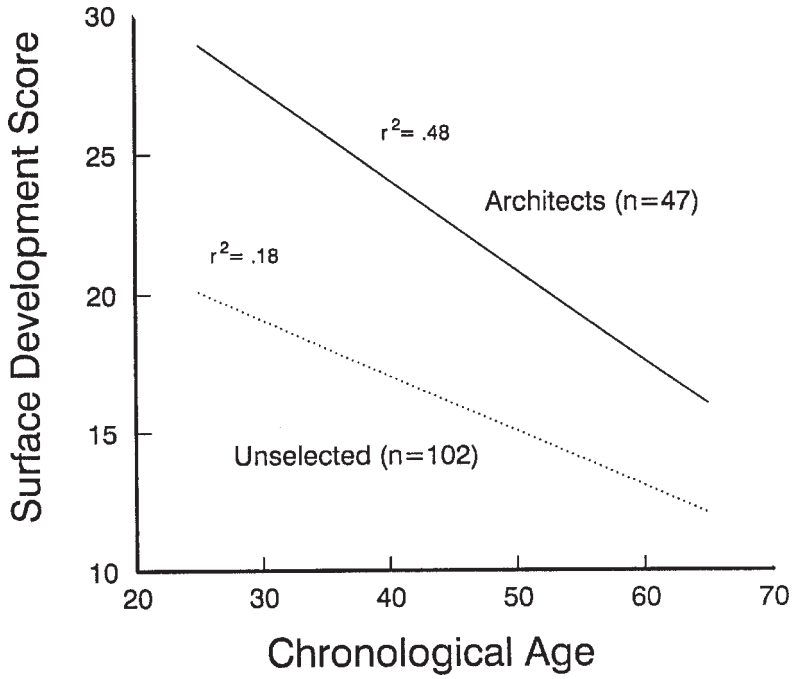

Figure 8. Level of performance on surface development problems, architects and non-architects. Data from Salthouse et. al. (1990).

It is important to emphasize that we did not assess actual work performance in this study, and thus it is not appropriate to conclude that productivity or professional competence decline swith age. In fact, I strongly suspect that if measures of relevant knowledge had been available, such as the best building materials for particular structures or locations, or the details of how to obtain approval from building inspectors and planning commisions, we would have found either stability or an increase with age and experience. Nevertheless, the results of this study do indicate that abilities likely to have been in continous use still exhibited declines similar to those observed among unselected adults.

A second illustrative experiment is one recently conducted by one of my graduate students, Elizabeth Meinz (Meinz & Salthouse, in press). The focus in her study was on the influence of experience with music on the relations between age and memory for visually presented melodies. The stimuli in this study were visually presented short musical melodies such as that in figure 9. Participants in the study varied widely in musical experience, ranging from absolutely no experience to professional musicians and music teachers. The regression lines for people in the top 25%, middle 50%, and bottom 25% of the distribution on experience are illustrated in figure 10.

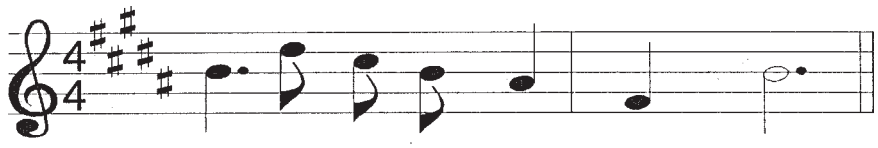

Figure 9. Visually presented short musical melodies.

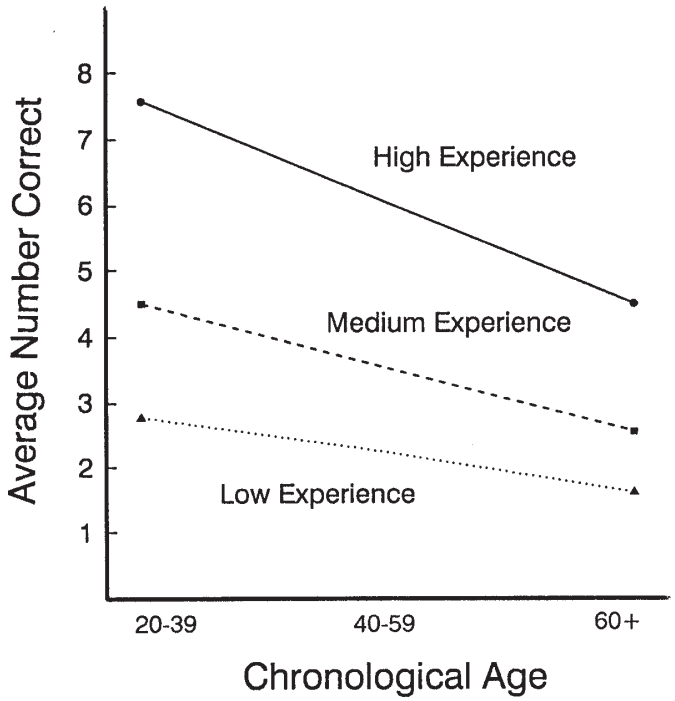

Figure 10. Pronounced age-related declines in memory occur even among experienced. Data from Meinz & Salthouse (in press).

Again very large effects of experience were apparent, and thus we can conclude that the measures of performance in this task are sensitive to experience in the domain. However, large age-related declines in memory for visually presented music were present in each experience group, and thus there is no evidence for moderating effects of experience in this study. While we can not say anything about the relation between age and competence as a musician because no actual performance of an instrument was involved, in activities relevant to one's domain, the results are important in indicating that pronounced age-related declines occur even among experienced people.

The results of these studies all seem to lead to the conclusion that experience does not moderate the relations between age and basic cognitive processes. That is, the results of research in several different domains provide no evidence that greater amounts of experience preserve cognitive abilites that would otherwise decline. In terms of the framework I described earlier,this implies that experience appears to have little or no direct effects attenuating age-related influences on basic cognitive abilities.

However, because it seems very unlikely that the older architects or musicians who served in these studies were substantially less competent in their professions or avocations than their younger colleagues, the greater experience associated

with increased age can be postulated to have led to a larger accumulation of occupation-specific knowledge. For example, in the case of architects, greater experience is likely to have resulted in more extensive knowledge of client needs, of the suitability of building materials and structures to sites, of building codes and zoning regulations, etc. All of these knowledge factors probably contribute to successful performance in the job, and are almost certain to be positively related to amount of experience.

It is therefore meaningful to ask how experience might moderate age-related influences on work performance. That is, what mechanisms might be responsible for experiential effects on work performance that reduce or eliminate negative relations with age? I believe that there are three major possibilities:

- Preserved abilities throught continuous use.
- Accommodation by shifting nature of activities.
- Compensation by using different mechanisms to achieve the same goal.

The first alternative, that experience preserves the basic abilities, seems to be ruled out on the basis of the research I have just described in which there was no evidence of interactions of age and experience on measures of basic cognitive abilities.

The second possibility is accommodation, in which the individual shifts his or her activities to those that are less affected by any declining abilities. To the extent that this happens the individual might still be able to perform at a high level of competence in select activities which are not as dependent on age-sensitive abilities. A possible example of accommodation is in professional sports where athletes shift the role of coach and still remain active in the field, albeit in a quite different role.

It seems highly likely that some forms of accommodation occur as people age because they are likely to alter the type of activities in which they engage, and they may no longer attempt activities that make age-related declines salient. Unfortunately, although this possibility seems intuitively plausible, it is not easy to document without detailed records of the actual activities being performed on a daily basis by adults of varying ages.

The third possible mechanism by which experience might allow an individual to maintain a high level of performance despite declines in relevant abilities can be termed compensation. It is clearly possible that highly experienced people (who may be more likely to be old) have learned more efficient or effective ways of performing the activities, and if so, then the gains of the more effective mode of operation may balance or offset any losses or declines that are also occurring.

Compensation may occur quite frequently in daily life, but it has been very difficult to establish in a convincing way because it requires evidence that the same level of overall performance is accomplished in different ways by people of different ages (Salthouse, 1995). That is, compensation in a strict sense implies that the same goal is achieved by different means, such that deficits in one or more relevant components are offset by improvements in other relevant components. Therefore in order to establish that compensation is actually involved the researcher needs to establish that two or more components contribute to performance in some criterion activity, and that losses in one component are balanced by

gains in another component such that the overall level of performance remains the same.

One research strategy that can be used to investigate the possibility of compensation involves selecting a sample of people who do not differ in the level of performance on a molar criterion task, and then investigating the age relations on two or more component measures. Evidence for compensation would exist if age-related declines in some relevant components were balanced by an age-related increase in another relevant component.

Several years ago I conducted a study relevant to the issue of experience-based compensation that focused on the activity of transcription typing (Salthouse, 1984). The participants in this study ranged from about 20 to 70 years of age, with net typing speeds ranging from 20 to over 100 words per minute. As one might expect, several measures of performance relevant to typing were slower with increased age, such as one-finger and two-finger tapping speed and choice reaction time. However, a measure of eye-hand span, obtained by varying the number of visible characters to determine the number of characters needed to maintain a normal rate of typing, was found to increase with age. The procedure used to assess eye-hand span involved displaying to-be-typed material on a computer in moving window procedure such that each keystroke triggers a shift in the characters visible on the screen. As the number of visible characters increases the typing speed increases until it approximates the speed of normal typing, and this transition point is designated the individual's eye-hand span. As just mentioned, the size of the eye-hand span in this study was found to be larger among the older typists.

These results, which have been replicated in subsequent studies by me and by Elizabeth Bosman (1993), suggest that experienced older typists were able to achieve the same net typing speed as young adults by relying on a somewhat different combination of abilities. Although there was a decline in the speed of executing discrete keystrokes, the effects of this decline were minimized because the experienced older typists were apparently processing more advance information while typing than younger, or less experienced, typists. The expanded range of processing can therefore be considered a type of compensation because it allowed the experienced older typists to maintain the same overall level of speed as the younger less experienced typists despite slower performance on several relevant component abilities.

This is obviously a very simple example of possible compensation, but it serves to illustrate how we might obtain convincing evidence of compensation. Unfortunately, very few systematic investigations of this type have been conducted and consequently relatively little is known about the role of compensation in actual work situations.

Conclusions

I will now try to summarize my remarks today. I have presented both good news and bad news concerning the relations between age and work performance from the perspective of cognitive psychology.

The good news is that despite the pessimistic expectations from basic research on age and cognitive abilities, there is no convincing evidence that increased age is a liability in most worksituations. This is encouraging because it suggests that age may not be a limitation in employment situations.

However, the bad news is that the reasons for this lack of an age relationship are not yet understood. That is, research on the relations between age and cognitive abilities leads to an expectation of age-related declines, and it is not clear why they have not been found. Several plausible hypotheses have been offered, but they need to be rigorously investigated before we can have much confidence, or comfort, in the good news.

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Work after 45 – a sociological perspective

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Introduction

I have been asked to take a sociological perspective towards the issue of work after 45. It has been said of economists that if you laid them all end to end they would never come to a conclusion. In sociology too there are many perspectives on work and ageing. Without going into the rather introspective detail of different sociological theories we can say that the main contribution of the discipline to this important issue has been to shift our attention from largely individual questions of working capacity and skills training and the ergonomics of job design, to also examine the processes of inclusion and exclusion in the labour market, and the social, economic and political factors which contribute towards determining the age at which people leave employment, including the role of public policy. In recent years, for example, sociological research has begun to counterbalance the prevailing tendency in this field to focus on individual employees by concentrating on the attitudes and actions of employers. I will report some of this research, in the brief time available to me, under each of the three main sections of my paper.

The key theme of this paper is that age discrimination operates as a barrier, or rather a series of barriers, to the achievement of healthy and productive ageing. This may entail both exclusion from the labour force but also the perpetuation of work processes which disable or damage the health of workers, and so prevent them from successfully managing their own ageing in employment. The Black Report on inequalities in health called attention to the fact that 'in the collective effort of production some people's bodies are worn out faster than others' and, by doing so, emphasised both the unequal class *and* age distribution of occupational ill-health.

1. The changing relationship between age and the labour market

Since the second world war it is possible to distinguish three phases in the changing relationship between age and the labour market.

The superannuation or 'retirement' of older workers was consolidated in all western European countries in the 20 years following the second world war. The introduction of age-barrier retirement - the temporal point at which employment was terminated and pensioner status began - was a critical moment in the history of the relationship between age and the labour market. In effect old age was defined, or manufactured, by this process and a dividing line created between economic productivity and dependency. This process of social construction was not simply a matter of the exercise of power by national governments; individual workers and their trades unions were actively engaged in it too. Also in all western industrial societies retirement policies have been used by employers, including

the public sector, to reduce and re-structure their workforces in response to both the constant pressure to increase productivity and cyclical changes in the demand for labour. Thus retirement operated as a crude, age discriminatory, process to exclude older people en masse from the workforce. Indeed some of the impetus behind the development of retirement was provided by the economic, medical and managerial theories of the late nineteenth and early twentieth centuries concerning the industrial efficiency of younger versus older workers - such as Taylor's theory of scientific management. This and other similar theories were inherently age discriminatory: they favoured the young and portrayed older workers as inefficient burdens. Although the scientific management theories have been discredited and there is a growing body of counter-factual evidence about productivity in older age groups, the age-discriminatory prejudices that they helped to legitimate still exert a profound influence on the employment opportunities of older workers.

A second, transitional, phase took place from the early 1970s to the late 1980s, when the boundaries between economic activity and retirement became increasingly blurred for larger and larger groups of people. In this period early retirement or early exit from the labour market became established in a majority of EU countries. Again both policy makers and workers' representatives were actively involved in this reconstruction of the relationship between age and the labour market. It was in this transition phase that the distinction was made between the third and fourth ages (that is thosed aged 50-75 and 75 plus).

Thirdly there is the present phase, the central theme of which has yet to emerge but which seems to offer both pessimistic and optimistic scenarios. On the pessimistic side, older workers may continue to be excluded from the labour market, or at least the secure core, while, on the optimistic side, there are signs of changing attitudes by both employers and governments which may herald new opportunities for older workers. What is clear now is that a great deal hangs on which direction is taken by policy makers and European labour markets - the stakes are very high. The outcome will define the place of the third age (and older groups) in European society.

It is worth pointing out that while employment policy shifted through these phases both medical science and social science has followed close behind. For example, in the first phase medical science was emphasising the harmful effects of retirement (eg. the breakdown theory of retirement) whereas in the second, early exit, phase the relaxing effects of the leisure opportunities associated with early exit have been stressed. Sociological theory focused on the disengagement of older people from productive activity in the first phase, on activity theory and productive ageing in the second phase, and now some sociologists are writing about the advent of the 'post-modern life course' in which the classic modernist life stages have become deconstructed.

The collapse of paid employment

The last 20 years have witnessed the virtual collapse of paid employment among older men in most EU countries. As Table 1 shows this trend is particularly apparent among those aged 60 and over. Although the pace of decline varies considerably between countries, particularly between the north and south of the EU, the trend is both unmistakable and persistent. The changes in the employment of older women, shown in Table 2, differ from those of older men largely because of the cohort effect of increasing female participation in the labour force but, when this

cohort effect is disentangled, there is a similar trend of early exit among older women (Kohli, Rein, Guillemard and Van Gunsteren, 1991).

Table 1. Employment rates for men over 55 by age groups in the twelve countries of the European Community.

		B	DK	F	G	GR	IRL	I	L	NL	P	S	UK
55-59	1983	60.9	77.4	60.3	77.6	76.4	76.5	71.1	52.5	65.3	74.7	79.1	75.8
	1986	54.2	78.3	57.3	73.9	73.7	71.6	67.2	56.5	-	72.1	67.9	73.3
	1988	48.1	78.8	56.3	72.2	72.4	69.9	66.4	54.6	63.4	69.9	66.6	72.6
	1990	48.4	81.6	56.2	73.9	70.7	69.6	66.4	62.8	63.6	73.5	69.4	74.9
	1992	48.7	75.7	58.1	67.2	70.8	66.7	63.9	53.3	60.9	68.8	66.7	69.5
	1994	48.6	75.1	55.9	63.9	71.0	67.8	59.3	51.3	59.3	68.9	60.7	67.3
60-64	1983	27.4	48.3	28.2	38.3	58.2	63.3	35.9	19.5	34.2	62.8	60.4	52.5
	1986	22.4	52.6	22.0	30.8	51.7	57.3	36.7	16.1	-	53.5	45.6	48.1
	1988	19.4	51.7	19.4	31.7	49.2	55.0	36.4	18.0	25.1	53.7	44.0	49.1
	1990	18.9	48.6	16.0	32.9	45.5	50.4	34.5	22.8	21.7	54.2	43.2	49.4
	1992	20.2	45.8	13.5	28.5	45.9	52.1	33.1	15.7	21.4	55.4	43.0	47.5
	1994	17.3	40.9	12.5	26.1	45.5	50.6	29.6	15.1	21.0	52.2	38.0	45.1
65-69	1983	5.1	26.4	7.9	10.2	34.1	31.6	15.0	10.2	5.3	-	20.7	13.0
	1986	5.5	26.0	7.1	8.5	26.8	28.3	15.5	4.5	-	30.3	10.9	11.7
	1988	4.2	25.9	6.1	7.4	24.1	26.8	13.8	4.2	10.0	30.6	7.5	11.3
	1990	3.3	27.4	5.1	8.6	21.4	25.7	12.8	5.5	9.7	31.5	7.4	13.5
	1992	3.9	26.0	5.2	6.9	21.2	25.7	12.0	-	11.1	28.6	7.0	14.1
	1994	2.3	3.8	2.5	4.3	11.7	16.0	6.2	2.1	5.8	20.6	2.9	7.3

Source: Eurostat *Labour Force Surveys* and Reports of the EU Observatory on Ageing and Older People. Note: *After unification

Table 2. Employment rates for women over 50 by age groups in the twelve countries of the European Community.

		B	DK	F	G	GR	IRL	I	L	NL	P	S	UK
50-54	1983	26.1	63.8	52.7	45.2	35.6	24.6	29.7	20.1	25.9	-	-	60.8
	1986	26.5	68.1	53.2	47.4	38.1	23.3	31.2	25.1	-	42.9	23.7	62.1
	1988	25.8	72.6	53.7	47.9	37.9	24.3	30.8	24.0	33.3	45.9	24.7	62.0
	1990	28.6	72.9	55.3	53.8	36.3	25.5	31.7	26.9	36.0	47.6	25.5	65.2
	1992	31.8	74.1	57.1	59.5	35.1	27.9	33.4	30.6	39.9	51.9	28.7	65.7
55-59	1983	15.7	50.2	37.2	37.5	29.5	20.6	19.5	17.9	17.2	-	-	47.4
	1986	16.7	57.3	36.4	35.9	29.9	18.6	19.9	19.0	-	33.5	21.0	48.6
	1988	14.6	55.9	37.4	36.3	31.4	19.2	20.4	17.1	21.7	36.3	21.0	49.1
	1990	14.7	57.6	37.6	38.7	28.0	20.6	19.3	18.0	22.9	37.9	21.5	51.9
	1992	17.2	61.4	38.0	36.1	26.0	21.3	18.8	21.0	25.1	42.2	21.4	52.1
	1994	20.4	57.1	38.8	37.6	26.5	23.4	18.6	19.0	27.4	41.4	20.8	51.7
60-64	1983	6.0	28.0	16.6	12.1	19.9	16.5	9.0	10.2	7.7	-	-	19.7
	1986	4.2	29.2	14.7	10.5	20.9	12.1	9.5	7.5	-	23.6	14.8	18.0
	1988	3.8	22.9	14.2	10.3	22.0	11.8	9.9	7.4	7.2	26.0	15.8	18.6
	1990	4.0	26.9	11.8	11.6	19.7	13.8	10.0	9.5	8.3	23.7	14.6	21.8
	1992	5.0	24.6	11.3	9.2	17.4	12.6	8.6	9.8	6.3	27.1	15.3	22.8
	1994	4.9	20.8	11.3	8.4	18.5	13.6	8.0	7.5	7.2	24.9	15.0	24.7

Source: Eurostat

It is well known that some of the main factors behind this growth in early exit from employment are demand-related and, specifically, recession, unemployment and redundancy (Walker, 1985; Trinder, 1989; Kohli, Rein, Guillemard and Van Gunsteren, 1991; Laczko and Phillipson, 1991). Indeed it has been argued convincingly that 'early retirement' or withdrawal from the labour market brought about through an increase in unemployment is better understood as a form of unemployment rather than retirement (Casey and Laczko, 1989).

Early exit as a goal of public policy

One important aspect of the demand-side determination of early exit over the last 20 years has been public policies. Thus measures such as pre-retirement in Denmark and Germany, disability pensions in Sweden and the Job Release Scheme in the UK have actively encouraged the trend towards early labour force exit, sometimes as a means of substituting younger for older workers. In practice policy makers regarded older workers as a partial solution to unemployment, particularly mounting youth unemployment. Moreover this was a solution that was favoured by both employers and trade unions. For example the VUT scheme in the Netherlands results from collective bargaining. Therefore, in the late 1970s and early 1980s, there was a high level of consensus between the social partners backing the policy of early exit. This does not mean that governments intervened in their national labour markets to the same extent - in fact differences in the level of such interventions have a bearing on the degree to which employers are now willing to depart from the policy of early exit - but the widespread acceptance of early exit was remarkable.

Of course early retirement has a very long history in some industrial sectors, such as mining, where it was introduced as an alternative to radical changes in working conditions. The result was that older workers bore the costs of production in terms of their deteriorating health. Thus research on why people take early retirement points towards two distinct pathways: on the one hand there are those that freely choose it, usually because the financial conditions are attractive and, on the other, there are those who are coerced into early exit by a combination of ill-health, unemployment and redundancy.

Unfortunately the policy of early labour force exit entailed unforeseen consequences and, in retrospect, may be viewed as a short-term solution to the pressing economic problem of unemployment but one which, as circumstances change rapidly, looks increasingly out-of-date. In the first place the growth of early labour

Table 3. Proportion believing that older workers are discriminated against in employment.

	EC12	Belgium	Denmark	France	West Germany	East Germany
Recruitment	78.7	82.5	80.1	81.8	76.3	82.2
Promotion	61.5	59.9	63.6	63.3	56.1	49.6
Training	67.1	68.5	64.2	68.6	63.7	62.5
Status	48.7	49.5	37.9	52.1	39.6	26.0

Source: Walker (1993), p.26.

force exit has diminished the role of public pension systems as the key regulators of retirement and, thereby, increased the insecurity of many older people in the labour market (Guillemard, 1993). Thus a whole range of *ad hoc* institutional mechanisms and benefits have been added to the social protection systems of the northern EU states to facilitate the early exit policy and bridge the widening gap between employment and retirement. However, these benefits do not cover all older workers and many are left with little other than social assistance. Secondly, where early retirement benefits have been linked to public pensions this has placed additional strain on those pension systems.

Thirdly, the unchecked growth of early exit from employment reinforced the devaluation of older workers in the labour market. As age thresholds have been lowered to provide exit routes out of the labour market this has had significant consequences for those ageing workers left in the labour market because it is likely to have affected employers' perceptions of the age at which workers may be considered to be 'too old'. In fact there is a growing body of evidence in different EU countries to show that people in their third age are frequently discriminated against with regard to job recruitment, promotions and training (McEwan, 1991; Drury, 1993). The most comprehensive EU-wide evidence comes from the 1992 Eurobarometer surveys. We asked the general public whether or not older workers are discriminated against with regard to job recruitment and other aspects of employment and a remarkably high proportion - four out of five for the EU as a whole - said that such discrimination does exist with regard to recruitment. Moreover, there was hardly any difference based on the age of respondents (Table 3). The survey of EU countries conducted by Eurlink Age, in 1993, identified five different types of age discrimination in employment: early loss of employment, discrimination in retirement, hidden unemployment, exclusion from training, and retirement age (Drury, 1993). Within these five types both direct and indirect forms of discrimination were found in most countries. In the European Foundation project on age barriers in seven countries - Belgium, France, Germany, Greece, Italy, the Netherlands and the UK - we have found that older workers continue to experience discrimination with regard to job recruitment and training. Therefore, although there are clear signs of a change in attitude towards age and employment on the part of some employers, they remain a minority in Europe.

Detailed evidence of the experience of age discrimination in the labour market has been revealed by a series of research projects in the UK.

All Germany	Greece	Ireland	Italy	Luxem-bourg	Nether-lands	Portugal	Spain	UK
77.6	76.9	74.7	77.1	82.4	83.2	66.1	74.8	82.4
54.7	62.3	63.3	54.7	57.5	51.8	55.9	64.6	77.7
63.4	64.4	69.3	63.3	66.7	65.0	64.3	64.8	77.3
36.7	63.9	49.7	48.8	49.1	35.0	52.6	57.1	58.3

UK surveys of older workers and employers

Results from our local survey of older workers' experiences in the labour market (Taylor and Walker, 1991; Walker and Taylor, 1993) and from other recent UK studies (McEwan, 1990; Laczko and Phillipson 1991; Itzin and Phillipson, 1993) indicate that older people seeking work in the early 1990s continue to report considerable age discrimination from employers. Within the internal labour market such age discrimination includes being excluded from training opportunities and being passed over in preference to younger people when promotion decisions are made. In the external labour market age restrictions in job advertisements are often cited by older people as important barriers to employment and recent research has confirmed their continuing use (Jones and Longstone, 1990; Tillsley, 1990). Without actually specifying age bars in advertisements recruitment practices may also discriminate against older people. For example, the specification of education, qualification and experience standards in advertisements can restrict applicants to a desired age range, while other statements in job advertisements can imply that a younger person would fit better into a particular team (McGoldrick and Arrowsmith, 1992).

As well as examining the experiences of older people in the labour market we conducted the first major UK investigation of the attitudes of employers towards this group. Data was collected by means of a postal survey of 500 employers, with 500 or more employees, based on a nationally representative sample. The survey consisted of a detailed series of questions about employers' attitudes and policies towards the employment of older people. Three hundred and four questionnaires were returned, representing a response rate of 61 per cent. The relatively high response rate (for postal surveys) is attributed to a number of factors, including the targetting of named directors, persistence, telephone follow-ups and the offer of access to the research findings and examples of good practice. The majority of respondents were personnel managers although a large number were personnel directors or other senior executives. The sample of employers covered virtually the whole range of industrial sectors.

There is space here to summarise only a few of the main findings (see Taylor and Walker, 1994). First a significant proportion of employers in our sample (43 per cent) regard age as an important consideration in the recruitment of staff. This contradicts the UK government's *Getting On* plan which urges employers to 'drop age bars from job advertisements' and to 'base selection on tests of ability to do a job'.

Secondly, in the UK older people are considerably less likely to receive training provided by employers. Therefore we asked employers about any training they provided to older people. Significant numbers of employers stated that they did not provide training to people past the age of 50. Thirteen per cent of employers said that they did not train management past the age of 50 years, while 17 per cent of employers said that they did not train other staff past 50 years of age.

Thirdly, we questioned employers about their attitudes towards older workers and, in particular, we tested their adherence to various stereotypical ideas about this group. Our findings reveal some signs that employers are becoming more positive towards older people, however there are still significant proportions of them who continue to maintain negative and inaccurate stereotypes, as can be seen in Table 4. For example some employers considered older workers to be less train-

able than younger ones and as having difficulties in adapting to new technology. These perceptions are contradicted directly by previous research evidence. For example it has been demonstrated that, although older people do not learn as quickly as their younger counterparts, they can acquire substantial knowledge and skills and they do not forget these any faster than younger people (Belbin, 1965; Sterns and Doverspike, 1989; IPM, 1993). Not surprisingly perhaps there are significant numbers of employers who also feel that older workers are less likely to be promoted.

Table 4. Percentage of employers agreeing or disagreeing with various statements about older workers in their company.

	Agree strongly	Agree slightly	Not sure	Disagree slightly	Disagree strongly
Older workers...					
-are hard to train	4	39	11	28	14
-do not want to train	2	23	10	36	26
-have a lot of mileage left in them	37	44	10	5	1
-lack creativity	3	19	17	37	21
-are too cautious	3	33	18	32	10
-are employees marking time until retirement	1	23	13	33	26
-are very productive employees	22	41	20	10	3
-cannot adapt to new technology	5	35	14	32	9
-are more reliable than young workers	31	43	15	5	2
-cannot do heavy physical work	8	40	19	24	5
-*are* interested in technological change	2	29	24	36	4
-are *in*flexible	1	26	12	43	14
-dislike taking orders from younger workers	5	33	14	31	12
-have *fewer* accidents	8	25	50	9	4
-are *less* likely to be promoted in this company	10	34	12	30	10

The results shown in Table 4 suggest ambivalence towards older workers. Employers are positive with regard to factors such as loyalty, productivity and reliability but relatively negative on ones such as cautiousness, new technology, flexibility and interaction with younger managers. Thus the picture of employers' attitudes that emerges comprises both positive and negative features though it is surprising that the former seem to be more prevalent than the latter. In practice, however, it is the negative factors that outweigh the positive ones, or, perhaps more likely in view of the fact that some three out of five employers regard older workers as 'very productive' employees, these attitudinal factors are overridden by the drive to reduce staff numbers coupled with the cultural embeddedness of early exit, which has been encouraged by the age/length of service premium in the UK Redundancy Payment Act (1965). The outcome is likely to be an inclination to target redundancies on older workers even though they may be valued. Another contributory element in this discrepancy between attitudes and behaviour is the fact that our respondents were chiefly senior personnel managers and both they and subsequent research (see for example Itzin and Phillipson, 1993) indicate frequent differences in attitudes between senior staff and line managers. With regard to recruitment decisions there is likely to be a gap between stereotypes about older workers in general and those attitudes deriving from precise knowledge about specific older employees in a manager's own organisation.

Comparing the production and construction sectors with the services sector according to the attitude statements shown in Table 3, the two groups differed on only three of the fifteen attitude statements. Service sector organisations were more likely to report that older workers were 'very productive employees' and less likely to say that older workers were 'hard to train', and 'lacked creativity'. However, while employers from the different sectors did not differ with regard to most of these attitudes, their practical significance was likely to differ between sectors and occupations. Thus while negative attitudes regarding trainability and adaptability might hinder significantly the employment prospects of older workers applying for high skill/technology jobs, it seems likely that such attitudes will be of less significance in low skill/technology forms of employment.

Fourthly, employers were asked what factors might discourage the recruitment and employment of older workers. The results are reproduced in Table 5. This shows that the overwhelming factor militating against the employment of older workers is their lack of appropriate skills. In all nearly three-quarters of employers in the sample regarded this as an important negative factor, considerably greater than factors such as the truncated pay back period on training and the organisation's maximum recruitment age in the company. This finding is very important in policy terms because it suggests that educational campaigns aimed at employers, which are based typically on factors such as maximum recruitment ages and the pay back period on training, are missing their target because the main barrier is a perceived lack of skills. Thus efforts aimed at improving the attractiveness of older people to employers also need to take into account this perceived skills gap. It must also be pointed out though, that there is an element of self-fulfilling prophecy attached to this finding: older employees are the least likely to receive training from their employers and, therefore, the skills gap, to some extent, is inevitable. Until recently this discrimination also took place in official employment training schemes. This problem has been recognised by the government who, in December 1993, after preliminary results of our research had been released, increased the age at which an unemployed person was allowed access to training under the government's own Training for Work scheme from 59 years to 63 years.

Table 5. Employers rating of the importance of various factors in discouraging the recruitment and employment of older workers (percentages).

	Very important	Important	Not important
Rules governing company/occupational pension schemes	16	30	48
Pay-back period on training	6	43	45
Maximum recruitment age in company	14	23	55
Lack of appropriate qualifications	13	38	45
Trade union rules/opposition	1	11	79
Shortage of older applicants	9	36	48
Maximum recruitment age for some jobs	12	39	41
Lack of appropriate skills	22	50	22

2. Changing attitudes towards older workers

Although the experience of many older workers is discrimination and the social exclusion associated with it, there are signs of change in the attitudes of both EU governments and employers. As far as governments are concerned there are twin

engines driving the new perspective: rising budget deficits and population ageing. The combination of these two factors is creating concern in a number of EU countries about the long-term financing of retirement pension schemes and has already prompted action in several to limit the extent of early labour force exit. Examples include the German (not very successful) attempt to encourage gradual rather than full early retirement, with similar measures in Denmark, France and Spain; the (equally unsuccessful) job introduction scheme in the UK, which replaced the job release scheme but was abandoned due to low take-up, and the French 'return to work contracts' for people over 50.

Population ageing means workforce ageing and the consequences of this are only just beginning to be grasped by employers. But the predicted shortage of younger workers and the realisation that the early exit easy option had adverse consequences, such as the permanent loss of some highly skilled labour, has led some employers to rethink their approach to ageing workers. The extent of this rethinking is variable across the EU, reflecting in part the different public policy contexts and the strength of the commitment shown by national governments to the early exit policy. Among the northern EU states France may be regarded as an example of a country in which employers are showing the least inclination to change and, in contrast, Britain is one in which employers are more willing to do so (Guillemard and Walker, 1994).

There are five main elements to this case but they are by no means of exclusive benefit to employers; older workers themselves have much to gain from a new orientation on the part of employers.

i) Return on investment. Human capital represents a major investment for any employer, including recruitment, training, development and remuneration. Moreover, as the pace of technological change quickens the investment required in training to maintain skills will also increase. Recent employer surveys in Britain and France indicate that training is regarded as one of the main responses to potential labour shortages (Guillemard and Walker, 1994). In a recent survey of enterprises in the US, seven out of ten stated that retraining employees to keep their skills current is a somewhat or very serious human resource issue for their companies (Barth, McNaught and Rizzi, 1993). As far as workers themselves are concerned, they face increasing uncertainty and precariousness in the labour market, which means that maintaining and upgrading skills through training is one of the keys to job security.

ii) Preventing skill shortages. The second argument is closely associated with the first: employers will need to protect their human assets both to ensure a full return on their investment and to prevent skill shortages arising in the future. Thus some major European enterprises have suffered a loss of skills and know-how as a result of the early exit of some of their key workers. For example Aérospatiale in France lost many skilled engineers through early retirement in the 1980s which gave rise to concern within the company about how to maintain a sufficient 'knowledge pool' (Volkoff, 1991).

iii) Maximising recruitment potential. Age discrimination is not only socially unjust and damaging to older workers, it is opposed to the interests of employ-

ers themselves. A considerable amount of research has demonstrated that age is a very poor proxy for performance in employment and training (Belbin, 1965; Warr, 1993) therefore its use in recruitment may be largely irrelevant. Organisations that discriminate in recruitment on grounds of age (or any other extraneous factor) are depriving themselves of access to the widest possible pool of potential applicants and, in the process, may be excluding the best person for a particular job.

iv) *Responding to demographic change.* There are two interrelated issues here. On the one hand an ageing workforce requires that employers must adapt their approaches to recruitment and training and, indeed, their whole human resource strategy, to respond to this new reality. (The sorts of changes required are outlined below.) On the other hand, the ageing of the population in general means that organisations, particularly commercial companies, face a changed environment. For example they may confidently expect a shift (discernible already) in the targeting of goods and services from what has been an obsessive youth orientation to a greater focus on older people as consumers (Hobman, 1990). Thus enterprises will have to consider employing people who are in tune with the ageing population of consumers or service users. The case of the Do-It-Yourself retail chain B & Q, in the UK, is one in which the commercial benefits of employing older workers have been clearly demonstrated.

v) *Promoting diversity*. There are likely to be commercial benefits from encouraging diversity in the age mix of the workforce. With all companies facing a similar competitive environment advantage is likely to go to those with the most creative approach. A balance between youth and maturity, for the reasons outlined already, is likely to produce the best results (Aldridge, 1994). In the public sector too age diversity can be expected to enhance creativity.

These then are the main factors that will compel employers to respond to the changing demographic and social environment.

The age barriers project

I am just completing a project which began in April 1994 with the intention of gathering information on good practice in the retention, reintegration and retraining of older workers in seven EU states. This is the first pan-European research to concentrate on good practice in age management and the results will be published shortly.

We defined 'good practice' in both general and specific terms. In general good practice in the employment of ageing workers consists of combating age barriers, either directly or indirectly, and providing an environment in which each individual is able to achieve his or her potential without being disadvantaged by their age. Of course, in order to achieve this goal policies do not necessarily have to be labelled 'older worker' policies - there may be general human resource strategies that are of particular benefit to mature employees. For example a system of annualised hours has proved to be particularly helpful to ageing workers with caring responsibilities. We also defined good practice in specific terms with reference to the six main dimensions of age management in organisations - job recruitment;

training development and promotion; flexible working practices; ergonomics/job design; changing attitudes with organisations; and changes in exit policy. The detailed coding frame is shown in the appendix.

We have collected over 150 examples of good practice from the seven countries focussing mainly on job recruitment and training. There were very few examples which focused only on ergonomics/job design and the majority of these were found in France. There were also some contributions from Finland and Sweden. Three forms of publication are forthcoming: a European Portfolio of Good Practice in Age Management (comprising the examples collected); a synthesis report analysing the detailed case studies carried out on 22 of the examples of good practice; and a short summary of the project and its findings. Let me summarise a few of the findings.

What factors influence the decision of an organisation to develop good practice in combating age barriers? There are three main ones but the precise order of importance differs between organisations. First of all, there is the specific economic and labour market setting in which an organisation is operating. For example several initiatives were either developed in response to labour shortages or such shortages played an important role in determining their focus. Other initiatives were encouraged by labour surpluses. The shortage of qualified nursing staff is a familiar pattern throughout Europe and two of the initiatives - L'Incontro (Italy) and the Middelares Hospital (Belgium) - were aimed directly at overcoming this deficiency by tapping into the pool of older nurses. In contrast the cases of the Employment Agency in Trento and the French insurance and chemicals companies introduced their good practice initiative in response to labour surpluses.

Secondly there are changes in public policy, such as the closing-off of early exit subsidies or the provision of special training grants and support for job creation. For example, the change in public policy favouring partial rather than full early retirement influenced two of our case studies - the French insurance and chemical companies - in their decision to alter their exit policies. The Dutch Job Exchange programme for teachers resulted in large part from a change in government policy towards the education sector.

Of course government, central and local, may influence good practice in different ways: it may pay for its development , it may regulate to ensure it happens, it may exhort organisations to comply with it or, as a direct employer it may introduce good practice into its own machinery. Public sector subsidies were essential to ensure that several of the initiatives got off the ground - including the Dutch Job Exchange project, Stahlwerke Bremen and the POPE recruitment agency (UK). Three case studies involved local government and demonstrate the advantages of such semi-autonomous forms of administration. In particular the cases of GFAW (Germany) and the Trento Employment Agency illustrate the enormous potential for both job creation and the promotion of good practice in age management where there is devolved responsibility for employment and training.

As well as being a positive influence on the development of good practice the public sector may also act as an inhibitor. This negative aspect of the role of the public sector was illustrated in several initiatives - the main culprits being the social security and redundancy payments systems (Job Exchange, L'Incontro Coop) and the tax system (SISEMA).

The third source of impetus towards good practice is organisational culture. By this I mean the HR tradition, current personnel policies and management style which, together, may support and encourage the development of good practice or, alternatively, favour the retention of age barriers. Because the case studies are examples of good practice they provide insights into the critical influence of organisational culture in one direction only. However, as indicated below, they also demonstrate how certain negative features of organisational culture may be overcome.

Some commercial organisations have long established traditions of consensual management and responsiveness to employees. Sometimes this approaches social partnership or what is fashionably called 'stakeholder capitalism', as in the case of the Wilkhahn furniture company in Germany, and sometimes it reflects a more paternalistic family-based tradition, as with the TITAN and DELTA companies in Greece. Thus a cultural context favourable to good practice in age management may be created by either the craft traditions or the family orientation of a particular company. But it may also derive from very different and more urgent contemporary pressures, as in the case of Fontijne Holland, which has a pro-training culture because of its need to survive in the highly competitive machine manufacturing sector. Similarly with the UK company Glaxo R & D which regards the retention and retraining of older staff as a vital element in maintaining its competitive advantage.

Principles of good practice

When it comes to the main lessons to be learned from the implementation of the case studies in the research there are four main principles which can be regarded as guidelines for those intending to introduce good practice into other organisations (assuming that the external stimuli exist for such action).

i) Backing from senior management. There is a wide variety of different reasons why management may support good practice in age management but, without it, an initiative is not likely to proceed very far. This much almost goes without saying but, in thinking about the transfer of good practice, it is important to bear in mind that, in several initiatives, this support had to be campaigned for. The role of the head of HR in the French chemicals company and in the UK cases of St Ivel, Glaxo and Hounslow proved decisive in championing the cause of good practice.

ii) A supportive HR environment. This does not necessarily have to be overtly older worker friendly in advance of the introduction of measures to combat age barriers. That was not the case, for example, with the three French companies but the value of training *was* recognised. All of the workplace case studies benefited from a supportive HR climate. In a few this included placing a high value on older workers (eg Stahlwerke Bremen, Wilkhahn GmbH and Glaxo). Where this occurred the companies involved had sound business reasons for doing so. As the case studies show, a supportive HR environment may be created by both a traditional culture (such as the Greek informal social contract model) and a managerial style (as in France and the UK).

iii) Commitment from the ageing workers involved. Although all but one of the workplace initiatives we studied is the result of top-down policy decisions there is no doubt that the support of the older workers concerned was a vital element in the success of the case studies. This was not always forthcoming initially and several organisations have gone to considerable lengths to persuade older workers to accept and 'own' the initiative, such as the running of special seminars. In the case of training initiatives the most important factor in guaranteeing commitment is the principle that courses must be geared to their specific needs and employ methods, such as learning, that they can engage with readily. In other words training courses should be developed in conjunction with ageing workers.

iv) Careful and flexible implementation. If all of the other elements behind the development of good practice are secured then everything rests on the implementation process. The experience provided by the case studies in this research shows that there are nine steps to be followed to guarantee successful implementation:

- careful preparation, including research in recruitment trends and age profiles of employees and labour market projections;
- open communication both with staff generally and with the target group about the objectives of the initiatives, including the use of seminars, workshops and newsletters;
- involvement of trade unions, works councils and staff associations;
- where appropriate, the involvement of older workers themselves to take part in the operation of the initiative, which greatly assists with the implementation process;
- education and consciousness raising among line managers;
- staged implementation, including a pilot phase both to test the initiative and to demonstrate to any doubters that it can be effective (this can be carried out in a section of the organisation already predisposed to good practice in age management as a way of multiplying the impact of the experiment), regular monitoring and feedback with adjustments to the initiative if necessary;
- regular monitoring of impact and feedback once the implementation is complete;
- constant communication with all employees in order to avoid the development of 'them and us' attitudes,
- altering other aspects of the working environment, such as arduous tasks and conditions, which may inhibit the example of good practice from achieving its intended effect.

In addition to these nine steps it is undoubtedly the case that the implementation of a specific good practice initiative will proceed most smoothly and be most effective if it is part of a broader HR strategy designed to combat age barriers, a point I return to below.

3. Combating age barriers

This paper has advanced the argument that age discrimination creates considerable barriers to the inclusion of older people in the workforce and, thereby, prevents them from engaging in economically productive activities. Furthermore the discriminatory mentality which takes for granted traditional aspects of workforce ageing and sees older workers as dispensable, creates the situation in which employers' and policy makers' attention is focused on early exit rather than on changing the working environment in order to retain older employees and to ensure that ageing is both healthy and productive.

The European Foundation project report makes detailed recommendations for combating age barriers and encouraging the spread of good practice in age management. These are oriented towards all of the key actors: employers, ageing workers, the social partners, NGOs, national governments and the EU. There is not space here to list the recommendations, but the key point is that, while governments and the EU can help to create a policy context conducive to it, good practice in age management must be organisation-led. Employers of labour, public and private, have the responsibility to create the conditions in which employees can manage their own ageing.

Towards an integrated age management strategy

The European Foundation research has uncovered a range of successful and transferable initiatives that may be seen as a starting point for a new workplace policy towards age and employment. All of them call for positive action to combat age barriers. But there are important caveats too, such as the danger of focussing policy and practice exclusively on older workers because this may stigmatise the group. In order to maintain a balanced labour market policy and avoid intergenerational conflict it is important not to excessively target initiatives in older workers. It has to be recognised also that some older workers do not want to return to work or stay in employment. The size of this group differs between countries depending on the significance of early exit policies and the relative generosity of social benefits (for example in France there is a dearth of people wanting to resume work). Also, equally importantly, there are the dangers of a policy which forces older people to stay in employment, either directly through raising pension ages or indirectly through stigmatising early exit. These could put undue pressure on ageing employees, particularly those suffering from ill-health.

Our research has shown also that good practice in combating age barriers can take a wide variety of different forms. Indeed the examples collected in the seven countries, and those from Finland and Sweden, reflect a continuum of good practice sketching from very limited and narrowly focused measures (such as a move from full to partial early retirement) to more comprehensive ones (such as a comprehensive age-aware strategy). This suggests that it is possible for organisations to develop progressively more comprehensive strategies and to build on even minimalist examples of good practice. Thus we might usefully conceive of good practice in age management as a dynamic process that should, ideally, be moving along the continuum towards an integrated age management strategy. In doing so, largely reactive good practice geared towards problem solving would be replaced by a holistic approach designed to *prevent* the occurrence of age discrimination, ill-health and age management problems.

What would this entail? Rather than focusing only on the latter part of an individual's working life an integrated policy would encompass the whole career. Thus, instead of a series of one-off or *ad hoc* measures, this perspective calls for a new HR strategy on age and employment. Such a strategy would include both preventive measures (such as life-long education and training and job redesign) and remedial ones (training for older workers lacking specific skills, for example in new technology). This sort of strategy would also help to avoid intergenerational friction.

Therefore, although it is possible to isolate specific examples of age barriers being combated effectively, especially in recruitment and training and to recommend their widespread replication, an integrated approach is the most effective way to both prevent and overcome all forms of age discrimination in employment.

One example of such an integrated strategy is provided by the Wilkhahn Furniture Company in Germany, which employs around 550 people. Generally speaking older workers are held in high esteem by the company and this is explicitly recognised. The company has introduced various measures to ensure that older workers are integrated in the workforce and that age barriers are minimised. These include:

- the integration of older workers, including those whose productivity has been impaired, into new types of production;
- special workplace training and 'age awareness' training for managers;
- targeted recruitment of older skilled workers and, wherever possible, avoidance of early retirement;
- measures to protect health and agreements to guarantee the earnings of older workers with health problems.

Another example is DSM Limburg, a Dutch company originating from the privatisation of the state-owned coal mines in the 1960s. In order to plan for a predicted change in the age profile of its workforce DSM has begun to experiment with a comprehensive age-aware HR policy. On the basis of a series of discussions with both internal and external parties, various preliminary studies and the results of surveys of (ex) DSM employees, the company decided to try to change its internal culture and to monitor the effects of this policy on the terms of employment. The experiment has three components: programmes of action in all departments; a pilot study of the impact of special age-awareness courses; and a pilot study in one department of how to develop a meaningful second career phase where there are relatively arduous physical working conditions and where the level of individual ageing is above average.

Conclusion

It is clear that this sociological perspective on work after 45 emphasises the formidable institutional barriers to the productive engagement in paid employment of those in their third age in all of the EU countries. The European and UK evidence presented in this paper suggests that the prospects for healthy and productive ageing are being severely constrained by various forms of age barriers. In other words, there is a direct conflict between ageism and productive ageing: age barriers must be overcome if productive ageing is to become a widespread reality.

We are at a unique moment in European history for this goal to be achieved. The ageing of the population and shortages in the supply of skilled labour in some countries offer an opportunity to emphasise the case for employing and retaining older workers. Governments, albeit for narrow economic reasons in some cases, are keen to extend working life. The French Presidency of the European Council, in June 1995, saw the first political declaration at EU level of the need for special actions with regard to older workers. The Resolution on the Employment of Older Workers emphasised two key principles: the need to redouble efforts to adapt professional training and conditions of work to older workers' needs; and that measures should be taken to prevent the exclusion of older workers from the labour market. There is support from employers and the general public for action on this front. In our UK survey we found that a majority of employers in our sample of large organisations (500 plus employees) were in favour of legislation to combat age discrimination - 53 per cent were for legislation and 36 per cent against. In the 1992 surveys of public opinion in the then 12 member states of the EC we found that there was substantial support for anti-age discrimination legislation: by a majority of two to one across the whole of the EC. Denmark was the only country in which the proportion in favour was less than 50 per cent. France and the Netherlands have some limited employment protection for older workers and the Dutch government has announced its intention to introduce legislation to ban unjustified age limits in job recruitment advertisements. Trade unions too are beginning to recognise the limitations of the early exit strategy. As I have indicated, there are signs of change in the attitude of some employers and an increasing number of examples of good practice are emerging. It is important to build on these and spread information about age management designed to ensure a healthy and productive third age.

Finally let me say that my purpose is not to claim for sociology unique ownership of this field. On the contrary, I am convinced that policies on work in the third age should be based on psychological, economic, public health, ergonomic and human resource management research, as well as sociological insights. Unfortunately in most EU countries it has, so far, been based mainly on political expediency.

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Appendix

Types of good practice

I Job recruitment

- elevation of maximum age limit 1.1
- elimination/absence of particular age barrier 1.2
- positive discrimination 1.3
- support of self-help group to promote their own employment 1.4
- training programmes to promote recruitment policies 1.5
- employment exchange/job centre for older workers 1.6
- other 1.7

II Training, development and promotion

- development of training and educational programmes, in particular for older/ageing workers 2.1
- existing training and educational programmes opened to older/ageing workers 2.2
- creation of learning environment and workplace mentorship for older workers 2.3
- career development 2.4
- evaluation of performance 2.5
- promotion of age-specific policy in work organisations 2.6
- other 2.7

III Flexible working practice

- job rotation 3.1
- flexible working hours/age related working time 3.2
- age related leave 3.3
- demotion (without change in wage level 3.4
- demotion (with decrease in wage level) 3.5
- part-time jobs 3.6
- flexible retirement/early exit scheme 3.7
- gradual retirement scheme/part-time ”early exit” 3.8
- self regulation of pace 3.9
- other 3.10

IV Ergonomics, job design and prevention

- ergonomic measures/improvement work conditions/workload 4.1
- organisation of tasks 4.2
- mix of young and older workers 4.3
- age related health and/or wealth control 4.4
- older workers excluded from shift labour 4.5
- other 4.6

V Changing attitudes within organisations

- research related to ageing and performance 5.1
- programmes to change attitudes and opinions towards older workers 5.2
- other 5.3

VI Changes in exit policy

- elevation of minimum age of early exit 6.1
- abolition of early exit programmes 6.2
- elevation of normal retirement age 6.3
- other 6.4

VII Other policies

- general age related policy; seniority programmes 7.1
- sectoral age related policy as result of collective agreements 7.2
- future plans 7.3
- other 7.4

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Perceptions of the onset of old age amongst air traffic controllers

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Introduction

The aim of this study was to find out when one is perceived as ”old” amongst air traffic controllers and assistants in Norway, the reasons people give for their perceptions, and the advantages and disadvantages associated with ”being old at work”. Retirement age for Air Traffic Control personnel in Norway is 65 years old, which is 10 to 15 years older than the retirement age in other countries.

Air traffic control is a profession where work load is periodically very high, you may have to attend to a lot of information simultaneously, and react quickly. You have to be attentive and alert most of the time. The air traffic controllers usually have computer or radar screens showing the air crafts arrival and departure, but they still have to make a ”visual, mental map” of the air space and the airplanes at different heights and positions. Both speed and working memory are commonly assumed to decline with age (2,7). Hence, it is a profession where one would expect older employees to be especially vulnerable to aging. Denise Park makes the same point when she says that ”One would predict a negative relationship between age (and work performance) in jobs where speed and on-line processing are a primary requirement” and mentions air traffic controllers as a good example (6, pp. 189). The question of age and work performance is a complex issue, but in this study we were primarily interested in the employees subjective perceptions of age, and how they relate age to aspects of work. When do the employees themselves feel that you ”get old” at work? To what do they relate ”being old at work”? We were also interested in whether there is a difference between younger and older employees’ perception of age.

The study consists of interviews with air traffic controllers and assistants, and it is a follow-up on a study of the work environment in the Civil Aviation Administration in Norway in 1994 (5). One of the conclusions of the work environment study was that issues concerning aging should be explored in more depth.

Method

The population consisted of all the air traffic controllers and assistants in Norway, 716 persons. Our sample consisted of 41 persons, from 7 airports, including 2 Air

Traffic Control Centers. Both large and small airports are included. In the population, the older employees (that is, those more than 45 years old) constitute approximately 42%. However, the sample is biased, with two thirds of the subjects being more than 45 years old.

The method used was qualitative interviews, and the interview lasted about one hour. There were 2 main parts to the interview. One part concerned work tasks, cooperation, working hours etc., and the other part consisted of questions about aging, the latter will be discussed here.

The two questions to be discussed are:

- When is one old in air traffic control work? and Why?
- Looking at the older employees, what are their advantages and disadvantages?

The first question is a very open question, which can be interpreted in different ways. However, the different associations and interpretations were of interest to us, as a source of what it means to be ”old at work”.

Results

The answers to the question ”When is one old in air traffic control work” show great variation (Table 1). Approximately half of the respondents (23 persons) refer to a specific chronological age, varying from 30 to 65 years old, with a mean of 55. However, 33 of the respondents felt that ”being old at work” is also a question of personal characteristics, place of work, and work load. Fourteen persons gave both chronological age answers and person/context answers. (For instance: ”It is very individual (when one gets old at work), but when one gets close to 60 years old one is too old”).

The entries in the table are more than the number of subjects, because one person could give an answer falling into two or more categories.

Table 1. Perceived old age in air traffic control work (n=41).

	Age of respondents			N
	25-39	40-49	50-65	
Depends on chronological age	7	6	10	23
Depends on the person	2	2	10	14
Depends on the place of work	4	1	5	10
Depends on work load	4	2	3	9
Depends on type of occupation	0	1	2	3
Reference to oneself (”Don’t feel old”)	0	2	1	3
Irrelevant question	0	0	1	1
Total				*63*

What are the personal factors influencing whether a person is perceived as ”old at work” or not? Some personal characteristics were mentioned spontaneously when answering the first question. More details were given in response to the next question, ”Looking at the older employees, what are their advantages and disadvantages”.

The spontaneous answers were mainly negative. The dimension mostly used to describe older employees, is a decline in the speed of work. Reaction time and speed of work slow down, you are just not fast enough anymore. Some of the subjects pointed out that this can be very stressful, and make the work situation much more exhausting than it used to be. As one of the subjects said:

> ”As an air traffic controller, you are old when you’re 50 years old at an airport like this, with this work load. I can see it on the old folks. They are not comfortable, they give you gloomy looks, and worry about getting to work. It’s been proven that working speed declines, and that experience doesn’t make up for it.”

Although one person said that the reduction in speed is very small, others (3 subjects) felt that it could in fact be a safety risk in places and during periods with very high traffic.

Physical decline is also attributed to being ”old at work”. As you get older you get tired more easily, working shifts can be harder, and sight and hearing problems can make the job more difficult. Six of the subjects also felt that dealing with changes in work procedures and equipment can be difficult for older employees. Others associated ”being old at work” with a general decline in work performance, problems in remembering a lot of information at the same time, and problems with attention and motivation.

Having said this, the answers do not indicate that this is what all elderly employees are like. Rather, these are some of the factors indicating whether a person is perceived as old or not. Several of the respondents indicated that, if a person is in good shape, is relatively fast and motivated, then he or she could probably continue working until retirement age.

”Being old at work” is also associated with positive characteristics. Twenty seven of the subjects emphasized the experience and routines you acquire as you get older. Some of the subjects mention that experience gives you a feeling of security, and makes you more relaxed at work. This may also be a positive factor in the work environment, giving younger colleagues a feeling of security as well. Also, two subjects actually feel that experience can make elderly employees faster when it comes to recognizing problems and making decisions.

A few of the subjects also indicated that you get a better and broader knowledge and understanding of your work as you get older. You become part of a culture and have more background information, for instance about local conditions at a particular airport.

All in all, 22 subjects describe both positive and negative characteristics associated with ”getting old at work”, 8 subjects find mainly negative aspects and 3 subjects feel that being old at work is primarily positive. We were unable to classify the remaining answers in these categories.

As mentioned earlier, some of the subjects also felt that ”old age” depends not only on personal factors, but on the place of work, and how great the work load is.

Some of the subjects said:

> ”Here people can function until they retire. Since there is not a lot of traffic, most people can keep it going until retirement age.”
> or
> ”When I am 50 years old I cannot stay at this place. You just get worn out, but at other places you can stay until you’re 60.”

The most extreme answer was one person indicating that at a particularly busy airport you were ”old” when you were 30 years old. However, this answer is not representative for the general trend of answers.

When we divided the 23 chronological age answers into 3 age groups, the answers showed that the subjects in the youngest age group on average give a lower ”age limit” than subjects in the other groups (Table 2).

Table 2. Mean and standard deviation of the perceived old age in the different age groups (n=23).

Age of respondents	Mean of the perceived old age	N
25-39	49 (sd=9.3)	7
40-49	62 (sd=2.6)	6
50-65	57 (sd=6.3)	10
Total		*23*

As mentioned earlier, the mean of all the chronological age answers is 55 years old. If one divides the number of subjects in each age group into those who answered 55 years old or over, and those who mentioned an age under 55 years old, one can see that there is a tendency that most of the subjects in the youngest age group set an age limit under 55 years old, while most of the subjects in the older age groups mention an ”old age” over 55 years old (Table 3). Thus, in this sample, there seem to be a relation between age of the respondents and the chronological age answers to the question ”When is one old in air traffic control work”.

Table 3. Number of answers under 55 years old, and answers equal to or over 55 years old, in each age group (n=23).

Age of respondents	Perceived old age		Total
	Number of answers under 55 years old	Number of answers years old and over	
25-39	5	2	7
40-49	0	6	6
50-65	3	7	10
Total	*8*	*15*	*23*

The sample is small and biased, but if we use a test of independence ($c^2 = 7.48$, d.f. = 2), it shows that there is a significant association between the two variables, at a level of significance $a = 0.05$.

Discussion

In the introduction we said that the question ”When is one old in air traffic control work” is a very open question, which can be interpreted in different ways. The answers indicate that many subjects have interpreted this question as something like ”At what age do you cease to function well at work”. That is, ”old age” is associated with a decline in work performance.

However, even if ”being old at work” is mostly interpreted as ”not functioning well at work”, this is not unambiguously connected to chronological age. Most of the subjects (31 persons) indicate that they do not see a direct connection between chronological age alone and work performance (even in this profession). Rather,

”being old at work” is influenced by factors which, from the subjects point of view, is said to vary from person to person, and from place to place. The perception of a person as ”old” in this profession thus seems to be based on a composite of both chronological age, personal characteristics and aspects of the work environment. These factors put together are what the subjects point to as influencing work performance, and thereby whether a person is perceived as ”old at work” or not.

Other studies (1) have also indicated that ”chronological age alone may not be the most useful operationalization of the age construct in the work setting”, and that ” the older worker should be investigated in relation to the work context” (1, pp. 469), for instance type of work, the number and characteristics of co-workers, the age of the supervisor etc.

One factor that seems to have an impact on perceptions of when a person is ”old at work” in this study, is the respondents age. The last question we asked in the introduction was whether there was a difference between younger and older employees as to when they perceive a person to be ”old at work”. Other studies have found that young people in general perceive a person as ”old” or ”elderly” at an earlier age than do elderly people themselves (3). Also, as we have mentioned earlier, there seems to be a tendency in this study, that there is an association between the age of the respondents and the chronological age they mention when asked ”When is one old in air traffic control work”. On average, the younger subjects mention a lower chronological age than the older subjects.

It is difficult to sort out whether the answers reflect general stereotypes toward elderly employees, or whether they are rooted in personal experiences with oneself or colleagues getting older at work. It may seem like the younger persons expect a decline in work performance as you get older. One can speculate that these assumptions may change as the employees themselves get older, provided they still feel they can cope with the work. Taylor and colleagues (8) found that older respondents had more favorable perceptions of older workers’ job performance, and suggested that perhaps as a person grows older there is an appreciation for what they call ”the continued vitality of older people” (8, pp. 454).

One of the air traffic controllers in the present study put it this way:

> ”I used to think that you got old at 45. As time went by I changed this age limit to 50 years old. Now I’m convinced I can work until I’m 65.”

This study explores the perceptions of older workers performance, not actual work performance. Why are perceptions important? Negative perceptions and beliefs about older workers can influence for instance employment, promotion, selection for training, or time of retirement. As to the retirement age of air traffic controllers, the results of this study seem to imply that one, fixed retirement age is not the best solution. The use of individual and flexible retirement plans, which incorporate age, personal characteristics and the work situation may be more useful for workers in this profession.

Summary

The aim of this study was to find out when you are perceived as ”old” amongst air traffic controllers and assistants in Norway, the reasons people give for their perceptions, and advantages and disadvantages associated with ”being old at work”. Air traffic control is an occupation with high work load and much simultaneous information. Both speed and working memory are commonly assumed to decline with age. Hence, it is a profession where one would expect older employees to be especially vulnerable to aging. The study consists of interviews with 41 air traffic controllers and assistants. Approximately half of the subjects mention a chronological age for when a person is ”old” at work, varying from 30 to 65 years old, with a mean of 55 years old. There was a tendency for the younger subjects to mention a lower chronological age than the older subjects. However, 33 of the subjects felt that being old at work is also a question of personal characteristics, place of work and work load. Negative characteristics associated with ”being old at work” were a decline in speed of work, physical decline (for instance sight and hearing problems), and difficulty dealing with new procedures and equipment. However, the answers do not indicate that this is what all elderly employees are like. Rather, these are some of the factors indicating whether a person is perceived as old or not. Positive characteristics were experience and routine, and a better and broader knowledge and understanding of the work. The answers indicate that the perception of a person as ”old” in this profession is based on a composite of both chronological age, personal characteristics and aspects of the work environment.

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Impediments of growth and development of over-forties in organizations

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Introduction

In a study concerning individual employees of age 40 and over, working in ten Dutch work organizations we tried to find out what over-forties contribute to the organization, and what they will contribute in the future (Boerlijst, van der Heijden & van Assen, 1996). Several questions, in different forms and variations, were put not to the over-forties themselves but to their immediate superiors. In our study we were particularly interested in the standpoints and opinions of management on these matters. The supervisor is probably the person best acquinted with *management activities* intended to monitor the tasks and the functions of the individual over-forties in the organization and to optimize the quality of their functioning in his or her department.

Method

In every organization we tried to gather information about 100 employees, evenly spread over the ages of 40 and over, active at least on a middle level of functioning or in a middle management position. The final available sample, for which we combined the available data of all 10 participant organizations, totalled 738.

Table 1. Age and position for the sample.

	Age group	Middle level function	Higher level function
Juniors	40-46 years	N = 100	N = 161
Mediors	47-52 years	N = 91	N = 148
Seniors	53 years and older	N = 117	N = 121

Looking for data which can be generalized for application in the future, we restricted ouselves to the over-forties with functions at a middle and higher level. Until twenty years ago simple functions and simple tasks were dominant in most work organizations. As a consequence the bulk of over-forties in our existing workforce has a rather low level of education. As the complexity and level of difficulty of future functions will on average be higher than it is now, we have every reason to expect that the average educational level of the over-forties will likewise have undergone a sharp rise by the year 2010.

When analyzing the study data, we were particularly interested in whether management makes a significant distinction between the two levels, for example in the evaluation of their functions and functioning. In addition to this, we investigated

whether there is any difference in the management's approach to and treatment of these two categories. In this contribution, a few *highlights* are mentioned. For additional data, see the extensive article in Snel, J. & Cremer, J. *Work and aging: A European Prospective.* London: Taylor & Francis, 1994.

Results

The utility and the learning value of the function

In our study we have assigned two value aspects to functions:

1. The value which the function has within the framework of the organization or, in a smaller context, the department in which the function is positioned. From now on we will designate this aspect as the **'utility value'** of the function for the organization or department respectively.
2. The value which the function has as nutrient for the employee's further development. This aspect will be termed the **'learning value'** of the function for the employee.

Figure 1 contains an oversight of the utility value of the functions exerted by over-forties. Of every function level and of every age group it gives the percentage of those whose function is indispensable or rather essential for their organization.

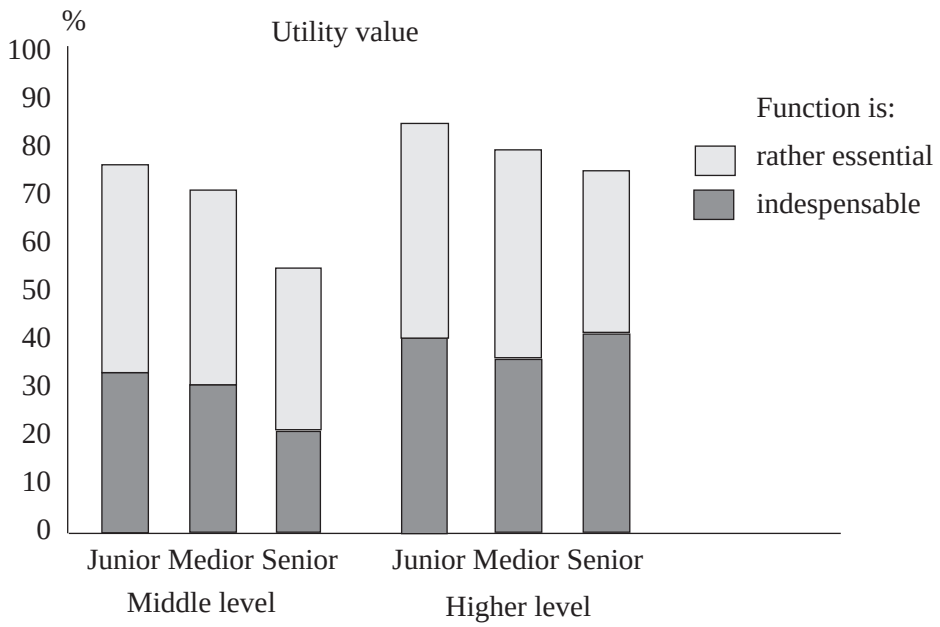

Figure 1. Utility values of the functions.

In general we can conclude from the research data that the utility value of the functions or positions hold by over-forties are by no means so badly off. Particularly on the higher level only a minority of these functions can be missed. With the increase in age, a slight decline in mean utility value is noticeable, but certainly not a dramatically large one.

What is more of a problem is the relatively low learning value of the functions for the development of new expertise, especially at the middle level.

The percentage of employees with a function offering too few opportunities for acquiring new learning experiences and, more specifically, for learning new expertise, is higher at the middle level than in the higher functions. At both levels the seniors are worse off than their younger colleagues. In a relatively large

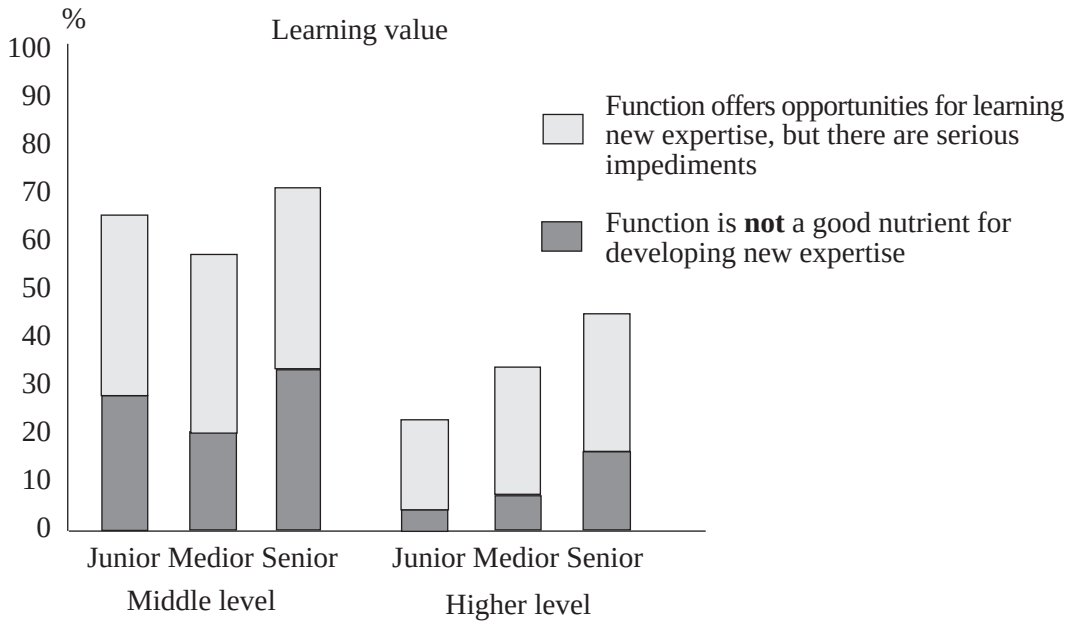

Figure 2. Learning values of the functions.

number of cases, the function does in principle offer opportunities for growth in expertise, but there are impediments or thwarting circumstances. Unfavourable working conditions and being allowed too little time to extend him/her self beyond the scope of the 'normal' work, tend to be to the disadvantage of many employees. In practice nothing can then come of what might have been a development. Such 'impediments' occur more often at the middle level. This category also covers those cases of the employees themselves not taking advantage of the

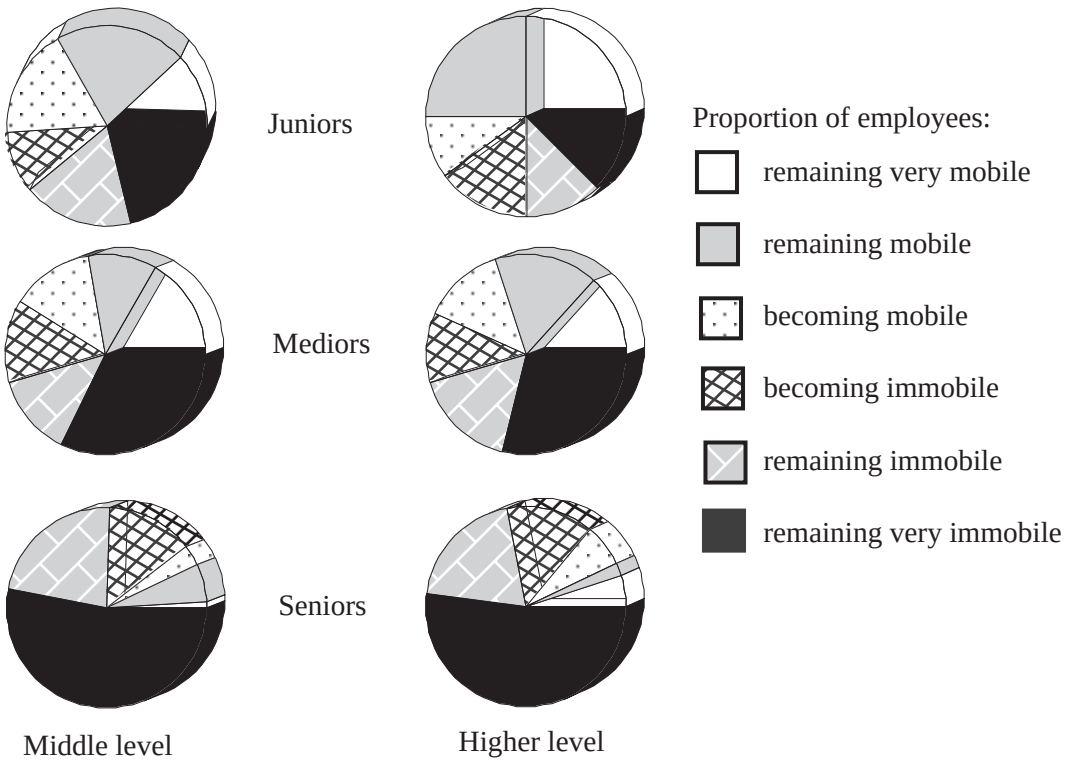

Figure 3**. Mobility in relation to age and function.**

potentially present opportunities offered by their function. In their superior's opinion, they do not make any particular efforts themselves.

Mobility

Indication:

Remaining very mobile: these employees have performed their present function for **less than three years**

Remaining mobile: these employees have performed their present function for **three to six years**

Becoming mobile: these employees have performed their present function for **seven years or longer**
and will probably change functions in the next five years.

Becoming immobile: these employees have performed their present function for **less than three years**

Remaining immobile: these employees have performed their present function for **three to six years**

Remaining very immobile: these employees have performed their present function for **seven years or longer**
and will probably *not* change functions in the next five years.

Our research shows that *functional mobility*, meaning the transition to another position or function, by employees at the middle or higher levels sharply declines from their fortieth year onwards. In the case of the juniors there is already a substantial degree of immobility, but seniors, in particular, tend to be marking time. Other data from our study demonstrate that in so far as there is any question of mobility, this is restricted to a change of function in the person's own, already familiar territory and he/she stays as close to home as possible. Internal mobility outside the immediate circle of that employee's own company or company segment is scarcely present at all. The opportunities for external mobility to another employer's are estimated as being considerably lower.

Training and development

In our study we have been able to ascertain that certain management activities help to promote the utility value and learning value of the functions as well as the quality and influence of the functioning of the over-forties. This is irrespective of the age and level of functioning of the over-forties concerned. On the other hand, we see that such activities are often not forthcoming, especially in the case of the seniors. In addition, these activities are often much less frequently allocated to the middle level than to the higher level. This form of relative neglect appears on all kinds of fronts, including in the area of the stimulation of training and development.

In the Figure 4 we have recorded the data relating to one recent year-period (1990/91) of training and development in one's own field.

There are no differences between the middle and the higher level for the percentage of participation in training and development courses in one's own field. The proportion of rather longer courses is greater than that of the shorter ones. This, too, applies all the way across the board. There is, however, a gap between juniors and mediors on the one hand, and seniors on the other: the percentage of employees who have not followed any training or development course at all is significantly higher among the seniors and the share of longer courses is substantially lower than in the younger age categories.

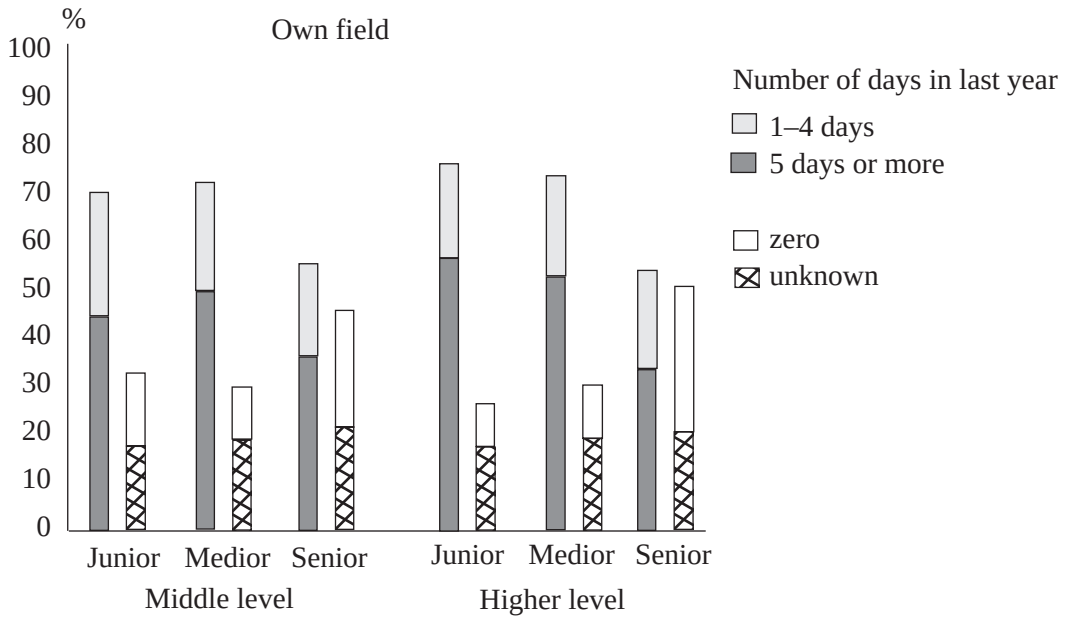

Figure 4. Training in own field.

In the case of courses in a different field, the number of days involved is much smaller. At least 65% of the over-forties are not, or hardly ever, given (or take advantage of) the opportunity to do this.

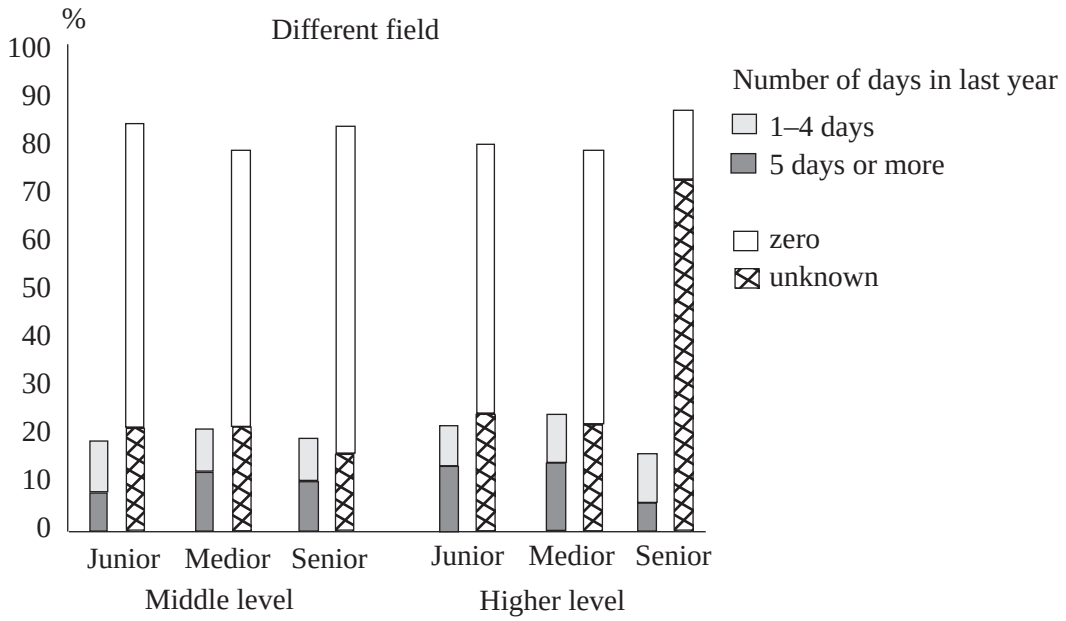

Figure 5. Training in different field.

Again there is no systematic difference between both function levels, and also there are no significant differences between the three age levels. The mean number of days spent on courses or training in a different function area is much lower than the number spent in the ‘home-area’. In so far as participation in such training programmes in another function area occurs at all, the mean number of days spent and the proportion of longer training courses are much lower than with courses in their own territory. We see, then, that training and development courses

for the over-forties concentrate primarily on their own function area. There, as one grows older, participation in courses and such like decreases, as was our previous assumption. Courses in other function domains are only seldomly undertaken by over-forties in general.

The number of days per year that is devoted to further personal development of employees, thus not to function-oriented courses, is zero for over 55% of employees. Only at the higher level can a decline be traced in the higher age groups. In general, the training courses in question are of shorter duration.

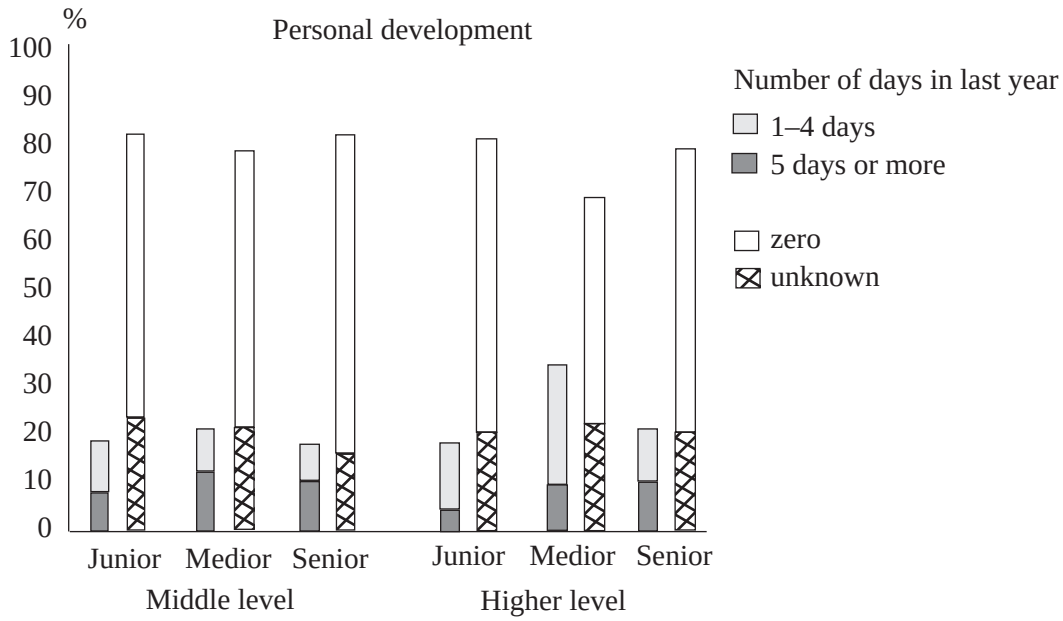

Figure 6. Participation in courses for personal development.

From a comparison between the participation in training courses last year and the annual average for the past five years, we may conclude that whether or not to participate is to some degree person-related (or possibly function-related). Anyone who acquires the taste, stays in the running. Anynone who makes no effort, will persevere in this.

The annual number of days devoted to courses is also, to a certain extent, person-related. There are typical ‘short’ and ‘long’ course participants. Moreover, the fact is that anyone taking part in training courses in his/her own function area is also given the opportunity or opts more often for training courses in a different area (which, as stated earlier, occur much less freqently).

General conclusion and evaluation

From our study we conclude that working over-forties do not seem to have serious problems with their present function or position, in so far and as long as this function stays indispensable or essential for their organization. As a matter of fact, most over-forties *have* a rather essential function and are fulfilling this job already quite a long time. Besides supervisors are of the opinion that most over-forties (seniors also) are performing quite satisfactorily.

However, when an over-forties’ function becomes obsolete or superfluous, chances that the person in question is at a loss are quite high, since most over-forties, seniors a lot more than juniors or mediors, are simply not equipped at all

for other functions outside their own well-known territory. In other words, they lack the skills and expertise needed for other fields outside the immediate scope of their present job. They can not be put on other positions without serious losses of time and money, and in that sense they are evaluated by their management as being immobile.

In this article, we focused on one of the main causes of this immobility: a lack of relevant training and development during the second part of the career. Development in areas other than the familiar one is virtually the only way of avoiding one-sided 'overspecialization'. Where switching to another area necessitated by company-related circumstances, reorganizations or market changes, all those who have developed too one-sidedly, with all their acquired specific expertise in a single area, will be left by the wayside.

In this connection, it is something of a problem that large numbers of over-forties are deemed no longer to be able and/or no longer to be willing to work in a completely different territory at a later stage. The management is faced with the task of investigating what can be done about this. Accepting other tasks naturally involves risk, both for the organization and for the employee him/herself. Some risks may possibly be reduced or mitigated. In any case it is of importance to explore why certain employees who are *able* to start doing other things, are not *willing* to do so.

Possibly many - if not too many - functions are so restricted that the employees concerned are not able to apply anything that is in any way outside the scope of the function. In such cases, the possibility to learn something new is absent and undergoing training and development in a different field has no point. In functions where overspecialization and rigidity prevail, development towards other functional fields and horizons becomes virtually impossible, Here lies a challenging task for both management and employees: designing or re-structuring functions in the organization to improve their 'continuous learning quality' for the function-holders in question.

However, in our research we found that superiors neglect most actions that could lead to the timely development of knowledge, skills, expertise and experience outside the realm of the employees'current job and its foreseeable immediate future. One can wonder why supervisors seem to be so disinterested in their employees' future, when the latter are over-forty. We found some possible answers (Boerlijst & van der Heijden, 1996). Many supervisors have the stereotypical opinion that the ability or motivation to change functions and jobs or to learn new skills and expertise deteriorates with age. Those supervisors are apparently inclined to be self-consistent by taking off their hands from older people. Others are rationally arguing that older people don't have enough time left to earn back the investments needed to learn them new skills.

Another possible determinant of this disinterest is the discrepancy between the estimated employability of supervisors and that of their employees. This discrepancy reveals among other things that supervisors seem to be far more mobile than their employees. The fact that most supervisors do not expect to stay very long with their present department implies that the duration of the relationship between a supervisor and his individual employees generally will be rather short. Our study revealed that this in fact is the case. A vast majority of over-forty employees has to do only four years or less with their present supervisor. Besides, more than 60%

of high level over-forties have to deal with a supervisor who is expecting to leave his department for another assignment in less than five years.

All this offers a hypothetical and of course partial explanation for the fact that so many supervisors are not interested in the long-term future of their employees. Human beings mostly try to optimize their own interest first. Supervisors are no exception we suppose. The career success of a supervisor is as a matter of fact to a great extent co-dependent upon the achievements of his subordinated employees. Hence it is his primary interest that the employees' performances score high, but first and for all during the foreseeable time of his assignment as their responsible supervisor. Since this is expected to be rather short-termed, the emphasis of his efforts as a supervisor falls upon the present functioning of his employees and its maintenance. The longer-term future after that period is left to the responsibility of his successor. Off course, one must realize that the validity of this explanation has to be proven by further investigation.

Summary

The consequences of growing older were investigated by comparing three age groups of junior, medior and senior employees aged over 40, who were working in middle and higher functions in 10 large-scale Dutch industries. Central themes were functional utility and learning value, mobility and participation in training and development programmes and the way in which the managerial activities could stimulate the over-40s in these fields. The data indicated that most of the over-40s are not equipped too well for other functions outside their own field of work. Main causes are an age-related lack of relevant training. This is especially true for training courses in other functional fields and personal development. The necessity of participation in courses was emphasized in view of the benefits for the elderly employee himself as well for the organization. The drawbacks of non-participation in courses are described and since vertical mobility is, in general, not possible for over-40s in middle and higher functions, horizontal mobility and the creation of a continous learning environment were discussed. Since motivational and other factors may hinder the development of such a stimulating environment, arguments were offered to redesign or restructure functions by participation in courses not only in the employee's own field of specialization but especially in other functional fields.

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Risk indicators and accident typologies of female nurses and nutrition services workers in Québec by age

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Introduction

The aging of the Québec population raises questions about the effect of changes in the labour forces' age structure on occupational health and safety. The results of a recent cross-sectional study (5) indicate the existence of an age-related increase in accident occurrence rate and mean number of lost work-days in the Québec health and welfare services sector. That study did not consider sex and occupation, two of the most important factors in health and safety studies. Another study of the impact of aging on occupational injuries in the health and social services sector does however take these factors into account (4). The specific goals of this study were to identify the influence of age on the frequency and severity of accidents, and produce typical accident typologies for each age group.

Method

A ten-year period from 1982 to 1991 was examined. Data on accidents was available from the Québec Occupational Health and Safety Commission (CSST), and included data on the injured workers (age, sex, and occupation), the characteristics of accident injuries (type of accident, type of injury, body part injured, cause of injury) and the number of lost work-days. Injuries caused by overexertion are included in this data. In addition, population data was available from the Québec Treasury Board on age, sex, occupation, and number of days at work.

Eleven homogenous occupational groups were built on the basis of exposure to hazards and the kind of tasks performed. Nine five-year age groups were also created. In addition to the previously mentioned injury parameters (type of accident, type of injury, body part injured, cause of injury), two risk indicators were also used: the frequency rate and the median number of lost work-days[1]. The frequency rate corresponds to the ratio of the number of accidents necessitating time off work to the number of exposed equivalent full-time workers. The median number of lost work-days corresponds to the value dividing the distribution of lost work-days into two equal parts.

The statistical methodology was divided in several phases. In the initial phase, the evolution of the age structures was analysed, in order to confirm the existence of an aging trend. This was followed by cross-sectional analyses of the differences

between old and young workers of frequency rate (chi-squared), median number of lost work-days (median test), and accident typologies or, as they are also called, accident scenarios (factorial analysis, classification, chi-squared)[2]. Moreover, in order to test the effect of workers' aging on accident rates, longitudinal analyses were also performed for several groups of workers of the same generation (workers born the same year).

This paper focuses on the multi-series cross-sectional analyses and presents the specific risk profiles of nurses and nutrition services workers, two occupational groups with the highest accident rate for women of all ages in the Québec health and social services sector[3].

Although some large-scale statistical studies dealing with the same question considered here have been carried out (15,16) they used a cross-sectional design and covered only a one-year period. In contrast, our study uses a multi-series cross-sectional approach, which allows the stability of identified trends over time to be verified. In addition, both risk indicators and descriptive data on the circumstances of accidents have been used.

Moreover, it should be noted that the accident data includes all CSST-compensated injuries which resulted in at least one lost work-day. Because the CSST is the agency which actually pays the workers compensation claims, the calculated risk indicators are relatively reliable.

However, descriptive data on the circumstances surrounding the accidents is relatively sparse and gives a macroscopic view of hazards encountered by workers. Despite this, the accident scenarios help to highlight problems requiring further research.

Results

The **age structures** of both these occupational groups demonstrates the existence of an aging labour force, although in general nurses were younger than nutrition services workers. Between 1987 and 1991, the mean age of the labour force increased 3.1 years for nurses, and one year for nutrition services workers. In 1991, the proportion of nurses over 44 years was 29.4%, compared to 37% for nutrition services workers (Table 1)[4].

Frequency rates vary from one occupational group to the other. In 1991, they were 21.2% for nurses and 18.6% for nutrition services workers. For both occupational groups, the rate slowly but significantly decreases with age (Table 1).

Taken as a whole, nurses exhibited a higher **median number of lost work-days** than did nutrition services workers (7 days more). A significant age-related increase in the median number of lost work-days following an accident was observed among nutrition services workers but not nurses (Table 1).

The circumstances surrounding all the accidents involving those workers in 1982, 1987 and 1991 (8 426 cases) were summarized in 7 accident scenarios (presented in decreasing order):

- **Scenario 1** (39.4% of cases): The first scenario is characterized by back and shoulder sprain, strain, pain, and lower back pain following excessive exertion. These accidents occur when workers lift or carry a person, and result in work absences of more than 30 days. This scenario is the most common, and accounts for nearly two-fifths of all the accidents.

- **Scenario 2** (16.7% of cases): The second scenario includes wrist and shoulder pain, tendinitis, and bursitis following excessive exertion. These accidents occur when workers pull, push, or carry an object (boxes, tables or furniture).
- **Scenario 3** (12.7% of cases): The third scenario includes bruises and fractures, and injuries (Table 1). Number of workers, frequency rate of accidents (%) and median number of lost work-days in 1991 by age group for female nurses and nutrition services workers to the feet, fingers, and knees caused by the workers being struck by, caught by, or involved in collisions with something (furniture, buildings, stairs or tools). Most of these accidents were relatively minor (1-5 days of absence).
- **Scenario 4** (11.7% of cases): The fourth scenario includes accidents resulting from involuntary or voluntary but reactive movements while workers are walking or running. These accidents were characterized by sprains, strains, bursitis, or tendinitis of the ankles, back, or knees, and result in work absences of more than 60 days.
- **Scenario 5** (7,5% of cases): The fifth scenario encompasses joint injuries to the leg and multiple injuries caused by falls. These bruises and fractures involved a cart or building, or stairs.
- **Scenario 6** (6.6% of cases): The sixth scenario includes cuts and scratches to the hands and fingers caused by impact or friction with wood or metal objects or with the ground. These accidents result in 1 to 10 days of absence.
- **Scenario 7** (5.3% of cases): The last scenario includes burns and infections of the arms and fingers due to contact with various substances and equipment. Nearly half of these accidents result in work absences of 1-3 days.

The distribution of accident scenarios differs in the two occupational groups: low back pain caused by excessive exertion (Scenario 1) was the most common among nurses while wrist and shoulder pain, tendinitis, and bursitis following exessive excertion were more common among nutrition services workers (Scenario 2). Nutrition services workers also suffer more cuts, pinches and collisions with objects (Scenario 6), and burns (Scenario 7).

Table 1. Number of workers, frequency rate of accidents (%) and median number of lost work-days in 1991 by age group for female nurses and nutrition services workers.

	Nurses			Nutrition services workers		
Age group	Nb workers[1]	FR[2]***	Md[3,NS]	Nb workers[1]	FR[2]***	Md[3,NS]
-25	503	35.0	13.0	367	25.6	6.0
25-29	926	34.6	14.5	524	23.5	8.0
30-34	1 572	23.6	18.0	700	20.6	10.0
35-39	1 823	20.6	17.0	822	18.5	9.0
40-44	2 455	17.3	18.0	920	18.0	10.0
45-49	1 958	18.2	17.0	953	17.5	10.0
50-54	971	17.4	14.0	850	16.6	11.0
55-59	514	19.1	15.5	639	17.5	11.0
60+	240	14.1	15.5	361	11.9	9.0
Total	*10 962*	*21.2*	*16.0*	*6 138*	*18.6*	*9.0*

[1] Number of workers in equivalent full time
[2] Frequency rate (%)
[3] Median number of lost work-days

*** Significant; $p<0.001$
* Significant; $p<0.05$
NS Not significant

Older and younger workers do not exhibit the same pattern of accidents (Table 2): burns to the hands and fingers (Scenario 7) and back pain caused by lifting or carrying a person (Scenario 1) were more common among younger workers, while falls and slips (Scenario 5), excessive exertion while pulling or pushing something (scenario 2) and crushes, impacts and collisions (Scenario 3) were more common among older workers. Finally, ankle, knee or back injuries caused by voluntary or involuntary reactive movements while walking (Scenario 4) were typical of middle age workers.

Table 2. Distribution of accident scenarios by age group for female nurses and nutrition services workers.

Age group	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6	Scenario 7
-25	**43.9**	15.2	12.4	8.5	5.3	7.4	**7.3**
25-29	**47.4**	15.5	9.6	11.3	5.9	5.7	4.6
30-34	**46.9**	15.1	12.6	9.9	4.9	5.5	5.1
35-39	**45.0**	16.7	10.9	11.3	6.2	5.9	3.9
40-44	38.9	16.6	13.2	13.2	6.9	5.9	5.2
45-49	31.0	18.2	13.2	**16.0**	8.1	7.4	6.0
50-54	26.1	**21.5**	**16.2**	9.9	**11,5**	8.8	5.8
55-59	21.9	18.7	14.5	15.6	**15.4**	8.2	5.7
60+	13.6	15.5	**24.3**	10.2	**20.9**	8.7	6.8
Total	*39.3*	*16.8*	*12.7*	*11.7*	*7.5*	*6.6*	*5.3*

Legend: Numbers indicate the percentage of accidents occurring to female nurses and nutrition services workers in each age group.
Chi-squared significant $p < 0,001$; Figures in bold show the main contribution to the Chi-squared value.

Discussion

Combining these results on risk indicators and accident scenarios with those from the scientific literature on aging, it is possible to formulate hypotheses related to the possible causal mechanisms.

In both occupational groups, the observed effects of age on frequency rate and the median number of lost work-days can partially be explained by the age-related typology (3, 11). We have previously seen that young nurses (4, 6, 13) suffered a greater number of serious accidents caused by excessive exertion. On the other hand, nutrition services workers were more likely to be associated with accident scenarios typical of workers older than 50 years.

Moreover, the decrease of frequency rates with age in both occupational groups and the stability of the length of absence with age among nurses may also be due to an exclusion process of workers who cannot tolerate some occupational stressors as they age (19). It is well known that nurses' work is physically and emotionally strenuous (10). Furthermore, the level of risk is a function of the tasks performed, and the distribution of tasks varies with job seniority, a factor strongly correlated with age. Finally, older workers may draw upon their job experience to develop protective or compensatory work strategies; such strategies may help workers bypass or lessen the arduousness of some of the work constraints which can increase with age (3, 12, 17).

On the other hand, the increase in the median number of lost work-days with age among nutrition services workers may also reflect an increase in recovery time (7). Nutrition services workers were older than nurses, and there may be specific job constraints and risks which are particularly difficult for aging workers to bear (12, 17, 18).

As previously mentioned, the most prevalent accident scenarios were those related to excessive exertion that occur more frequently when young nurses carry or lift a person, and the second one involves accidents that occur when older nutrition services workers pull, push, or carry something. We have already mentionned several hypotheses related to the possible mechanism involved. As nurses age they may avoid the more hazardous tasks which are patient-transfer or handling because of their higher seniority. They may also change their work strategies to lessen difficulties associated with these tasks (3, 12, 17). It is also possible that nurses who encounter problems in their job simply quit (19). On the other hand, the prevalence of this type of accident among older nutrition services workers highlights the existence of work constraints which present increasing difficulties for aging workers (12, 17, 18).

The accident scenario including falls was associated with older workers. This association is frequently found (15, 16) and may be due to an increase in equilibrium problems (14) or to slowed decision processes (20).

Sprains and strains caused by voluntary or involuntary reactive movements seem particularly critical for workers between 45 and 49 years. Some of these accidents, such as falls and slip accident previously described, may be due to equilibrium problems, while others may be caused by overuse phenomena (7, 8).

Old workers suffer a disproportionately high number of accidents caused by crushes, pinches and collisions with objects. These accidents might reflect older workers' slower rhythm (20) or the existence of specific work constraints which become harder to bear as workers age (2, 12, 17, 18). This hypothesis appears likely in light of the older age structure of the population of nutrition services workers, the most frequent victims of this type of accident.

This analysis found burns to be more common among younger workers (16). The fact that few old workers suffered burns highlights the protective effect of work experience and also the prudence frequently associated with older workers (9, 15, 17).

Conclusions

In conclusion three main hypothesis may explain the differences observed between the risk profiles of younger and older female nurses and nutrition services workers. The first one supposes the existence of occupation-specific constraints and risks that are increasingly difficult for older workers to bear. The second one posits the existence of selection or exclusion processes. Finally, the third hypothesis concerns the possible development of individual and collective compensatory strategies by more experienced workers.

This study illustrates the importance of using occupational groups that are as homogeneous as possible in research on aging. These results can help the development of occupation-specific prevention strategies. They also highlight the value of taking into account both risk indicators and data on the circumstances of accidents

in studies of the impact of this phenomenon on safety, and of using multi-series cross-sectional analyses. Finally, this study illustrates the value of field research as a tool with which to study specific risks and task constraints faced by nurses and nutrition services workers, and their effects on older workers.

Summary

The impact of workers' aging on accidents was studied among female nurses and nutrition services workers in the Québec health and social services sector. Both these occupations are considered high-risk occupations for women of all ages. Cross-sectional analyses of risk indicators (frequency rate and median number of lost work-days) and descriptive data on accident typologies or, as they are also called, accident scenarios (type, nature, site, and cause of injury) were performed. The results show that: 1) both occupational workforces are aging; 2) nurses were younger than nutrition services workers (although the retirement age is the same in both groups), suggesting the existence of a selection process over time; 3) the frequency rate of accidents for both occupational groups slowly but significantly decreases with age; 4) a significant age-related increase in the median number of lost work-days following an accident was found for nutrition services workers but not nurses; 5) the distribution of accident scenarios was different in the two occupational groups 6) a clear statistical relation between accident scenarios and age existed in each occupational group. These results show the importance of considering homogeneous occupational groups in research on aging. They can help to better adapt prevention strategies. They also highlight the importance of considering both risk indicators and data on the circumstances of accidents in studies on the impact of aging on safety, and of performing multi cross-sectional analyses. Finally, this study emphasizes the need for field research designed to gather information on risk factors and constraints on the tasks performed by workers, and on the effects of these phenomena on older workers.

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Footnotes:
1. Median was chosen as a measure of central tendency because it is less sensible to extreme values than mean. The distribution of the number of lost work-days is very asymmetrical.
2. These statitical techniques allow the establishment of accident scenarios whose constituent events are as similar as possible, but which differ as much as possible from other accident scenarios. Once the scenarios are established, it is possible to test whether their distribution is the same across all age groups (1, 3).
3. Women represent more than 50% of the population of nutrition services workers and 87% of nurses.
4. Only the 1991 figures are given for their tendencies with age are the same as those of other years. The numbers for 1987 and 1982 appear in Cloutier and Duguay (4).

Training older workers: Relationships between age, other trainee characteristics, and learning anxiety

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Introduction

Among the factors likely to predict training difficulties for people over 40 years old, age effects on cognitive processes have undeniably been studied the most, usually from the perspective of fundamental research (see for example 13), and seldom from a particular applied viewpoint as in studies on cognitive training (25) or on learning how to use new information technology (15).

In spite of their considerable contribution to our knowledge of age-related changes in the cognitive processes involved in learning, most of these studies are of limited relevance to our understanding of the difficulties facing workers between the ages of 40 and 60 in actual training situations. One reason is that these trainees may differ from the younger and older subjects in the aforementioned studies not only in their cognitive ability but also in certain social, cultural, and emotional factors liable to generate specific disturbances and types of behavior in training situations (18). In particular emotional factors have been neglected until now in vocational training contexts in relation to age, even though they have been said to play an important role in learning (14), and despite the fact that work on metamemory in adulthood (e.g. 5) has pointed out a greater tendency for middle-aged and older people to be more anxious about their memory capacities than younger ones. Yet these factors are expected to affect entry into training programs, make learning more painful, and influence training performance (10; 17).

Some exceptions must be mentioned, however. One of them is found in studies addressing non-cognitive factors in terms of attitude, namely, attitudes toward computers as a reflection of the subject's interest for this tool or its perceived usefulness (4; 12; 26), and general attitudes and specific motivations about participating in training programs (23). In addition to some inconsistencies observed in attempts to find significant relationships between age and attitudes, and between attitudes and performance, such measurements only partly encompass emotional factors. One may have positive opinions about the usefulness of computers and about the merits of a given training program, while being in a quite negative or stressful emotional state when facing the actual learning situation.

In a study on learning how to use a word processor, Baracat and Marquié (1) obtained differences between younger and older trainees (age 25-55) in attitudes towards their own knowledge. The type of error made by the older trainees, meas-

ured by the decision criterion in signal detection theory, revealed their greater reluctance to commit to an action when they were not completely sure that the procedure proposed was correct. This attitude was interpreted as reflecting a higher level of anxiety in this learning situation as compared to younger individuals. However this hypothesis was not tested by specific assessment of anxiety in the Baracat and Marquié study (1).

Charness, Schumann and Boritz (3) did test this hypothesis on younger and older subjects enrolled in a word-processing learning program. They used a computer-specific anxiety scale to assess subjects' feelings towards interacting with computers. Computer anxiety was found to decrease for all subjects during the training, but no strong link between age and computer anxiety could be observed. In a study by Warr and Bunce (23) in an open learning situation, learning task anxiety was also measured by 8 items (such as «I feel tense about taking part in this program»). After controlling for the effects of other demographic and attitude variables using multiple regression analysis, learning task anxiety was found to independently predict post-training reported difficulties, but not learning scores. Again in this study, age and anxiety were not significantly correlated.

Apart from the studies by Warr and Bunce (23) and Baracat and Marquié (1), the learning situations have been experimental settings designed for research purposes, and the subjects have been volunteers. But, as pointed out by Kelley and Charness (15), the fact that in most studies subjects are self-selected makes it more likely that few subjects will have extremely negative attitudes or strong anxiety in such situations.

The goal of the present study was to investigate age differences in the emotional state of adults faced with learning. State anxiety was assessed by an instrument with well-established psychometric properties (22), and for the above reasons, in an actual training situation. Trait anxiety was assessed in order to control for the role of dispositional anxiety.

A related goal of the study was to explore variables likely to predict the expected differential learning anxiety. The study especially focused on the extent to which trainees' beliefs about the causes of their learning difficulties are related to their emotional state. According to Weiner's cognitive approach to motivation (24), affect while performing a task whose goal is important for the subject depends on attributions of success and failure. For this author, failure attributions to internal, stable or uncontrollable causes are detrimental: they lower motivation and generate negative feelings such as anxiety. Much empirical evidence supporting this motivational and emotional attribution theory has been provided by studies on children in school learning situations (8). With respect to older people, research on aging has shown that with increasing age, attributions are more internal and less controllable (9). In the present study such age-related differences in attributions were expected to mediate the possible relationship between age and learning anxiety.

It also seemed necessary to look into the role of some other variables that might affect attributions or have a direct impact on anxiety in real-life situations, where subjects are not selected by an experimenter. For example, the subjects' attributions may be a reflection of their awareness of their own abilities. The level of education and a rough cognitive efficiency index were measured. Likewise, since the training was aimed at job seekers, length of unemployment was also used as a variable that might be related to perceived personal control and anxiety (11).

The last goal of this study was to assess the consequences of anxiety on learning. Constraints inherent to the training situation prevented us from obtaining any reliable measures of performance, so a behavioral cue, requests for help, was used as an indicator of the subjects' learning strategies. Earlier work has shown that help requests are both a good reflection of older trainees' cognitive difficulties (they require more help), and an efficient way to learn (3, 7; 26).

Method

Training

The study was carried out in a center for adult vocational training in France (AFPA, Association pour la Formation Professionnelle des Adultes). The training consisted of instruction designed to bring each trainee up to academic standards in accounting and bureautics. It lasted a minimum of four weeks (on the basis of 36 hours per week). But as a result of individual assessment prior to the training course based on interviews with the instructors about the subjects' knowledge and the kind of job targetted, additional training weeks were planned for some subjects in order to allow them to reach a given level or to learn a given matter more thoroughly. At the end of the training, each participant was given a certificate specifying the content of the course he or she had taken. But the training course did not offer any guarantee of employment.

Some lecture classes were provided, but the greater part of the training course consisted of self-paced exercises, with one instructor continuously available for help, and another available at certain times.

The present article pertains in particular to the first four weeks when all trainees were participating.

Subjects

The subjects were 27 trainees (age 25-52 years; schooling 9-18 years) obtained from three separate training courses that were similar in content, method, and teachers. The proportion of trainees younger and older than 40 was the same in the sample as a whole and in the 3 training courses (4 and 3, 6 and 5, and 4 and 5, respectively). Most were females: only 3 were males, 2 of which were younger than 40. All subjects were clerical workers and, at the time of the training, all had been unemployed for various lengths of time (range 0-7 years). They were paid for the training by the unemployment office. As a consequence of prior individual assessment, the scheduling and actual duration of the training course (range 4-12 weeks) was a bit longer for the older subjects.

Materials and measures

Each trainee had at her or his disposal a workstation consisting of a computing machine, a computer equipped with Excel, Word 5, and an accounting program, and an instruction manual including instructions, demonstrations, and the corresponding exercises. Every two or three workstations were grouped together in the same area.

The method mainly relied on (a) questionnaires (b) measures of trainee characteristics other than age, and (c) systematic observation of requests for help.

a) The questionnaires completed by the subjects included (1) the French version (6) of the State-Trait Anxiety Inventory (STAI-Y) developed by Spielberger (1983) and consisting of two separate questionnaires (State and Trait), and (2) an

8-item questionnaire designed to assess the locus (internality vs. externality) and controllability (controllability vs. uncontrollability) dimensions of trainees' causal attributions about learning difficulties they experienced. Four causes were considered: effort (internal-controllable), ability (internal-uncontrollable), training method (external-uncontrollable), and disturbing external but controllable events (external-controllable). Items related to effort and ability are commonly considered as measures of internality, and of controllable and uncontrollable causes, respectively (24). The training method was considered here to be uncontrollable because the trainees could not change the method chosen by the instructors. In contrast, items pertaining to disturbing external events were considered controllable because they described causes that the trainees could affect through their actions (e.g., moving to another workstation if bothered by other participants).

The trainees were asked to rate each item in the attribution questionnaire on a 4-point Likert-type scale ranging from «strongly agree» (3) to «strongly disagree» (0). There were two items referring to each cause. The scores of the internality and controllability dimensions were calculated following the procedures commonly used in previous attribution research (19). The internality dimension was obtained by subtracting the sum of the two external-cause scores from the sum of the two internal-cause scores, and likewise for the controllability dimension. Dimension scores could thus range from -12 to +12, where a positive score meant internal attributions on the locus dimension and controllable attributions on the controllability dimension.

b) Four other trainee characteristics were also noted: educational level, unemployment duration prior to the training, number of planned training weeks, and a measure of cognitive efficiency. The number of planned training weeks had a slightly special status in that it reflected both the subject's initial competence in the field and his or her employment plans (in unknown proportions). This variable was controlled because it was likely to influence the trainee's learning strategies during the studied training phase. Cognitive efficiency was measured by the digit-symbol substitution subtest of the WAIS-R.

c) Finally, requests for help from instructors were observed and their frequency was calculated for each trainee.

Procedure

The STAI-T (anxiety-trait) inventory was completed by the trainees once at the beginning of the training. State anxiety (STAI-S) was measured four times during the training: at the beginning of the first week (before completion of the STAI-T, as recommended in the test administration guidelines), at the end of the second and fourth weeks, and at the end of the training, whose length varied across trainees. The attribution questionnaire was completed in the middle and at the end of the 4-week period.

In each of the 3 training courses studied, help requests were not recorded until the beginning of the second week so the observer and the trainees could get acquainted. The observations were made during the trainee's personal working phases. Total observation time per subject and per week amounted to 7 hours, which made a total for each trainee of 21 ours or 20% of the training duration during the three weeks observed. Observations were balanced in such a way that the day of the week and the time of day were the same for all subjects.

Results

Because very few time-of-training effects could be found for variables measured several times, and in order to focus on the main goal of the paper, analyses were made on the data averaged over the whole training period studied.

Correlation analyses

Bivariate correlation analyses were carried out on the entire set of variables. The results are shown in Table 1. Attributions are reported as individual causes, in addition to being grouped on the locus and controllability dimensions.

One can see that there was a significant link between age and 6 out of 13 of the other variables in the table. First of all, increasing age in our sample was associated with poorer digit-symbol test scores, which in turn were linked to the number of years of schooling and unemployment: scores were higher for subjects with more education and a shorter period of unemployment. Although nonsignificant, note that the correlation between age and educational level was negative.

In line with what we mentioned above, the number of planned training weeks was found to be positively correlated with age.

Regarding anxiety, no correlation was found between the subjects' age and dispositional anxiety (trait anxiety). As predicted, though, the older trainees obtained significantly higher context-related anxiety scores (state anxiety).

Among the causes of difficulty experienced by subjects during training, the only significant correlation with age was observed for ability-related attributions: older trainees felt their learning problems were due to their own inadequacies. An analysis of the internality and controllability dimensions showed that beyond individual causes, it was the uncontrollabe nature of the causes that was correlated with age: the older the subject, the more the causes mentioned in their explanation were ones they felt they could not control, regardless of the internal or external nature of the causes, as testified by the lack of a correlation between age and the locus of control.

The frequency of help requests decreased with trainee age. The correlations between instructor-directed requests and the other variables showed that help requests went up as schooling increased, training shortened, digit symbol test

Table 1. The product-moment correlations between the variables in the study.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Age													
2 Educational Level	- .332												
3 Digit Symbol Test	- .502	.610											
4 Training Weeks	.499	- .052	- .288										
5 Unemployment	.122	- .297	- .433	- .021									
6 Trait Anxiety	- .031	.111	.130	- .272	.026								
7 State Anxiety	.413	- .029	- .280	- .092	.428	.271							
8 Effort	- .210	- .173	.016	- .057	.220	.015	- .035						
9 Ability	.524	- .288	- .357	.101	.250	.269	.637	.284					
10 Disturbance	- .217	.177	.281	.076	- .341	- .090	- .280	.238	- .065				
11 Training Method	.253	- .279	- .156	- .206	.025	.250	.504	.162	.543	.100			
12 Internality	.251	- .128	- .284	.190	.399	.053	.212	.225	.432	- .573	- .400		
13 Controllability	- .533	.339	.378	.078	- .226	- .311	- .724	.022	- .806	.371	- .784	- .165	
14 Help Requests	- .580	.453	.416	- .384	- .333	.125	- .438	- .196	- .504	.232	- .424	- .210	.551

Note: $p \leq .05$ when $r \geq .38$; $p \leq .01$ when $r \geq .48$

scores improved, anxiety dropped, and the number of causes deemed controllable rose (positive correlation with controllability and negative correlation with attributions about ability and training method).

State anxiety, which is a critical variable in the present study, was itself correlated with several variables other than the age and help request variables already mentioned. First of all, it was positively correlated with length of unemployment: the longer the period of unemployment, the greater the state anxiety. It was also positively correlated with attributions about ability and training method. Since these two causes were deemed uncontrollable, it follows that there was a negative correlation between state anxiety and the controllability dimension: the more factors mentioned as being beyond the subject's control, the greater the anxiety about learning.

Multiple regression analyses

A multiple regression analysis was used to find out, amongst the variables correlated with state anxiety, especially age, which ones independently predicted the anxiety-state variations. The independent variables input into the analysis were thus age, length of unemployment, and controllability. Controllability was chosen rather than individual causes (ability and training method) because, according to Weiner's (24) theory, attribution dimensions are what have an impact on a subject's emotional state, not individual causes.

The results of the analysis are presented in Table 2. We can see that controllability appears to be the best predictor of the degree of state anxiety in subjects. Length of unemployment also predicted anxiety variations in our sample, but in a statistically marginal way (p=.0514). Together, these variables accounted for 59.9% of the total state-anxiety variance. Given that the bivariate correlation analyses yielded a significant association between age and anxiety but not between age and unemployment, we can conclude from the multiple regression analysis that the age-anxiety association was mediated primarily by the controllability variable.

Table 2. Multiple regression analyses of state anxiety and help request.

Dependent variable	R^2	F	Independent variable	Standardized ß-coefficient	Significant t-value	p-value
State anxiety	.599	F (3,23) = 11.46 ***	Controllability	-.641	-4.03	***
			Unemployment	.279	2.05	*
Help Requests	.592	F (6,20) = 4.84 **	Planned Training Weeks	-.442	-2.28	*
			Educational Level	. 428	2.09	*

* p≤.05; ** p<.01; *** p<.001

Another question raised in this article concerns the link between anxiety and help requesting behavior. We saw above that the frequency of help requests was correlated with anxiety, but that it was also related to other variables. So another multiple regression analysis was computed using not only state anxiety as an independent variable, but also age, level of education, number of training weeks, digit symbol test score, and controllability, all correlated with help requests.

The results showed that two of these variables, planned training weeks and years of schooling, independently predicted help requests. Subjects with the longest training program and the lowest level of education were the ones to ask for the

least amount of help from instructors. Thus, these two variables mediate the association observed in the bivariate analyses between help requests and the other variables, anxiety and age amongst others.

Discussion

Our primary goal was to investigate age effects on learning anxiety in an actual training situation and to examine some factors likely to mediate such effects. As predicted, age and anxiety were correlated, with the older trainees showing a higher level of state anxiety.

This result is in accordance with the interpretations suggested in the Baracat and Marquié study (1), but not with the outcome of Charness, Schuman and Boritz' (3) and Warr and Bunce's (23) studies. A possible reason for this discrepancy may lie in the experimental rather than job-related design of the first study, and for the second study, in the characteristics of both the trainees (higher qualifications and no repercussions on employment) and the training, an open learning situation considered by the authors themselves as particularly advantageous to older learners.

The outcome of anxiety-trait measures enabled us to reject an interpretation of the older trainees' higher state of anxiety in terms of a difference in their dispositional anxiety level compared to the younger subjects. Similarly, the lack of a strong age-unemployment correlation rules out the possibility that length of unemployment was a major source of anxiety in the older subjects. Causal attribution was the best predictor of the greater learning anxiety of these trainees, i.e. what they perceived as the causes of their learning difficulties, and more specifically, their feeling of not being able to control certain important factors like their own abilities, and to a lesser extent, the learning conditions.

Poorer scores with increasing age were found for the digit symbol test, which is usually considered as age-sensitive and reflecting the efficiency of a basic cognitive component: speed (20). The causal attributions of older subjects may therefore be rooted in metacognitive awareness of their declining abilities, as also shown in studies on metamemory in adulthood (5). In their review on self-efficacy beliefs in memory aging, Cavanaugh and Green (2) reported several studies in which it was obvious that perceiving oneself as unable to efficiently control the means of achieving one's personal goal generates a negative or stressful emotional state.

In spite of the fact that it was not possible to assess the impact of anxiety on subject's performance in this study, it is likely that greater learning anxiety partially accounts for the poorer learning performance of older trainees reported in a recent review of job-related training performance as a function of age (16). Indeed, anxiety in a training context is known to pre-empt some of the processing, encoding, and recovering resources of a person's working memory system (21).

We were nevertheless able to assess the relationships between age, anxiety and the subjects' help-requesting behavior. In our results, increasing age was associated with less frequent requests for assistance, contrary to what was observed by Elias et al. (7), Zandri and Charness (26), and Charness, Schuman and Boritz (3). Here again, the differences between the situations under study (experimental vs. field studies, trainee characteristics) may account for the discrepancy in the results. The analyses revealed that this less frequent behavior in the older trainees was not due to their higher anxiety, but was due partly to their knowledge of the

fact that they would stay in training longer (it may be that their longer planned training time prompted them to make fewer requests during the first four weeks), and partly to their lower level of education. While the former reason may be specific to the situation studied here, the second is worth examining in future research since it is related to one of the characteristics that often differentiates younger and older learners. Although the negative correlation between age and educational level did not reach significance, the latter variable may have influenced the older subjects' help request behavior, because people with less education are not as used to the teacher-student relationship, which is an important feature in the school system. Let us add that being older also means having less recent and perhaps different experiences with this relationship.

Further research on the relationships between age, anxiety, attributions, and behavior would be useful in improving our understanding of the source of the differences between younger and older adults in vocational training situations, and in designing training methods that are better suited to the specificities of older workers.

Summary

Twenty seven trainees aged 25 to 52 were studied in an actual secretarial-work training setting. The trainees' learning anxiety, causal attributions about learning difficulties, and help request behavior were assessed. The results showed that increasing age was related to a more anxious emotional state during learning. Multiple regression analyses revealed that the higher learning anxiety of the older trainees was mediated by the more uncontrollable causal attributions they made about the difficulties they had experienced during learning. Older age and higher anxiety were also found to be related to less frequent requests for help from instructors, but statistical control of other trainee characteristics showed that this behavior was in fact best predicted by the larger number of planned training weeks and the lower level of education in the older group.

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Health status among early retirees

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Introduction

In Kristianstad a project concerning the consequences of early retirement, with special focus on the quality of life among disability pensioners, is being carried out in cooperation between Kristianstad University College of Health Sciences and the local Social Insurance Office in Kristianstad.

In Sweden as in many other industrialized countries there is an increasing number of disability pensioners (4, 6). The rate of disability pensioners among the population aged 16-64 years has increased in Sweden from approximately 3 percent in 1970 to 7.6 percent in 1995. In 1995 55 percent of the disability pensioners were women. The female rate in the labour force is comparatively high in Sweden, where 77 percent of the women compared to 81 percent of the men were economically active in 1993 (7, 8). The major problem behind newly granted early retirements in Sweden is disorders and pain syndromes of the musculoskeletal system, which account for about 50 percent of the disability pensions.

The aim of this paper was to describe the subjective health status among individuals granted an early retirement pension due to disorders of the musculoskeletal system.

Method

The study was performed in Kristianstad, a municipality with approximately 70 000 inhabitants in southern Sweden. The study population consisted of all 450 persons aged 25-59 years in Kristianstad who were granted a full-time disability pension during 1986-1990 due to disorders of the musculoskeletal system. They constituted about 50 percent of all newly granted disability pensions in the studied area during the period. There were no significant differences between men and women according to the diagnoses leading to the early retirement (Table 1).

A questionnaire was sent in January 1992 to all early retirement pensioners (ERPs) in the study group. A corresponding questionnaire was sent to an individually age- and sex-matched control group of the same size, randomly selected from the population in Kristianstad municipality. The response rate was 83 percent (Figure 1). A second questionnaire was sent two years later to all early retirees who answered the first questionnaire. The response rate was 95 percent.

Table 1. Diagnoses in connection with early retirement (percent).

Group of diagnoses	**Men** (n=121[a])	**Women** (n=252[b])
Musculoskeletal system[c]:		
- solely	**71.9**	**79.8**
I only	3.3	5.9
II only	30.6	28.2
III only	13.2	23.0
IV only	12.4	16.3
V only	4.1	1.2
Two of I-V	8.3	5.2
- combined with psychiatric disorder	**12.4**	**10.7**
- combined with other diagnosis	**15.7**	**9.5**
Total	*100.0*	*100.0*

[a] One man returned the questionnaire anonymously

[b] Two women returned the questionnaire anonymously

[c] **Diagnoses according to ICD-9** (WHO):

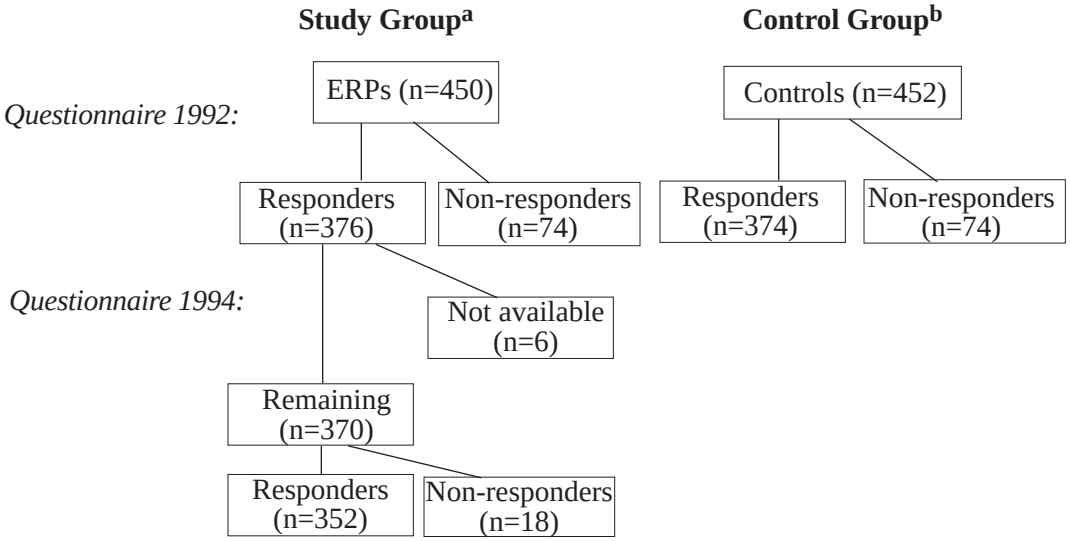
I: Chronic arthritis and other inflammatory rheumatic disorders, diagnoses number 710-712, 714, 720, 725.

II: Back pain, diagnoses number 721-724.

III: Fibromyalgia and other general pain disorders (non-inflammatory conditions), diagnoses number 726-729.

IV: Other non-inflammatory conditions (local and regional), diagnoses number 713, 715-719, 730-739.

V: Injuries, diagnoses number 805-848, 880-897, 905, 922-924, 926-929.



[a] The number of questionnaires sent to ERPs was 453, but persons who had gone back to work or died were excluded from the ERP group. The ERP group thus comprised 450 persons.

[b] The number of questionnaires sent to controls was 453, but one person had died. The control group thus comprised 452 persons.

Figure 1. Collection of data among ERPs and controls in 1992 and ERPs in 1994.

The age and sex distribution of the ERPs and Controls in the 1992 questionnaire (Table 2) shows that the female rate among the retirees was approximately twice the male rate, 254 women and 122 men, which is not significantly different from the female rate among newly granted retirements due to musculoskeletal problems in the whole of Sweden. There were only a few disability pensioners under 45 years (5 men and 23 women).

Table 2. Age and sex distribution (percent) of the participants in the ERP group and control group 1992.

Sex/Age		ERPs	Controls
Men		(n=122[b])	(n=108)
Age	25-44	4.1	2.8
	45-54	23.1	21.3
	55-64[a]	72.7	75.9
Women		(n=254)	(n=266)
Age	25-44	9.1	9.4
	45-54	29.1	28.9
	55-64[a]	61.8	61.7

[a] The ERPs were aged 25-59 years at the time of retirement. The questionnaire was sent out 1-6 years after retirement.

[b] One man returned the completed questionnaire anonymously without giving his age.

The questionnaires included questions about self-reported health status with five response categories from ”good” to ”poor”, change in health status since retirement and change in quality of life since retirement (CQL) both with five response categories from ”much better” to ”much worse”, present quality of life (PQL) with five response categories from ”very good” to ”very bad”, self-image, and background information about educational level, kind of work prior to retirement, civil status and immigration. Most of the questions have been described previously (1-3). Self-image was measured by the answers to the item ”Here are descriptions of some personality types. Please mark the alternative you think fits you best: I am a contented, harmonious person, I am an active person, I have good self-confidence, I have a positive view of life” with the response categories ”Very true (I), Quite true (II), Only partly true (III) and Not at all true (IV).”

Results

Questionnaire 1992

As expected, the disability pensioners as a group were less satisfied than the controls with their present state of health ($p<0.001$, Table 3). There were no significant differences between men and women.

Table 3. Subjective health status among ERPs and controls 1992 (percent).

	ERPs			Controls		
	Men	Women	Total	Men	Women	Total
	(n=122)	(n=253)	(n=375)	(n=107)	(n=266)	(n=373)
Good	7.4	2.0	3.7	34.6	37.6	36.7
Fairly good	16.4	17.8	17.3	39.3	33.8	35.4
Neither/nor	36.9	40.7	39.5	16.8	20.7	19.6
Fairly bad	22.1	28.5	26.4	7.5	4.9	5.6
Bad	17.2	11.1	13.1	1.9	3.0	2.7
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*

The results from the 1992 questionnaire concerning subjective health status have been described previously (2) and were in summary:

The retirees below 55 years of age - both men and women - considered their health status as worse than the older ones ($p<0.05$ for men and $p<0.001$ for women). The retired female immigrants were less satisfied with their health status than the Swedish female retirees ($p<0.001$). This was not the case among men.

When comparing the change in health status since retirement - a period of 1-6 years among ERPs - or over a five-year period (controls), we found that the ERPs stated a change in health status to a higher degree than controls ($p<0.01$ for men and $p<0.001$ for women). The male ERPs more often described a deterioration, and the females an improvement. Change in health status was related to age and immigration among female ERPs. The female ERPs aged 55 or more reported an improvement, and the younger retired women a deterioration ($p<0.01$), and the female Swedish retirees considered their health status to have improved more often than the female immigrant ERPs ($p<0.001$).

The 1994 and 1992 questionnaires

The answers concerning subjective health status from the 1994 questionnaire were combined with the 1992 questionnaire and showed that 25 retirees in both questionnaires reported that their health status had improved, Group A, and 75 that their health status had deteriorated, Group B (Table 4).

Table 4. Change in subjective health status -92 and -94. Number of ERPs.

	1994			
1992	Improved	Unchanged	Deteriorated	Total
Improved	25 (Group A)	29	20	74
Unchanged	13	81	40	134
Deteriorated	16	52	75 (Group B)	143
Total	*54*	*162*	*135*	*351*

The retirees in group A considered their quality of life to have improved and to be good, they considered themselves to be more active persons with better self-confidence; they were older and more often non-immigrants compared to retirees in group B (Table 5). No significant differences were found between the groups according to gender, civil status, educational level, previous work or diagnosis at retirement.

Table 5. Background variables, change in quality of life since retirement (CQL), present quality of life (PQL) and self-image of retirees with improved (group A) and deteriorated (group B) health status 1992 and 1994.

		Group A (n=25)	Group B (n=75)	p-value[a]
Gender	Male	3	22	
	Female	22	53	NS
Age (1992)	Median	58.0	55.0	<0.05
Civil status (1994)	Married/cohab.	20	45	
	Single	5	29	NS
Immigrant	Yes	2	22	
	No	23	52	<0.05
Educational level	Elementary	23	62	
	Additional	2	12	NS
Work	Blue-collar	19	55	
	Other	5	19	NS
CQL (1994)	Improved	16	2	
	Not improved	9	73	<0.001
PQL (1994)	Very/rather good	21	16	
	Not good	4	59	<0.001
Self-image (1994):				
harmomious	I	6	12	
	II	11	35	
	III+IV	7	23	NS
active	I	7	6	
	II	10	23	
	III+IV	8	37	<0.05
self-confident	I	11	12	
	II	6	26	
	III+IV	8	28	<0.05
positive	I	10	15	
	II	12	32	
	III+IV	3	20	NS

[a] The significance of differences between group A and group B was tested by chi-2 test. The difference between the age distributions was tested by Mann-Whitney's test.

Conclusions

The conclusions we draw are: Early retirement might have a beneficial effect on the subjective health status of older women especially, while health status more often deteriorates among younger compared to older retirees. This might be an effect of the fact that the young ERPs have to qualify for the disability pension with a more serious state of health than a person close to old-age pension. The need for more energetic prevention measures at the working places is obvious. Poor adjustment to ill-health has been demonstrated among immigrants (5) and might explain why ethnicity is a risk factor for deteriorating health among ERPs. The disability pensioners with more than ten years left until ordinary old-age pension and the immigrants might need special attention and help to adjust to life as a retiree.

We will try to answer the question of this conference as follows:

Work after 45? - Yes, if possible. If not possible due to health problems: some sort of support if the person is under 55 years.

Summary

The aim of this paper was to describe the subjective health status among early retired pensioners (ERPs) with musculoskeletal disorders. A questionnaire was 1992 sent to 450 ERPs and a control group of the same size living in the municipality of Kristianstad, Sweden. In 1994 the ERPs answered a second questionnaire. The ERPs were less satisfied than the controls with their present state of health. ERPs with improving subjective health (Group A, n=25) were compared to ERPs with deteriorating subjective health (Group B, n=75) in 1992 and 1994. ERPs in group A were older, more often non-immigrants, described themselves more often as active persons with good self-confidence and were more content with their quality of life than ERPs in group B.

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Early retirement incentive programs (ERIPs): Organizational strategies and individual choices

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Introduction

Over the past two decades the transition from work to retirement has undergone considerable change (13, 21, 22). One of the most singular aspects of this change is the diversification of routes adopted by workers to exit paid labour. Public retirement pension programs, traditionally the most common mechanism regulating the transition to retirement, have been gradually replaced by a plethora of programs of diverse nature and origin. In North America, in particular, schemes instituted by employers and known as Early Retirement Incentive Programs (ERIPs), have become quite common and seem to have played an important role in the generalized trend toward early withdrawal from the work force.

The widespread popularity of ERIPs among firms could be attributed to the advantages they offer in comparison to other mechanisms that could be used to downsize the work force. The few specific regulatory dispositions guiding their establishment, as well as the voluntariness of their acceptance, enables companies to reduce personnel while limiting the risk of unwanted litigation or labour unrest. But ERIPs may also produce unexpected results and have the potential for being ineffective and costly (17, 42). Programs which are ill designed sometimes encourage the departure of too many or the wrong category of workers. Conversely, if not enough workers respond to an offer, massive layoffs may after all be unavoidable. Early retirement schemes can also have negative repercussions on the morale, commitment and work environment of those remaining in the firm (4, 16, 31). According to some analysts, although in the short term, ERIPs are a valuable human resources management tool and appear to have responded to firms' immediate expectations, in the long term, the economic and social consequences of their generalized utilization have yet to be assessed (7).

The available knowledge on the reasons underlying the emergence of ERIPs and their impact on organizations and workers is still quite limited. A number of American studies have provided some interesting data on the subject. Surveys conducted on samples of companies and organizations of various size have yielded information on their frequency of use and on the rates of acceptance by workers (8, 14, 18, 23, 24, 25, 34, 38). Other studies have concentrated on the conditions of their establishment in specific sectors of activity such as education (11, 12) or public administration (19), on the definition of quantitative models to measure the actual incentives created by programs and improve their attractiveness (6, 27, 28, 29), or on the institutional factors surrounding their adoption (2, 9). In

Canada, however, few studies have examined the issue, and most have focused on questions of cost and efficiency rather than conducting a more comprehensive analysis of their emergence (33, 39, 40).

The aim of this paper is to explore some of the structural and individual dynamics which have contributed to the emergence of ERIPs in Canada. Following a brief analysis of the labour force participation trends among older workers and the institutional context in which ERIPs have emerged, a review of the hypothesis put forward by existing research to explain why organizations adopt such incentive programs is offered. Data on the prevalence of ERIPs among firms by type of industry is then presented, followed by a discussion on why these programs seem to prevail in certain sectors of the economy more so than in others. The next section looks at workers who subscribe to ERIPs and aims at establishing a profile of this population according to a number of socio-demographic variables and at examining the role played by ERIPs on the decision to quit working. The conclusion sums up some of the findings and offers a tentative prognosis on the future of these programs in Canada.

The study relies on secondary analysis of data from two sources: (1) the Human Resources Development Canada (HRDC) analysis of *Provisions in Collective Agreements* (1994), and (2) Statistics Canada's *Survey of Persons Not In the Labour Force* (1992). The HRDC data set provides information on all Canadian companies (n= 1 100) subject to a collective agreement involving more than 500 employees (or 200 if they are federally regulated); the Statistics Canada survey supplements the regular labour force survey and comprises information an a nationally representative sample of the population of working age no longer in the labour force. Both data sets provide information on ERIPs.

ERIPs and the trend toward early exit from the work force in Canada

The development of ERIPs in Canada has taken place in a context marked by a pronounced decrease in the labour force participation rates (LFPR) of older workers, a trend common to all OECD countries. Over the 1976-1994 period, for instance, the LFPR of male workers in the age groups 55-59 and 60-64 dropped by 8.8 % and 21.6 % respectively. The trend among female older workers is less pronounced as a result of two counteracting forces: on the one hand, increases in the size of new female cohorts entering the 55-64 age group and, on the other hand, more frequent departures from the labour force at ages lower than 65. However, among the 60-64 age group, the activity rates have already begun to show a decline, passing from 27.6 % to 24.8 % during the same 1976-1994 period.

While contributing to this trend, ERIPs have been but one policy instrument used by workers to withdraw from paid work. Available data show that the most popular routes used to retire early have been flexible retirement at age 60 and disability insurance, both through the Canada/Quebec Pension Plans (C/QPP) (13). A third public route, referred to as "bridging schemes" for long-term unemployed workers, have been of much less importance.

Employer sponsored programs, such as occupational pension plans (OPPs), also provided workers with the financial means for early labour force withdrawal, and this clearly to a larger extent than in most OECD countries˜with the exception of the US. A common characteristic of ERIPs is in fact their articulation to OPPs. Early retirement plans are generally designed as improvements to the existing

OPP, offered on a limited time basis to workers of a certain age group (usually 55 and over) and/or who have been employed in the company for a given number of years (usually 25 or more). The existence of an OPP is therefore an essential premise to their establishment.

Finally, various forms of investment made by workers and subsidised by the state, such as Registered Retirement Saving Plans and other similar plans, often constitute important sources of support for early retirement. These plans, however, can not be considered as ”institutional” routes for retirement, but rather, as personal forms of support.

Organizational motivations behind the adoption of ERIPs

What is the rationale to the establishment of ERIPs by firms? Four alternative explanations have been provided in the literature to account for the adoption of ERIPs. Namely, ERIPs are adopted as a means to: (1) contain the costs occasioned by the aging of the work force; (2) cut the size of the work force without having to resort to mass redundancy; (3) change the age profile of organizations and favour the career prospects of younger workers; (4) create new mechanisms to regulate the departure of workers at the end of their career. The first two explanations respond to direct financial considerations and, therefore, are of a *reactive* nature, whereas the two others relate to strategic considerations and for this reason could be defined as *pro-active*. In all cases the general objective pursued by companies is to favour the voluntary departure of older workers from the work force.

Unfortunately the empirical data to confirm or invalidate these hypotheses are either unavailable or inconclusive. With regard to the first one, it has been suggested that the apparent imbalance between marginal productivity and earnings among workers at the end of their career would explain the interest of companies in retiring these workers (26). ERIPs, just like occupational pension plans, would represent an institutional mechanism adopted by firms to deal with this issue and minimise costs. Some researchers, however, suggest that such an imbalance, particularly as it relates to workers’ productivity, is only speculative (20). Others show that the ”bonuses offered by the firm’s plans are far too large to be consistent with minimising the expected future wage bill” (27).

The most common explanation in the literature associates the adoption of ERIPs with downsizing initiatives. Surveys conducted in Canada and the US show, for example, that of all the measures used or contemplated by firms to reduce the size of the work force, ERIPs rank high in the scale of preferences (32, 39). In comparison to other methods that could be used to contract the work force, ERIPs appear to be the most humane, particularly when dealing with categories of workers for which terminations have traditionally been avoided. But information collected in the US seems to indicate that ERIPs are not necessarily used as an alternative to other means of reducing personnel (2). It is nevertheless clear that the popularity of ERIPs among companies which downsize is quite high.

Concerning the third hypothesis, which states that freeing up positions at the top of an organizations’ age pyramid would favour both the hiring and the career advancement of younger workers, the results from research are, once more, inconclusive (4, 27, 47). In Canada, particularly in the areas of education (1) and public administration (43), ERIPs have traditionally been thought of as a way of compensating for the demographic aging of organizations. Studies conducted on the pub-

lic administration show that among agencies where ERIPs are common the median age of workers tends to be lower. These studies, however, are unable to determine the actual importance of ERIPs in the definition of this trend (10, 30, 45). Furthermore, in the private sector, even when companies appear to be concerned about the aging of the work force (15), strategic management in relation to age is, with the exception of large firms, quite rare (46).

Finally, with regard to the last hypothesis, some researchers assert that the abolishment in certain jurisdictions of compulsory retirement would have prompted companies to adopt alternative ways to regulate the transition from activity to retirement (36, 37). In the US, for example, the increase in the number of companies using ERIPs toward the second half of the 1980's, when compulsory retirement was effectively banned, seems to corroborate this proposition. But surveys also indicate important differences in annual rates (23, 24, 25) and it is not known whether the increase is mostly attributable to the change in retirement policies or to other structural or circumstantial factors. Data from Canada, as will be seen later, show a similar trend.

Overall, the reasons propelling firms to adopt ERIPs are complex and difficult to comprehend. This difficulty is all the more evident when we consider that the hypotheses considered are not mutually exclusive. Furthermore, it is possible that organizations adopting ERIPs do so in response to a range of different factors, some internal and other external to them (i.e. the aging of the work force, exposure to technological change, positioning in the market, regulatory environment, etc.). The data we present in the following sections, which are specific to Canada, serve to clarify some of these issues.

The utilization of ERIPs by Canadian firms

What is the prevalence of ERIPs among Canadian firms ? No data set representative of the entire population of Canadian firms is available to provide an accurate answer to this question. Information from the HRDC data set indicates that slightly over 8 % of Canadian firms within the sample considered offered ERIPs during a two-year period prior to 1994. This figure is considerably lower than the one from the US where, according to surveys, on average slightly less than 15 % of companies offered similar plans during the 1982-1993 period. The lower rate of use among Canadian firms is probably related to the non-representative nature of the HRDC data set. A more recent survey based on a representative sample of Canadian companies employing approximately 550 employees, reveals that as many as 38,5 % of respondents offered at least one incentive program between 1989 and 1994 (39).

If we concentrate on the sectors of activity where ERIPs are offered (Table 1), it appears that in the aggregate, the frequency of use among service-producing firms is higher than among goods-producing firm. Differences within particular sectors are nevertheless quite significant: as many as 18.8 % of firms in the primary sector (mostly in mining) resorted to ERIPs, followed by 13.4 % in the service sector (mostly in education), 8.3 % in manufacturing and 7.1 % in transportation and material handling.

Table 1. Distribution of Companies Offering ERIPs by Type of Industry, Canada, early 1990's.0

Sector of activity	All companies surveyed (n=1 100)	Companies offering ERIPs %
Goods Producing	*318*	*6.9*
Primary	27	18.5
Manufacturing	204	8.3
Construction	87	0.0
Services Producing	*782*	*8.8*
Transportation	195	7.1
Trade	43	2.3
Finance	9	0.0
Services	378	13.4
Public Administration	157	1.9

Source: Human Resources Development Canada, 1994.

Two indicators for each particular industry (not shown on the table), *mean age of the work force and employment variation rates*, could be used in an effort to better assess the reasons motivating the adoption of early retirement schemes. Neither one of these indicators, however, seem to offer a solid explanation of the behavior of firms with regards to ERIPs. For instance, firms in the services sector, such as those in education, where employment levels increased consistently over the 1980's are among those which appear to have used ERIPs the most (35). Likewise, sectors of activity where the age profile of workers is relatively young, such as mining (5), have in comparison to others, offered ERIPs quite frequently.

Proportion of workers subscribing to ERIPs and their profile

Statistics Canada's 1992 survey of persons not in the work force (44) indicated that about 19.5 % of all workers aged 50 to 69 who retired earlier than planned benefited from an incentive program. The actual percentage of workers subscribing to an incentive program is probably higher, particularly when we consider that many of them return to the work force following the acceptance of an offer but are not counted in the survey. Data from the US shows that only about 43 % of beneficiaries do in fact withdraw from paid labour on a permanent basis (8). It is nevertheless clear that the quantitative importance of ERIPs in the definition of the trend toward early retirement since the mid 1980s has been less significant than previously suggested.

If we disaggregate the data according to sex and the year the offer was accepted, it appears that the number of beneficiaries has increased over the years (Table 2). This trend is quite significant particularly when we take into account that during periods of economic downturn the employees' frequency of job changes is generally lower (3).

Table 2. Percentage Distribution of ERIPs beneficiaries according to Sex and Year of Withdrawal from the Labor Force, Canada, 1992.

Year of Withdrawal	Males (n= 278)	Females (n= 117)	Total (n= 395)
1986 or before	21.7 %	10.1 %	15.0 %
987 to 1989	30.8 %	14.0 %	23.5 %
1990 to 1992	35.9 %	15.1 %	27.3 %

Source: Statistics Canada, 1992.

As far as the occupation of workers is concerned, the data shows that white collar workers, in particular managerial, professional and clerical staff, are those who ”benefit” the most (Table 3). This phenomenon can be attributed either to the different degree of attractiveness that windows have on these categories of workers or to the targeted nature of the offers.

Table 3. Percentage Distribution of ERIPs Beneficiaries by Type of Occupation, Canada, 1992.

Occupation	Total Number of ”Early Retirees” (n= 885)	ERIPs Beneficiaries (%)
White Collar	*543*	*27.6*
Managerial and Professional	207	39,6
Clerical	143	29.4
Sales	68	14.7
Services	125	12.8
Blue Collar	*342*	*24.9*
Primary	56	26.8
Processing	57	22.8
Manufacturing	95	22.1
Construction	61	22.9
Transportation and Material Handling	73	27.1

Source: Statistics Canada, 1992.

The probability of receiving benefits increases with the level of family income. Table 4 shows that more than half of all male beneficiaries have a family income of $ 40,000 or more.

Table 4. Percentage Distribution of ERIPs Beneficiaries According to Sex and Family Income, Canada, 1992.

Family Income	Males (n= 250)	Females (n= 108)	Total (n= 358)
Less than $ 20 000	15.4 %	6.8 %	10.6 %
$ 20 000 to $ 39 999	33.4 %	14.1 %	23.9 %
$ 40 000 to $ 59 999	51.3 %	18.8 %	34.2 %
$ 60 000 or More	59.5 %	19.1 %	39.3 %

Source: Statistics Canada, 1992.

Finally, if we look at the various reasons given by ERIPs beneficiaries to quit working, the data on Figure 1 reveals that a majority retired voluntarily (57.1 %) and in response to an early retirement offer (45.3 %). More than one-third, however, decided to withdraw from work involuntarily. For many workers in this group, ”incentives” are tantamount to ”forced retirement,” particularly when the programs are associated with the elimination of jobs or a larger employment reduction initiative.

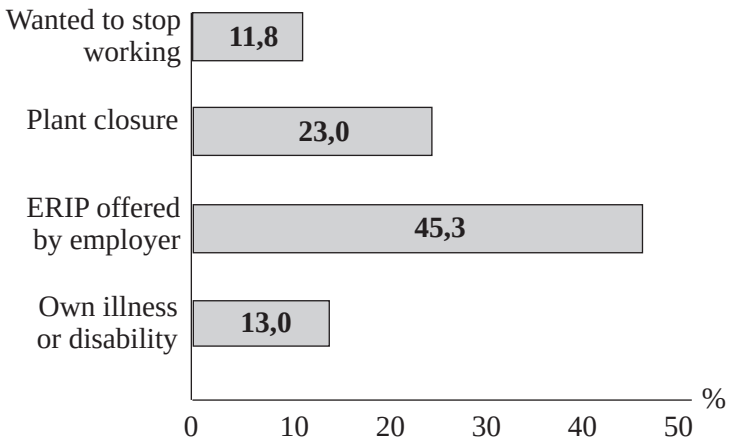

Figure 1. ERIPs beneficiaries according to reason (excluding categories where frequency was too small) for early retirement. Percent of total. (Source: Statistics Canada, 1992.)

Results achieved and conclusions

The increasing popularity of ERIPs among firms and their importance as an institutional mechanism to accelerate the retirement of older workers have been underlined by a number of analysts. For many researchers in North America, the generalized trend toward early retirement characteristic of the past two decades is correlated with the incentives created by available non-wage income in general, and early retirement offers in particular. The data that we presented from national surveys suggest that in Canada ERIPs have become quite common among firms of different size and sectors of activity.

An analysis of the same data, however, serves to clarify a number of issues. A first one is that the quantitative importance of ERIPs in the definition of the trend toward early retirement since the mid 1980s has been less significant than previously suggested. Even if we accept that the number of respondents to the Statistics Canada survey who declare to have quit their jobs in response to an ERIP (equal to 19.5 % of all respondents or 161 000 workers) represents an underestimate of the total number of workers having benefited from such a scheme, it should be emphasized that the figure only marginally accounts for the total volume of workers who withdrew from the work force prior to age 65 during the 1980s.

Since neither of the two surveys considered in this study were specifically designed to gather information on ERIPs, a systematic and conclusive explanation as to why firms adopt these programs can not be offered here. One general observation is that the objectives pursued by companies when adopting an incentive program are relatively heterogeneous, reflecting their particular organizational nature

and location in the economy. These objectives also seem to change over time. The distribution of firms according to sector of activity reveals that in certain areas, mining and manufacturing for example, corporate restructuring and the need to reduce the level of personnel were probably the two most important factors determining the adoption of early retirement programs. Among firms belonging to the public service sector, where the rate of utilization of ERIPs is relatively high, the implementation of ERIPs traditionally has not responded to fluctuations in employment levels or to the desire by employers to downsize. Higher education is a case in point, since incentives were adopted by many institutions from quite early in the 1980s as a means to encourage the departure of tenured faculty and create vacancies for younger ones. In recent times, however, budgetary restraints and the desire of institutions to balance their books via personnel reductions have replaced the earlier objectives guiding the adoption of incentive schemes. For either sector of industry, both the concentration of older workers (45+) and the contraction of employment, taken separately from other factors, are very imperfect indicators of the adoption of ERIPs.

As far as the beneficiaries of incentive programs are concerned, the data shows that certain groups, such as white collar workers (particularly managerial and administrative staff), males, and workers with an average annual income higher than $ 45 000 are more likely to have accepted an offer. In addition, although for a majority of early retirees exit from the work force was voluntary and tied to incentives; for more than one-third, the decision was involuntary.

The task of anticipating what role ERIPs may play in the future as instruments for early retirement is a difficult one; a number of possible changes in the economic and policy environment, however, are likely to affect their development. First of all, to the extent that most incentive plans have been financed by means of the surpluses from occupational pension plans funds, a lower return from these funds is likely to limit the possibilities companies have to implement them (41). Reforms modifying the conditions of or the age of eligibility for early retirement also have the potential to affect ERIPs. A gradual increase in the age of eligibility for full Canada/Quebec Pension Plan benefits, by diminishing the actuarial value of pensions for early retirees, would undoubtedly increase the cost of incentive programs. Finally, new policies on the part of firms aimed at keeping older workers active, although contrary to past trends, could also influence the development of ERIPs in the future.

Whatever the situation may be, in the present circumstances, in Canada ERIPs appear to have become an institutionalized practice. The cost/benefit evaluation of these programs made by companies is considered to be generally favorable, as concluded by a number of studies (5, 39). Few indicators exist to suggest that ERIPs will become a less common instrument to manage the exit of workers from paid labour.

Summary

The aim of this study is to explore the structural and individual dynamics which have contributed to the development of Early Retirement Incentive programs (ERIPs) in Canada. The study relies on secondary analysis of data from two files: the Human Resources Development Canada analysis of *Provisions in Collective Agreements* (1994), and Statistics Canada's *Survey of Persons Not In the Labour*

Force (1992). The analysis shows that the quantitative importance of ERIPs in the definition of the trend toward early retirement since the mid 1980s has been less significant than previously suggested. Also, the dynamics accompanying the adoption of ERIPs by different Canadian companies vary and reflect their particular organizational nature and location in the economy. The implementation of ERIPs is in general tied to the existence of relatively generous occupational pension plans. Certain groups, such as white collar workers (particularly managerial and administrative staff), males, workers with an average annual wage higher than $ 45 000, are more likely to benefit from ERIPs. The conclusion elaborates on the possible future of ERIPs as an instrument for early retirement, and the political and social changes liable to affect their development.

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Associations between age, shoulder-neck disorders and physical and psychosocial risk factors at work

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Introduction

As the working population grows older, many questions about ‘elderly’ people at work are raised. A higher prevalence of musculoskeletal disorders is well known among older people (10). One important question is whether the pattern of risk factors differs between age groups. The aim of this study was to evaluate the associations between present and past potential risk factors at work, both physical and psychosocial, and musculoskeletal disorders in the neck and shoulder region, with special regard to age.

Methods

The present study is a part of a larger study, the REBUS study, conducted in Stockholm in 1993. All subjects had participated in an earlier part of the REBUS study (2), based on the general population, conducted in Sweden in 1969. Out of 2 500 persons in the first REBUS study all persons, aged less than 58 years in 1993, without diagnosed musculoskeletal disorders in 1969, living in Sweden and possible to contact, were identified (n=783). Sixty two percent of these, 250 females and 231 males, participated in the present study. The younger group was between 41 and 49 years of age and the older between 50 and 58 years of age.

The 12 months prevalence of neck and/or shoulder disorders in 1993 was assessed using the Nordic questionnaire and used as outcome variable (4).

Data concerning perceived risk factors at work, both present (1993) and five years ago (in 1988), were collected by a questionnaire concerning physical exposure, and by a structured interview concerning psychosocial conditions. Five items were used for physical work load (3): sitting work, work with arms above shoulder level, work with hands below knee level, work with twisted trunk postures and repetitive hand and finger work. Sitting was estimated using a 100 mm VAS scale, and for work posture and repetitive work a 5-level ordinal scale was used (9). Subjects were considered to be ”highly exposed” to sitting work if they spent more than 70% of the working time sitting. Concerning the other items, ”high exposure” was identified if a person reported work with arms above shoulder level, work with hands below knee level, work with twisted trunk posture or repetitive hand and finger movements exceeding 30 minutes per day more than one day per week. Borders between ”high” and ”medium/low” exposure were defined as above and below the median values in this study, respectively. Three items were chosen concerning psychosocial work load. Few or no possibilities to gain

new knowledge at work, few or no development options at work, and low decision latitude at work, wich was defined as little or non-existing possibilities to influence the order of tasks performed and when to change work tasks.

All analyses were done separately for men and women and for the different age groups. Differences between the age groups in prevalence of neck/shoulder disorders and prevalence of exposure to the chosen potential risk factors at work were expressed as differences of proportions, with approximate 95% confidence intervals (c.i.). The associations between potential risk factors in groups characterised by ”high” or ”medium/low” exposure, and neck/shoulder disorders were evaluated using prevalence rate ratios (PR) and 95% c.i. The SAS statistical software (model PROC FREQ) was used (7). When analysing the associations between exposure five years ago and present disorders, the results were also controlled for present (1993) exposure, according to Mantel-Haenszel (6). A significance level of *P* equal to or less then 0.05 was accepted.

Results

The prevalence of neck/shoulder disorders among women below 50 years of age was 63% and among those above 50 years of age it was 68%. Corresponding figures among men were 45% and 57% respectively. The difference between the age groups was higher among men than among women, but were not statistically significant.

The prevalence of high exposure differed between genders, age groups and exposure years (1988 and 1993). See table 1.

Table 1. Prevalence of ”high exposure” to physical and psychosocial factors at work, in 1993 and in 1988. Percentages among women and men, divided into two age groups.

	Female		Males	
Potential risk factors	41-49	50-59	41- 49	50-59
% ”high exposed”	n=170	n=80	n=148	n=83
Sitting work-93	37	32	42	45
Sitting work-88	35	38	38*	46*
Arms above shoulder level-93	8 ‘	7 ‘	16 ‘	11 ‘
Arms above shoulder level-88	11	7	16	11
Hands below knee level-93	13	15	17	10
Hands below knee level-88	15	15	18	14
Twisted trunk postures-93	36 ‘	35 ‘	28 ‘	25 ‘
Twisted trunk postures-88	38	38	30	26
Repetitive hand/finger movement-93	38 ‘	36 ‘	27 ‘	31 ‘
Repetitive hand/finger movement-88	41	41	29	35
Low decision latitude-93	19	24	12	8
Low decision latitude-88	44*	29*	35	25
Few possibilities to learn new skills-93	25	28	26	21
Few possibilities to learn new skills-88	32	30	28	23
Few development possibilities-93	40*	57* ‘	43	42 ‘
Few development possibilities-88	43	49	40	36

* Statistically significant age difference ‘ Statistically significant gender difference.

The main findings, statistically significant, were that women reported less work with arms above shoulder level in 1993, more repetitive hand and finger movements and more twisted trunk positions than men, independent of age, both in

1993 and in 1988. Women over 50 years of age reported less development possibilities than younger women and older men in 1993. The decision latitude at work was lower in 1988 than in 1993, especially among younger women and men.

Associations between psychosocial and physical work load and neck/shoulder disorders are given in table 2 and 3.

Table 2. Associations between 12 month prevalence of neck and shoulder disorders and potential risk factors at work, in 1993 and in 1988. Results given as crude prevalence ratios (PR) and 95% confidence intervals (95% c.i.) in two female age groups. Bold graphics indicate that the lower c.i. is >=1.0.

Potential risk factors	Female 41-49 n=170		Female 50-58 n=80	
Sitting work-93	1.0	(0.8-1.3)	0.8	(0.5-1.1)
Sitting work-88	1.0	(0.8-1.4)	1.0	(0.7-1.4)
Arms above shoulder level-93	0.9	(0.6_1.4)	1.3	(0.7-2.1)
Arms above shoulder level-88	0.9	(0.6-1.3)	**1.5**	**(1.0-2.5)**
Hands below knee level-93	1.2	(0.9-1.6)	**1.4**	**(1.0-2.1)**
Hands below knee level-88	1.0	(0.7-1.4)	**1.6**	**(1.1-2.3)**
Twisted trunk postures-93	1.1	(0.9-1.4)	1.2	(0.9-1.6)
Twisted trunk postures-88	1.2	(0.9-1.5)	**1.3**	**(1.0-1.8)**
Repetitive hand/finger movement-93	**1.2**	**(1.0-1.6)**	0.9	(0.7-1.3)
Repetitive hand/finger movement-88	**1.4**	**(1.1-1.7)**	1.2	(0.9-1.6)
Low decision latitude-93	1.2	(0.9-1.6)	**1.4**	**(1.0-1.9)**
Low decision latitude-88	0.9	(0.7-1.2)	0.8	(0.5-1.3)
Few possibilities to learn new skills-93	1.0	(0.7-1.3)	1.3	(0.9-1.9)
Few possibilities to learn new skills-88	0.8	(0.6-1.1)	**1.4**	**(1.0-1.9)**
Few development possibilities-93	1.2	(1.2-1.5)	1.2	(0.8-1.6)
Few development possibilities-88	1.2	(0.9-1.5)	1.1	(0.8-1.6)

Table 3. Associations between 12 month prevalence of neck and shoulder disorders and potential risk factors at work, for the year of the report of disorders (1993) and five years previously (1988). Results given as crude prevalence ratios (PR) and 95% confidence intervals (95% c.i.) in two male age groups. Bold graphics indicate that the lower c.i. is >=1.0.

Potential risk factors	Males 41-49 n=148		Males 50-58 n=83	
Sitting work-93	0.7	(0.5-1.0)	**1.6**	**(1.1-2.3)**
Sitting work-88	0.8	(0.5-1.1)	1.2	(0.8-1.8)
Arms above shoulder level-93	**2.0**	**(1.3-3.0)**	0.8	(0.4-1.5)
Arms above shoulder level-88	**1.8**	**(1.2-2.6)**	1.0	(0.5-1.8)
Hands below knee level-93	**1.5**	**(1.0-2.3)**	0.6	(0.3-1.4)
Hands below knee level-88	**1.5**	**(1.0-2.3)**	1.0	(0.6-1.8)
Twisted trunk postures-93	**1.5**	**(1.0-2.1)**	0.9	(0.8-1.4)
Twisted trunk postures-88	1.3	(0.9-1.9)	0.8	(0.5-1.3)
Repetitive hand/finger movement-93	1.3	(0.9-1.9)	1.1	(0.8-1.7)
Repetitive hand/finger movement-88	1.2	(0.8-1.7)	1.3	(0.9-1.9)
Low decision latitude-93	1.4	(0.8-2.3)	0.9	(0.4-1.8)
Low decision latitude-88	0.9	(0.5_1.4)	**1.6**	**(1.0-2.5)**
Few possibilities to learn new skills-93	1.0	(0.6-1.5)	1.3	(0.8-2.0)
Few possibilities to learn new skills-88	1.2	(0.8-1.8)	**1.5**	**(1.0-2.3)**
Few development possibilities-93	1.2	(0.8-1.9)	1.1	(0.8-1.6)
Few development possibilities-88	1.2	(0.8-1.8)	1.2	(0.8-1.8)

Among women below 50 years of age associations were found between neck/shoulder disorders in 1993 and repetitive hand/finger movements. The significant associations for exposure in 1988 given in table 2, remained also when controlling for exposure in 1993. Among women above 50 years of age, associations were found between neck/shoulder disorders in 1993 and work with arms above shoulder level, work with hands below knee level, work with twisted and bent positions. All significant associations given in table 2 remained when controlling for exposure in 1993. Concerning psychosocial issues associations were found between neck/shoulder disorders and low decision latitude in 1993 and few possibilities to learn new skills at work in 1988 among women over 50 years of age. These associations were not observed when controlling for exposure in 1993. All observed excess risks were relatively weak, with point estimates of 1.2 to 1.6.

Among men below 50 years of age, work with arms above shoulder level, work with hands below knee level and twisted trunk positions, were associated with neck/shoulder disorders. However, when controlling for exposure in 1993 the associations regarding exposure in 1988 did not remain. Among men above 50 years of age, sitting work in 1993 was associated with neck/shoulder disorders in 1993. Low decision latitude and few possibilities to learn new skills in 1988 were associated with neck/shoulder disorders among men over 50 years of age. These findings remained when controlling for exposure in 1993. The excess risks varied with point estimates of 1.5 to 2.0.

The Drop-outs (734-481) constituted 37% of the study population, 40% of the women and 32% of the men. They did not differ from the study group regarding age or socio-economic group.

Discussion

An increased prevalence of musculoskeletal disorders with age among subjects with various jobs has also been found in other studies, for example by Tuomi et al (10). Also in agreement with other studies, women in the present study had more disorders than men in both age groups (5, 8).

The risk factors identified in this study differed between age groups and gender. Physical work load appears to be a risk factor for young but not for older men, while the reverse seems to occur among the women. Male subjects may have adapted their work load to a decreasing physical capacity, while women may not have been given the possibilities to do so. Sitting work was associated with disorders among men above 50, and one explanation may be that men with disorders may have changed to more sitting work, but still suffer from the effect of earlier physical work load. Another explanation can be that sitting work itself, chosen for different reasons, causes the increased risk estimates. Concerning psychosocial risk factors, no explanation to the finding that these factors are associated with neck/shoulder disorders only among people of 50 and above, could be given in this study. Psychosocial factors have previously been shown to influence disorders of the shoulder-neck area, but no differential effects between age groups have been observed (1). Further data analyses on this material, as well as new studies ought to be done to find proper answers to the age and gender differences, found in the present study.

Other factors, like leisure time and life style, may have an additional influence but were not investigated in this study.

Conditions five years ago seemed to have an influence on the prevalence of neck/shoulder disorders, even when controlling for recent exposures, which indicates an effect of accumulated exposure over several years.

Summary and conclusions

In a study about work-related conditions and musculoskeletal disorders in 1993 250 female and 231 men, representing the general population in Stockholm, participated. In the present study about work-related conditions and neck/shoulder disorders the studygroup was divided in four parts regarding age and gender.

The younger group was between 41 and 49 years of age and the older between 50 and 58 years of age. Women had a higher prevalence of neck/shoulder disorders than men, and the prevalence was higher among people above 50 than among people below in both genders. The risk factors identified in this study differed between the age groups.

Not only recent conditions but also conditions up to five years back in time influence shoulder-neck morbidity, wich may have important implications in prevention.

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Ageing and learning after 40 in an automobile assembly line

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Introduction

The study presented here is a cross sectional study and was conducted in an automobile construction company. The operators work on assembly lines which means they are confronted with repetitive tasks under tight time constraints: the assembly cycle time is about 1.30/1.40 minute.

The age structures of this automobile construction plant are due both to the demographic evolution of the active population and the hiring policy it carried out for several years, favouring temporary jobs. Because of this, the majority of the production population today is represented by average age groups : in 1994 workers between 35 and 50 made up 65% of this population which is bound to age unless massive numbers of young operators are hired.

In addition to this ageing, the policy the company has chosen to apply to this plant has implications for the organisation and contents of work, and the difficulties experienced by older workers :

- the development of subcontracting has reduced the number of jobs on the assembly line which were less subject to time constraints and therefore were assigned to older operators;
- the increase in the variety of vehicles to meet the demands of the market has made the job more complex;
- the just-in-time type of production has reinforced time constraints ;
- and workers tend to be more "polyvalent" (that is to say performing at least two jobs similar in nature on the assembly line), because the very tightly calculated staff numbers imply increased flexibility of labour.

All these requirements together cause difficulty for the older operators who, moreover, must remain on the production lines. The company therefore turned to us so as to identify the nature of these difficulties and also determine the strategies the older workers implement to remain in their workstations, in view of adapting the production tool to the charcteristics of this population. We will refer more specifically here to a section of the study regarding age and learning.

A decrease in job rotation with age

As job rotation has become a preponderant issue, we started studying the links between this form of work organization and age.This study follows-up the mobility of 734 operators working in the assembly, steel sheet work and paint department, over a period of 9 weeks. In all the departments a decrease in multifunctionality after 40 was noted, particularly marked in the case of the assembly department.

This study is a cross sectional study. Therefore, a generation effect may occur, since job rotation was not as developped 10 or 15 years ago. Nevertheless, it is important to notice that this decrease of job rotation appears as early as 40 years old, i.e. for operators who may remain on the assembly line for many years.

In the mechanics shop (Figure 1), the proportion of operators who have only performed one job increases with age and represents 3/4 of the operators of ages 45 and over; the proportion of operators doing more than 5 jobs decreases sharply and is very low already at age 40. In the mouldings shop (Figure 2), only operators under 35 (there are few of them) are very often ”polyvalent”; as early as 35, the number of operators on a single workstation rises strongly.

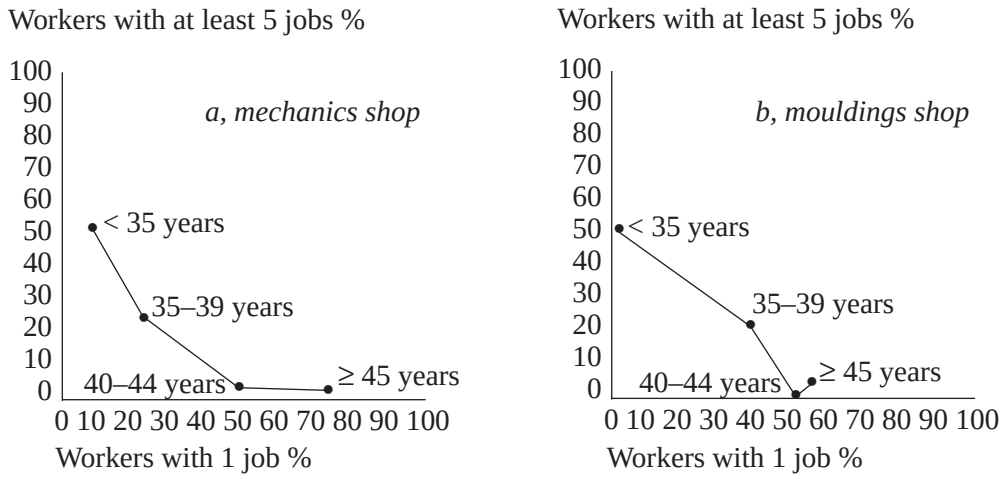

Figure 1a and 1b. Polyvalence at different ages in the mechanics shop (1a) and in the moulding shop (1b).

Out of the 60 interviews we carried out with the operators on the issue of these results, it appears that health plays an important part : the younger ones want to become ”polyvalent” to avoid straining particular parts of their body and the older ones no longer want to be ”polyvalent” to preserve their health.

These results can be interpreted by means of finer analyses studying the operating modes of workers of different ages, used on the same workstation. An operating mode is a sequencing of operations. The operating modes can change according to each operator, his own characteristics and the characteristics of the job. When the workstation requirements so permit, the older workers implement strategies in order to achieve production goals while preserving their health. It involves securing a stable pace to prevent sudden accelerations, reducing movements, efforts, straining postures, and implies developing fine sensory-motor skills.

But these strategies largely depend on the workstation characteristics : if they require both cognitive notions on the variety of pieces to assemble and too great physical efforts, their freedom to manoeuvre will be limited and will not allow them to implement health-preserving strategies. These strategies cannot be implemented in every single job and this could partly explain the decrease in job rotation after 40. Such knowledge led us to look into the different stages involved in learning a new job for operators at different ages, to see what difficulties the older ones experienced and whether they were age-specific.

Method

We studied 9 learning situations (that is 545 work cycles) for operators aged 19 to 53, in the mechanics and mouldings shops. The operators were divided into 2 groups: the ”young” group corresponds to operators aged 19 to 30 (n=4) and the ”old” group corresponds to operators aged 36 to 53 (n=5). We gathered the following information for each of them:

- the distribution of operations between tutor and trainee and their oral discussions;
- the incidents occurred during the periods observed; by incident, we mean any learning problem that may cause the trainee start the operation again;
- the choice of teaching methods and, at the beginning and/or the end of their training, on their difficulties.

We present here the main results of the statistical analysis made on these data, in addition to more clinically-oriented comments.

Results

Training on a new workstation is an ”on-the-job” form of learning. This means that operators who work ordinarily on that station and do not have specific training skills are going to teach other operators how to perform the job: its operating modes, special knacks and tricks etc.

Figure 2 shows the percentage of work cycles entirely performed by trainees according to their age and to the training periods in number of hours.

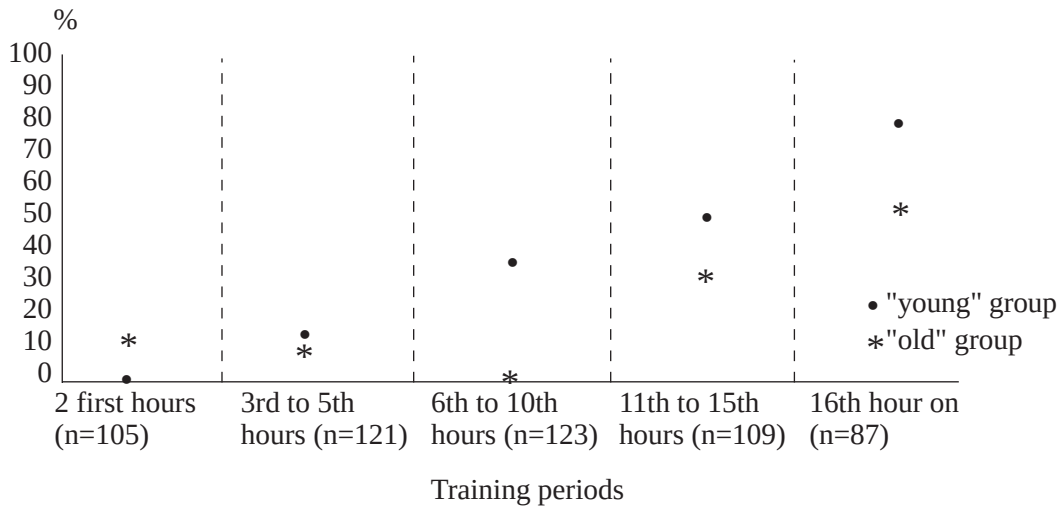

Figure 2. Percentage of work cycles performed in relation to age and training periods.

Whatever their age, trainees rarely manage to accomplish every single operation in the cycle in the time alotted. The acquisition of skills is done by progressively adding on another operation and during that time the tutor performs the operations still not acquired. The percentage of cycles for which all the operations are done, gradually increases. This progression is a little faster among young operators than among older ones.

Two hypotheses are possible: This difference would reflect greater difficulties experienced by the older workers and/or different learning strategies.

As for the incidents, we distinguished three types :

- assembly-related incidents;
- the ones caused by the fall of parts;
- and those due to bad memorisation such as the wrong choice of a part, or an omission.

Just as the percentages of the complete cycles we showed earlier give an idea of ”learning performances”, the incidents can be considered to give more qualitative indications on the success or failure of movements and mental processes involved in the job.

Figure 3 illustrates assembly incidents (the trend is the same for all types of incidents), the proportion of cycles in which incidents occur do not vary according to the period of training and there is no difference between age groups.

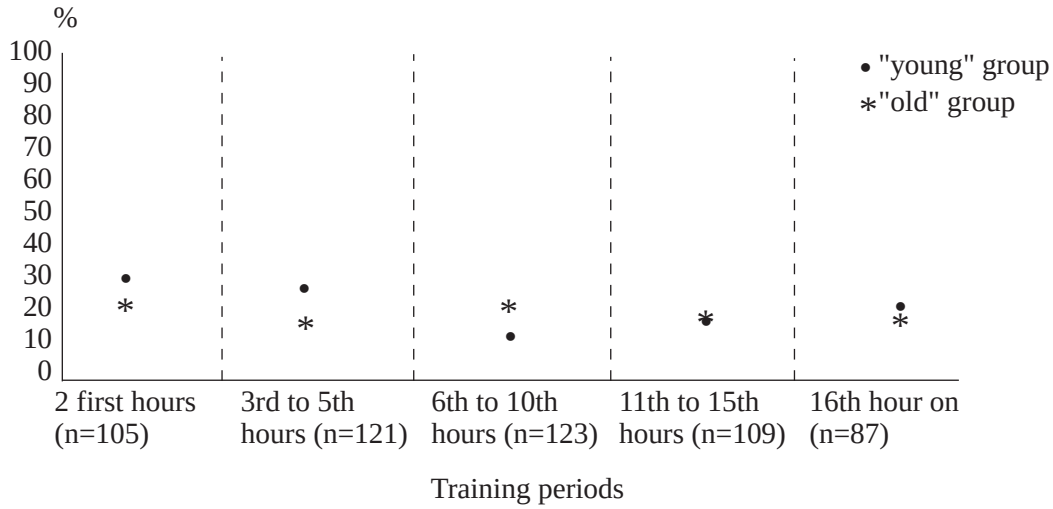

Figure 3. Percentage of assembly incidents in relation to training periods.

However, we did show earlier that the number of operations completed was slower to progress in the older group. This reflected, as was confirmed by the interviews, a more cautious attitude and a greater tendancy to check on their part, due to the risks of error. But this result is also achieved as a consequence of a certain selection -based on age- of the operators undergoing training, since job rotation decreases with age.

The following Figure 4 & 5 relate to the strategies trainees use to learn the operations in a work cycle. For this purpose we used the term ”object”, meaning that all the operations carried out in a cycle can be grouped according to the object they relate to : for example, an object is a transmission, a dashboard... each of which can imply supply, manual mounting, driving one or more screwing-in operations, i.e. the operations as such; a job can involve several objects.

We distinguished three types of strategies:

- the first, all the objects are made and all the operations carried out ;
- the second, all the objects are made though not all the operations are carried out;
- the third, all the objects are not made.

The older workers differ from the younger ones in that they use the intermediary strategy (the second one) longer and more often: all objects are made though not all the operations in the cycle are carried out; the younger operators go straighter to the strategy ”all objects are made”.

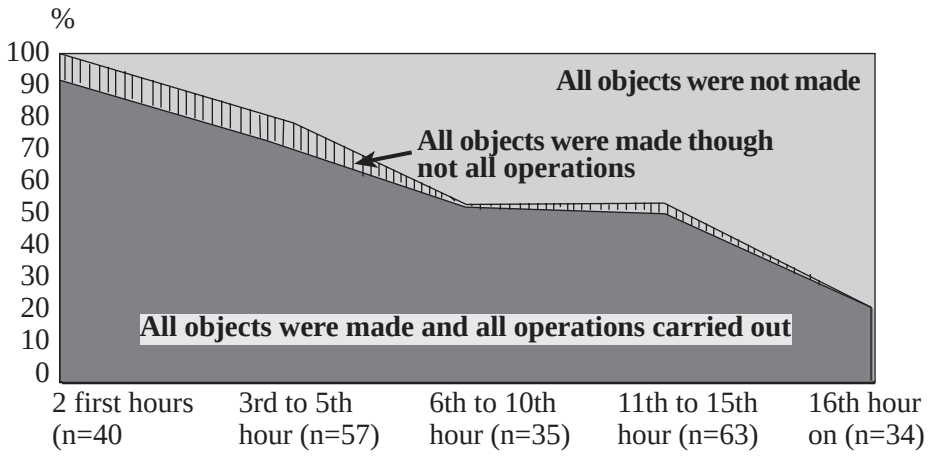

Figure 4. Three strategies utilized as a function of training for the younger group.

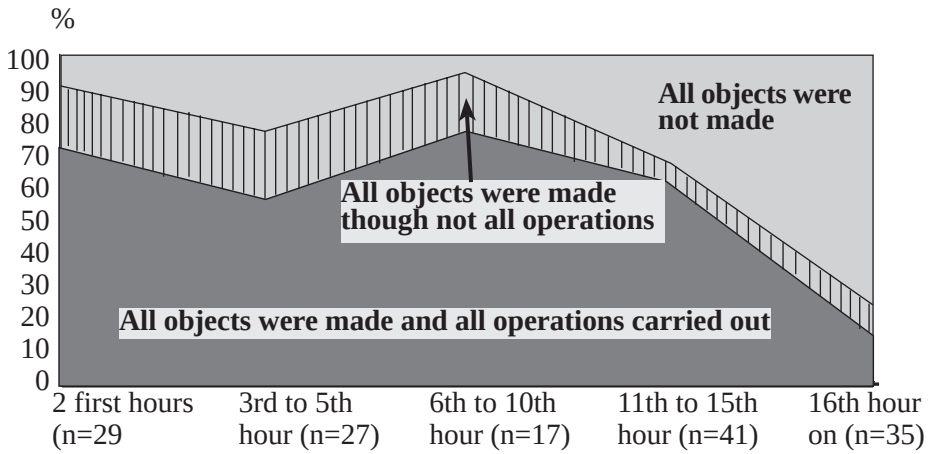

Figure 5. Three strategies utilized as a function of training for the older group.

Conclusions

The younger workers complete more cycles than the older ones. They do so at a very early stage of their training. In general, this performance is facilitated by the fact that they are more likely to be familiar with a neighbouring workstation, which appears to make learning easier. This difference does not seem due to particular difficulties experienced by older workers who are able to carry out entire cycles after only two hours training, without causing more incidents.

In fact to achieve a similar result, the older operators choose different strategies from the very start of their training. They ”practice” assembling all the objects before actually carrying out all the operations in the cycle. This strategy can be interpreted as a cautious attitude with regard to the acquisition of speed, because for the cycle to be complete it will have to be carried out at a given pace.

A more clinical analysis of data also reveals that the older group tries to implement the health-preserving strategies we referred to earlier : they group all the supplies together to avoid going back and forth, they create specific skills to less-

en their efforts and straining positions, they anticipate the work to be done by setting visual reference points. Such strategies aim at creating enough freedom of manoeuver to be less subject to the line constraints: time constraints but also constraints due to the variety of mounting operations performed on vehicles which arrive in a random order at workstations. Younger operators also adopt these strategies though less systematically.

The approach workers have to training thus varies according to their age as the older ones will start using these strategies from the very beginning of the learning stage. The period of implementation of these strategies can have a high cost for their health, all the more because pace is a major factor to deal with. Furthermore it is not possible to implement these strategies on every workstation.

These results could thus partly account for the decrease in job rotation with age. On the other hand, the training conditions do not favour older workers : the length of training periods depends of the production demands and the daily number of staff in the work teams. Training periods are liable to be interrupted or shortened.

Therefore the access to training offered to older workers implies a reflection on the nature and contents of the job whose characteristics must allow operators to implement strategies. Such strategies are necessary to preserve their health but also for a better organisation of work so as to prevent training periods from depending on production constraints.

Summary

The research presented, a cross sectional study, was conducted in an automobile construction company where the production population is ageing. Some demographic and economic factors lead to a remain of the ageing operators on the production lines, where the time constraints and the flexibility requirements are strong. All these requirements cause difficulty for the elderly. A first result shows a decrease in job rotation with age. This result can be interpreted by means of finer analyses studying the operating modes workers of different ages, used on the same workstation, and the learning of a new job. These analyses show that the older workers do not learn a new job the way the younger do and their aims of learning are different. Therefore, the remain of the ageing population on the production lines implies a reflection on the content of the job, and also on the organisation of work and training.

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Work ability and its relationship with age and maximal oxygen uptake

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Intoduction

The concept 'older worker' is relatively new in occupational health. Only less than a decade ago aging has been recognized by the International Commission of Occupational Health (ICOH) as an important process in relation to work capacity and work-related diseases. The mutual influence of work conditions and the rate of aging have just begun to be explored. In 1989 the scientific committee "Aging and Work" was raised under the auspices of ICOH.
Also in other disciplines the 'older worker' concept has not been considered a serious study problem until some 15-20 years ago (Kerkhoff,1981). Sometimes exceptions were made for those workers with very heavy physical work demands. As an example I like to quote here the recommendation of 1970 for older workers in Dutch harbours: "Employees of 60 years and older shall neither be employed in ship's holds and lighters, which are only accessible by hold-and/or rope-ladder, nor in prolonged heavy physical stevedore's labour, unless they do not object to such work themselves" (Baart, 1973).

Even today the need for a proper older workers policy seems not to be felt in many companies (Van der Kloet, 1996). In many countries it has been taken for granted for more than a century that employees worked until their usual mandatory retirement age of 65 years, without bothering much about work demands or workers fitness. Only in the recent decades a change in this attitude can be observed. Probably, two developments are responsible for this change in notion; firstly, the increased numbers of disabled workers and secondly, the aging of the workforces in most industrialized countries. This picture was rather obscured during the seventies and eighties when many older workers were made redundant due to economical developments resulting in early retirements for many workers. However, in this decade the need for older workers is increasing. At the same time their work situations appear to be more stressful than in the past, the pace of life has increased and many persons have difficulties to cope with their job demands. Maintaining work ability of older workers will become an important challenge to

occupational health care. Changes in mandatory retirement age, including flexible retirement, may eventually result in the continuation of employment for many persons to the age of 70.

Work ability is a complex concept that determines a person's capacity to cope with his or her job demands. These can be either mainly physical demands or mainly mental demands or combination of the two. Therefore work ability involves physiological variables, such as endurance capacity, but also mental and social capacity. Determining a person's work capacity in this way is usually a complicated matter. Motivation is probably also an important parameter of work capacity but it is even more difficult to imagine how to deal with this aspect of human performance.

With advancing age work ability can decrease. This is made obvious by the increasing numbers of disabled workers with advancing age. At the Finnish Institute of Occupational Health a questionnaire has been developed., the Work Ability Index (WAI), that has been tested for many years (Ilmarinen and Tuomi, 1993). From a follow-up study it appeared that the average WAI score decreased with age (Ilmarinen and Tuomi, 1993).

Physical endurance capacity is an important aspect of work capacity. We considered it useful to examine the WAI score in relation to age and to the maximal oxygen uptake (VO2max).

VO2 max is often used as a measure of a subject's work capacity, although the test provides only information about the aerobic power of a subject. Nevertheless it is in no doubt valuable to know to what amount the inter-individual scatter is usually wide (Skinner et al., 1982, Ilmarinen, 1994).

Method

WAI is expressed by a score, varying between 7 and 49. The WAI score represents the total score of 7 separate items of which a specification is shown in table 1 (Tuomi et al., 1994).

It was found that the WAI score had predictive value concerning work ability in the following four years.

Table 1. Specification of the 7 separate items from which the Work Ability Index (WAI) is composed. In brackets the various scales are given.

1. Current work ability compared with the lifetime best (1-10)
2. Work ability in relation to the job demands (2-10)
3. Number of current diseases diagnosed by physicians (1-7)
4. Estimated work impairment due to diseases (1-6)
5. Sick leave during the past 12 months (1-5)
6. Own prognosis of work ability two years from now (1-7)
7. Mental resources (1-4)

A translation of the WAI questionnaire into Dutch was made. The questionnaire was filled in by 207 workers (baseline group, 176 men, 31 women, age-range: 19-59 years) who were subjected to a periodic occupational health survey. Results of this preliminary study were presented at the Conference on Occupational Ergonomics and Safety in Zurich, Switzerland and published in the conference proceedings. (Goedhard et al., 1996). In the present study a sub-group of 49 workers (study group, 38 men, 11 women, age range: 26-57) voluntarily participated in a

maximum physical endurance test. VO2max was measured indirectly through heart rate (ECG) and work load. Use was made of a bicycle ergometer (Siemens EM940) and VO2max was measured by a stepwise increase of the load each minute with 0.4 Watt/kg body weight until exhaustion. Besides the so-called Framingham Index (FI) was determined, based on the measurement of plasma glucose and cholesterol levels, blood pressure, age and gender. The FI is an instrument that estimates the risk of coronary heart disease in the following six years.

Results

In table 2 some data are presented pertaining to the baseline group of 207 workers.

Table 2. Means and standard deviations (SD) of age and WAI score as observed in the baseline group of 207 workers.

variable	mean	SD
age(years)	39.8	9.5
WAI score	42.2	5.1

A small but statistically significant difference ($p<0.001$) in mean WAI score was observed between the groups younger (n=102) and older (n=105), respectively than 39.8 years; WAI score (young): 43.4 (SD 4.2), (old): 41.0 (SD 5.6). This may indicate a downward trend of work ability with age.

Table 3 shows some averaged data in the group of 49 persons who participated in the endurance test. The mean WAI score in this group (age-range 26-57 years) is the same as the one found for the younger part of the baseline group (age-range 19-40 years).

Table 3. Means and standard deviations (SD) of age, WAI score, VO2max and the Framingham Index obtained in the study group of 49 workers (38 men and 11 women).

	mean	SD	range
age (years)	40.4	9.4	26-57
WAI-score	43.4	4.6	29-49
VO2 max (ml/kg/min)	41.5	9.5	23.6-63.4
Framingham Index (x 1000)	17	23	0-110

To examine a possible relationship of the WAI score with age regression analysis was performed. In the baseline group (n=207) and in the study group (n=49) similar results were found, as shown in table 4, equations 1 and 2 respectively. The findings indicate a small but significant decrease of the WAI score with age.

In the same way the relationship of VO2 max with age was examined in the study group. The regression model that was found in presented in table 4 as equation 3. From the obtained model it is obvious that VO2 max changes more with age than the WAI score.

Further analysis on the study group also showed a significant relationship between WAI and VO2max, as shown in table 4, equation 4. Obviously, a rather strong and positive relationship between WAI and VO2max exists in this study.

Based on multiple regressions analysis, with age and VO2max as independent variables and WAI as dependent variable, it was found that age is probably less

important than VO2max in the total variance of the WAI score. Physical fitness makes a difference, not age! The obtained model is presented in table 4, equation 5.

More detailed analysis was done on the various separate items of the WAI. For item 1 (= the self-reported current work ability compared with the lifetime best work ability; range: 0-10) an even better correlation with VO2max and age was observed than was found for the relationship of the total WAI score, VO2max and age (eq.6). The results are given in table 4, equation 6.

Finally, the Framingham index was examined. A rather strong relationship with age was found but no significant relationship with the WAI score, see table 4, equation 7.

Table 4. Regression models, correlation coefficients and explained variances of the relationships of VO2max and age, as possible determinants of the WAI score. For information: see text.

equation	regression model	corr.coef. / expl.var.	p-value
1	WAI = 47.3 - 0.13 x age	-.24/6%	<.01
2	WAI = 49.0 - 0.14 x age	-.28/8%	<.01
3	VO2max = 58.7 - 0.43 x age	-.42/18%	<.01
4	WAI = 34.4 + 0.22 x VO2max	.45/20%	<.01
5	WAI = 37.6 + 0.19 x VO2max - 0.05 x age	.46/22%	<.01
6	Item 1 = 8.5 + 0.05 x VO2max	.53/28%	<.01
7	FI(x1000) = -43 + 1.48 x age	-.60/36%	<.01

Discussion

In this study the level of VO2max accounts for about 20% of the variance of the WAI score, whereas the effects of age are relatively small. These results must be considered as preliminary. It should be realized that this is a cross-sectional study on a rather small group of workers who voluntarily participated in the study. Therefore selection bias can not be excluded. Further studies, preferably of longitudinal nature will be necessary to reach further evidence on the effects of aging and the possible causal relationship between VO2max and WAI. However the trend is rather clear, i.e. a higher physical endurance capacity correlates with a higher work ability score. Based on the regression model presented in the table 4, equation 5 it can be reasoned that an increase in VO2max would lead to an increase in work ability. It is well known that extrinsic (secondary) aging effects can be influenced by external interventions, like physical exercise. Since physical endurance capacity can be improved by training, also at higher ages (Kemper,1994), possibly the decline in work ability with age can be opposed by regular physical exercise. This is not a conclusion yet, but should be further explored and supported by future research.

Other factors, not involved in this study,will also contribute to the variance of WAI. By dichotomization of WAI score and VO2 max respectively into high and low theoretically the following sub-groups of workers can be indicated:

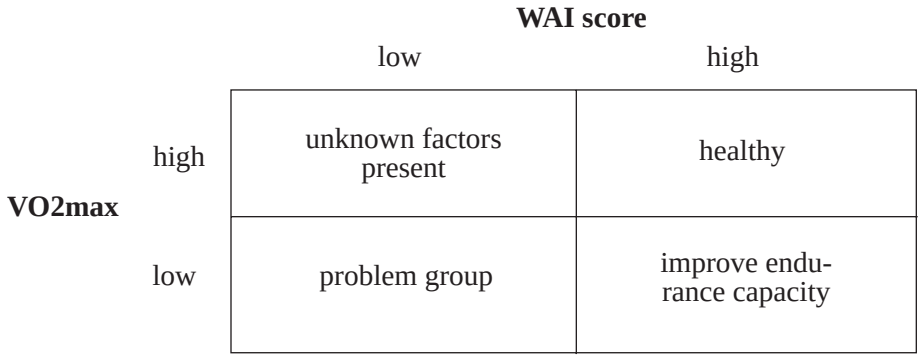

Figure 1. Indicated sub-groups of workers dichotomized by WAI score and VO2 max.

Such a dichotomization is of interest for occupational health practitioners. It may lead to optimum choices for a sensible follow-up of workers. Especially workers in the problem group will need advice and support to improve their work ability, since they may otherwise be completely lost in the near future. Advise to improve physical endurance capacity must be accompanied by supporting and facilitating measures of employers. This stresses the need of good information and negotiating skills of occupational health physicians towards the company management. The unknown factors which can be presumed to exist in the presence of a high VO2max but a low WAI score will be a challenge for future research on the determinants of work ability.

Conclusions

Based on this study the following conclusions can be reached

1. The WAI questionnaire is a useful instrument to determine the present work ability
2. Average work ability decreases with advancing age to a small but statistically significant extent
3. Physical endurance capacity, as expressed by VO2max, accounts for approximately 20% of the variance of work ability

Summary

In industrial countries with aging workforces good older worker's policies are wanted.

Maintaining work ability of older workers will be a key-issue in the near future. The Work Ability Index (WAI) is an instrument that can be used to monitor a person's work ability.

Work ability is a complex concept. In this study the possible relationship of WAI score, maximum endurance capacity (VO2max) and age was studied. The WAI score showed a small but significant decrease with age, whereas a positive relationship with VO2 max was found with an explained variance of 20%. Since VO2max and age are also negatively related, the preliminary conclusions can be reached that physical exercise of older workers can be useful and may have benificial effects on the maintainance of their work ability.

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Pathways of early exit from work in Finland in a period of high unemployment

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Introduction

Early exit from the labour market has become normal practice in Finland. In the past quarter of a century Finland, as well as most other European countries, has witnessed a sharp decline in the employment participation rates of the elderly. At the beginning of the 1970's, more than half of 55-64-year-old Finns were in gainful employment; now, in the mid-1990's, only one third of this age group is employed. Early exit from work has shifted from being an exception to being the rule.

Early withdrawal from work is more widespread in Finland than in the rest of Europe. In 1995, the employment ratio of men aged 55-64 was 34% in Finland. The figure was the same in Belgium, but higher in all other European countries (2). However, in spite of early exit, the amount of work done in Finland is not low. The proportion of part-time work is smaller, and the average number of annual working hours per employed person is higher in Finland than in most other European countries (2). The normal employment-exit pattern in Finland for both men and women is a period of intensive full-time employment followed by a total and fairly early withdrawal from work.

In recent years, Finland has been witnessing record high unemployment by both historical and international standards. In 1995, the overall unemployment rate was 17%, and even higher - 25% - in the 55-64 age group. This economic crisis has widened the gap between Finland and the other Nordic countries in respect of employment rates. Thus, when it comes to early exit from work, Finland is more akin to Central Europe than to the Nordic model. Denmark, Sweden and Norway have pursued an active labour market policy aimed at full employment with the help of the public sector, whereas in Central Europe early pensions have been used as an instrument of employment policy (13). In Finland many of the new early retirement programmes were introduced in the 1980's, before the economic recession, and they were not directly founded on employment policy considerations. However, the employment-retirement instruments used in Finland have followed an externalisation strategy (see 14), and the policy pursued has reduced the supply of labour in the same way as on the Continent.

Especially before the advent of mass unemployment, the predominance of exit based on sickness was typical of Finland. Most of the early pensioners receive one of the two types of disability pension (Table 1). *The ordinary disability pension* is paid to an employee or self-employed person who has lost his work capacity through illness. A special form of disability pension called *the individual early retirement pension* was introduced in 1986. It is designed for those ageing em-

ployees who have experienced some reduction of work capacity but who are not sick enough to qualify for an ordinary disability pension. In both cases the disability determination is carried out by the pension institution with which the applicant is insured. The rejection rate is high: in 1995 more than 40 % of the applications for individual early retirement pension and 20 % of the applications for ordinary disability pension were rejected.

Finnish withdrawees from the labour market may also be entitled to *the unemployment pension*, which is quite an exceptional type of pension in the European context. This pension is granted to long-term unemployed persons aged 60-64. In practice, the unemployment pension process often starts several years before the minimum qualifying age as a period of unemployment allowance which leads to an automatic entitlement to unemployment pension at the age of 60 (12).

On top of the disability and unemployment pensions there are some further possibilities for early retirement. An actuarially reduced *early old age pension* can be taken from the age of 60 and *part-time pension* from the age of 58. Both of these pensions were introduced in the mid 1980's, but the latter has attracted only marginal interest. Besides the statutory pension programmes, there are also some firm-specific arrangements which offer an old-age pension before the normal pensionable age of 65.

Table 1. Finnish pensioners and unemployed persons aged 55-64, 1995.

	55-59	60-64	55-64	
	Percentage of pop.	Percentage of pop.	Percentage of pop.	Number of persons
Disability pensioners				
Ordinary disability pension	21	28	25	127 000
Individual early retirement pension	7	18	12	63 000
Unemployment pensioners	-	16	8	39 000
Other pensioners	5	19	12	60 000
Unemployed persons	18	3	10	54 000
Total	*51*	*84*	*67*	*343 000*
(Number of population)	*(268 000)*	*(245 000)*	*(513 000)*	*(513 000)*

Statistics are based on national and employment pension registers and Labour Force Survey of Statistics Finland.

Kohli and Rein (9) have introduced the concept of pathways to describe the institutional arrangements that cover the period of transition from work to old-age pension. These measures, such as the disability and unemployment schemes, were originally designed for crisis management, but, as their scope indicates, they have become a normal part of the lives of the elderly.

The main explanatory approaches to the extensive use of early exit pathways have to do with demographic development, labour market trends, welfare state regulations, and firms' strategies, and with cultural values, attitudes and economic calculations of the elderly workforce (e.g. 5, 9, 14). These approaches vary in the emphasis they give to the institutional and individual level of the exit process. For example, the interpretation of early exit as a result of different pull and push factors places a strong accent on individuals. It focuses on the individual's intention or decision to stop working and may thus obscure the dynamics of exit institutions

and the role of firms. The more global approaches focus on structural features of society. These features are seen as main contributors to exit practices rather than as incentives or disincentives affecting individual choice. Early exit is understood as an implication of the reciprocal influences of the economy, welfare state institutions and firm policies (5).

The aim of this article is to analyse the structure and functioning of the Finnish early exit pathways in a period of high unemployment. The analysis focuses on the choice of and control over the exit process. Early exit may be imposed on individuals, or they may be left with some room for choice between work and early retirement. However, disability pensions are ultimately controlled by the disability assessments of pension institutions, while unemployment pensions, since they originate in dismissals, are more under the control of firms. Firms' policies and access to early exit schemes modify the network of exit pathways - for instance, by instrument substitution, and furthermore, they may also blur the connection between financial responsibility and control over the different pathways, thus contributing to various unintended outcomes. This article aims to clarify some of these interactions between individual choice or individual characteristics on the one hand, and, on the other hand, the control exercised by pension institutions and firms in a specific labour market and cultural situation.

Method

Implications of the control exercised by exit pathways are studied using statistics of the private sector employment pension scheme. Statistics on pension approvals and rejections over the last twenty years are analysed in relation to changes in the Finnish labour market.

In addition to pension statistics, survey data is also used to analyse exit pathways. The subjects of the survey represent wage-earners who were employed in the private sector in 1990 and who were between the ages of 55 and 64 in 1994. The data was collected partly by mail questionnaires and partly from the pension and employment records. The first questionnaires were sent in 1990, when all of the respondents, 577 persons, were still working. The same individuals, plus an extra sample selected on the basis of the same criteria, received a second questionnaire two years later. The extra sample doubled the number of respondents to 1123. The pension and employment records of the subjects of these surveys were followed until the end of 1994.

Exit pathways are described through the employment and exit careers of the subjects of the surveys, and logistic regression models are estimated for the purpose of examining the factors influencing the onset of various exit pathways. Logistic regression analyses are performed using the maximum likelihood estimation method available in the CATMOD and LOGISTIC procedures in SAS.

The network of exit pathways

During the last twenty years unemployment and early exit based on health hazards have shown inverse trends. In the periods of high unemployment, as in the late 1970's and early 1990's, the number of new disability pension grants has been declining, while relatively low unemployment in the mid 1980's has been associated with a growing number of disability grants (Fig. 1).

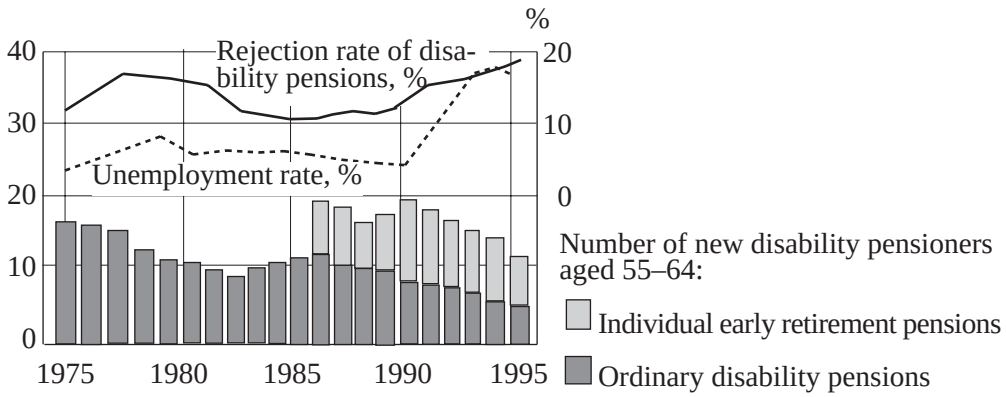

Figure 1. Number of new recipients of disability pensions aged 55-64, rejected pension applications and unemployment in 1975-1995

This inverse relationship between disability pensions and the unemployment rate incorporates the instrument substitution with the control systems. The rejection rate of disability pension applications has followed the changes in the unemployment rate (Fig 1.). A detailed study (15) of pension applicants rules out the explanation that the increase in the rejection rate is due to changes in the age, gender or disease structure of applicants. Moreover, the study also points out that the inclination to apply for disability pension has been declining while the rejection rate has been increasing. This leaves us with two plausible explanations. Firstly, unemployment has contributed to the structure of the applicant population, in that current applicants do not meet the eligibility criteria as well as before. Unemployment has a confusing effect on the inclination to apply for a pension. Poor employment prospects may encourage elderly employees to apply for a disability pension for reasons that stem from the labour market situation rather than from poor health. And, on the other hand, unemployed persons with reduced work capacity may stay on the rolls of the unemployed and not apply for a disability pension (8). The second explanation has to do with the determination process for disability pensions. The strained economic situation and the pressure for savings have most likely tightened eligibility criteria: financial crises call for cuts in pension costs. On the whole, the disability path does not open as easily as before, and the unemployment path is used as a substitute.

This instrument substitution is quite clearly illustrated by the careers of the rejected disability pension applicants. Let us follow the employment situation of those employees whose application for an individual early retirement pension (a special disability pension) was rejected in 1992, at a time of high unemployment. One quarter of these people were already unemployed at the time when their pension was rejected, and half of them were unemployed one year later, in 1993 (3). In other words, the actions of the gatekeepers of the disability programmes result in turning the rejected applicants towards the rolls of the unemployed instead of bringing them back to work.

This demonstrates the efforts of the welfare systems to keep apart the different exit pathways and to direct each person to a proper pathway. As Kohli and Rein (9) have pointed out, different pathways produce the same outcome in terms of labour force participation, but they differ in respect to who controls them, who bears the costs, how they stratify the elderly, and what moral meaning they carry.

The documentation of the history of Finnish exit measures tells that separation of these measures is based on both moral and financial grounds. The moral contents trace back to the idea of the deserving and undeserving poor. This interprets disability as an individual characteristic which can be affected by improving the health of the population, whereas unemployment is seen as a quality which is totally extraneous to individuals and can be tackled only by economic measures (10). These moral grounds have contributed to the development of separate disability and unemployment programmes, and because these programmes are separately financed and administered there is also a desire to keep their gates controlled separately.

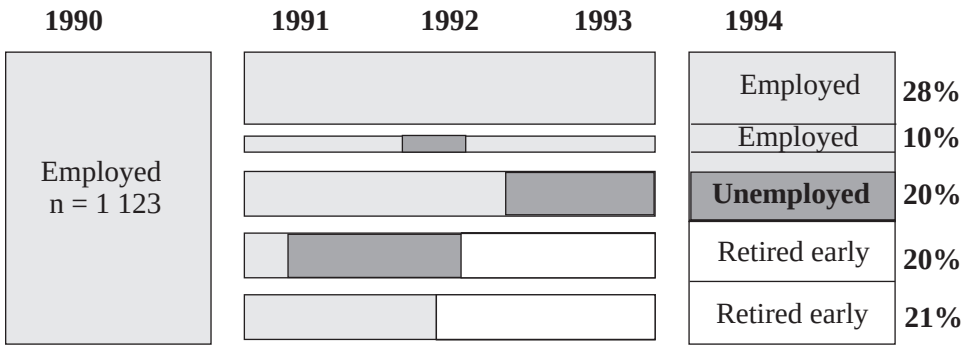

Figure 2. Pathways of early exit of employees aged 55-64.

Figure 2 illustrates the various pathways of early exit from work taken by elderly Finnish employees in the first half of the 1990's. All of the employees included in the study were gainfully employed in 1990, and nearly 40% of them were still employed at the end of 1994. A few of those employed had experienced short spells of unemployment, but most of them had had very steady working careers.

The rest of the elderly employees had left work using three different pathways. The first exit pathway could be called the unemployment-pathway. One fifth of the employees were unemployed at the end of 1994, and had, on average, already been unemployed for two years without any realistic re-employment prospects. This pathway may continue until the start of the old-age pension, but it will often lead to some form of early retirement, thus forming a pre-stage to the second exit path. The second pathway is an unemployment-early-retirement-pathway. On this pathway, long-term unemployment either leads into an unemployment pension or some other form of early retirement pension. The third exit path is the early-retirement-pathway: from gainful employment to early retirement pension, most often disability pension.

Before the advent of mass unemployment, the third pathway used to be the most common exit pathway, but now two thirds of the withdrawees at least start their exit process under the unemployment programmes, and only one third retires directly on an early retirement pension. In other words, if we think of these various early retirement programmes as bridges between employment and the old-age pension, we have now come to a new stage where we need bridges between employment and early retirement; and the unemployment benefit is serving as such a bridge.

In their analysis of the Dutch early exit situation, Trommel and de Vroom (18) argue that the persistence of the exit trend is partly an autonomous, unintended mechanism. The process of institutionalisation produces exit practices that were not intended, and these unintended practices reinforce the exit process by contributing to the stereotype image of elderly people as unable and unwilling to work. As far as Finland is concerned, the shift from the early-retirement-pathway to the unemployment-pathway is a good example of an unintended outcome of the exit process. Exit opportunities have taken the place of active labour-market policies for the elderly and thus intensified the exit process (17).

The focus on the unemployment-pathway is also an example of the autonomy of the exit process. The automatic extension of the unemployment allowance from the age of 55 (before 1997 from the age of 53) until the start of the unemployment pension at 60 means that the decision that a person shall enter into early retirement, in this case into the unemployment pension programme, is actually taken several years before the start of the pension, and it is taken by firms, not by welfare state institutions. In other words, early retirement has moved away from welfare state control, even though it makes use of the welfare state's provisions (see 18). Direct financial responsibility is at least partly separated from the control over access to exit pathways.

Ending up on different exit pathways

The picture of early exit pathways painted above puts strong emphasis on institutional factors. The labour market situation and the eligibility criteria of welfare state programmes, for instance, have a clear impact on exit pathways. Firm-related factors, such as shrinkage of the branch of industry, personnel policy and work environment also affect the employment situation of the elderly. State of health is probably the most obvious individual feature leading to withdrawal from work, whereas the role of personal preference is more unclear.

Even though more than half of the Finnish population aged 55-64 are receiving early retirement pensions, and nearly two-thirds of the 55-64-year-olds still in the labour force would prefer to stop working (4), there is reason to believe that early exit is often imposed rather than chosen. First of all, most of the elderly employees preferring early retirement say that they opt out of work not because of the future leisure, but because they feel they have already done their share of hard work (4). This, as well as the pattern of intensive full-time work typical of Finnish employees, suggests a high degree of work orientation. Furthermore, the rising emphasis on the unemployment-pathway provides evidence against individual choice. On the other hand, most early retirees report that they are quite satisfied with their lot, and owing to the automatic extension of the unemployment allowance followed by the unemployment pension, elderly employees may even make an agreement with their employer on being dismissed (12), both factors supporting the voluntary features of early exit. However, the voluntary nature of early exit can be quite imaginary, because the real freedom of choice is often strongly restricted by structural features of labour markets, firms and welfare state institutions.

In order to expose the relationship between the individual and institutional factors affecting early exit, logistic regression models of how people end up on various exit pathways were analysed. The explanatory variables included in the mod-

els represent both individual and institutional factors. Age, self-perceived health, preference for early retirement over employment and income refer to individual features, though age can also be interpreted as representing the regulations of welfare state arrangements. Age is classified as in 1994, but the rest of the individual variables refer to the situation in 1990, when all the respondents were still in gainful employment. In other words, the rating of the state of health as well as the assessment of the inclination to retire early both took place prior to the actual withdrawal from work. The preference for early retirement over employment is assumed to represent a conditional choice or inclination restricted by personal and institutional factors. The financial situation of the respondents is measured by personal income in 1990. The classification of the income variable is very rough: above or under average, with the mean calculated separately for males and females.

Work stress and unemployment are considered as firm-level and labour-market variables, even though they are measured on the individual level. Work stress is measured as a combination of mental burden, haste and monotonous working patterns experienced in the last workplace. Unemployment days are counted for the years 1990-1994, but because those who have retired on an early retirement pension have not been exposed to unemployment for all this time, unemployment is presented as a share of the period of time before the possible start of retirement in 1990-1994. Field of work and shrinkage of the branch of industry, calculated using the numbers of the Finnish working population by industry in 1990 and 1994, are also included as institutional variables. As will be shown in the following paragraphs, all these explanatory variables proved to be important indicators of some early exit pathway.

In the first stage of the analysis, a general model of the probability of withdrawing from work is estimated. The response variable in this stage is a dichotomous status of employment in 1994: employed or withdrawn from work. A series of logistic regression models were estimated using different combinations of the above mentioned explanatory variables. To find the best model, the likelihood ratio chi-squares, the frequency of small cells, the significance of parameter estimates and confidence limits of odds ratios were examined. The model with age, health, unemployment and preference of retirement as explanatory variables was considered to have the best fit (df=11, likelihood ratio chi-square=8.23, p=.6922, n=577), this model is presented in Table 2. Nearly as good was a model including work stress instead of preference for retirement (df=11, likelihood ratio chi-square=9.82, p=.5466, n=577). The inclusion of both of these variables in the model resulted in too many small cells.

As stated above, the unemployment pathway has become the most common way of opting out of the Finnish labour market. This being so, it is not surprising that the model presented in Table 2 places strong emphasis on unemployment as an indicator of early exit. The probability of entering an early exit pathway is nearly 26 times higher for those who have been unemployed for at least five percent of their non-retired time in 1990-1994 than it is for the rest of the elderly employees. This time criterion means at least three months for those who have been in the labour force for the entire period under study and proportionally less for those who had retired before the end of 1994. Old age also has a positive effect on early exit. Taking into account that the age of 60 is an important milestone for many

early exit arrangements, in that it is, for instance, the age limit for the early old-age pension and unemployment pension, it can be concluded that labour market constraints and institutional settings are the most important determinants of entering exit pathways. Self-assessed characteristics, poor health and preference for early retirement also have independent effects on early exit, but their explanatory power is smaller than that of age and unemployment.

Table 2. Logistic regression model of the probability of early exit.

Variable	Parameter	Chi-square	p-value	Odds-ratio
Intercept	-1.8228	61.72	.0001	
Age in 1994: 60-64 years (v. 55-59)	1.7559	52.87	.0001	5.8
Preferred retirement (v. employment) in 1990	1.0007	17.72	.0001	2.7
Poor health (v. good or moderate) in 1990	1.3650	10.57	.0012	3.9
Unemployed ≥5% (v. <5%) of non-retired time in 1990-1994	3.2449	100.96	.0001	25.7

In the second stage of the analysis, the variation between the exit pathways is examined by estimating separate models for different pathways. For this analysis the pathways are classified according to the particular welfare state measures which they make use of: disability pension, unemployment pension or allowance, and other early retirement pensions. For each model the dichotomous response variable is employment versus taking the respective pathway, and the explanatory variables are the same as in the first stage of the analysis. The best models for each pathway are reported in Table 3.

Table 3. Odds ratios of variables included in models of the probability of different exit pathways.

Variable	Odds ratios for models of probability of taking		
	Disability pathway	Unemployment pathway	Other pensions pathway
Poor (v. good or moderate) health in 1990	8.4 ***		
Unemployed ≥5% (v. <5%) of non-retired time in 1990-1994	3.4 **		
High (v. low) level of work stress	2.2 **		
60-64 years of age (v. 55-59) in 1994	3.8 ***	3.5 ***	
Dramatic (v. minor) shrinkage of the industry		2.8 **	
Moderate (v. minor) shrinkage of the industry		1.8 **	
Preferred early retirement (v. employment) in 1990		2.3 ***	2.2
Above (v. below) average income in 1990			5.4 ***
Field of work: services (v. construction or manufact.)			5.1 ***

(***p<.001, **p<.01, *p<=.05)

The first column in Table 3 displays the odds ratios in estimating the probability of the disability pathway. The model with health, unemployment, work stress and age as explanatory variables was considered to have the best fit for indicating the probability of taking the disability path (df=11, likelihood ratio chi-square=9.08, p=.6214, n=314). Health is the clearest indicator: for those who assessed their state of health as poor in 1990, the probability of becoming disability pensioners

in 1990-1994 was 8.4 times higher than for those with good or moderate health. The important role of poor health is not surprising, because the eligibility criteria for the ordinary disability pension and the individual early retirement pension presuppose reduced working capacity. More surprising is the independent effect of unemployment. When health, age, and work stress are controlled, the probability of becoming a disability pensioner is higher for those with some experience of unemployment than for those with no or very little experience of unemployment. Besides unemployment, the independent effect of work stress also strengthens the role of firms and the nature of work as important indicators of the disability pathway. The fourth variable in the model, age, could also be regarded as an institutional factor. In early exit, age is combined with functional criteria, first, by assuming that with some disability, the elderly will no longer be employable (9), and again, by labelling elderly workers as unable to work (6). The grafting of age onto the disability pathway becomes apparent when one examines the control practice of this pathway: the rejection rate of disability pension applications is lowest among the oldest applicants (15).

The second column of Table 3 refers to the unemployment pathway. The best model of the probability of ending up on this pathway includes four explanatory variables: age, shrinkage of the branch of industry and preference for early retirement (df=7, likelihood ratio chi-square=7.18, p=.4150, n=405). Unemployment was deliberately left out of the model, because it is a prerequisite as well as the outcome of the unemployment pathway, and would thus cause autocorrelation. Old age, in containing institutional features, and employment in shrinking fields of industry indicate an increased risk of early exit through unemployment. Preference for early retirement to employment also shows an important independent effect. Besides an inclination to retire early, it most likely also portrays the poor employment opportunities of the elderly.

The third column presented in Table 3 displays variables indicating the start of an early pension other than a disability or unemployment pension. Because these other pensions, such as the early old age pension and special firm-level retirement arrangements, are mostly available only for persons aged 60 and over, this part of the analysis was restricted to the 60-64 age group. This cuts down the number of observations to 122, but the good fit of the model chosen (df=4, likelihood ratio chi-square=1,97, p=.7415) and the significance of the estimates favour acceptance of the model. Working in the field of services (which is here understood as including all fields of the private sector except for construction, manufacturing and forestry) and better than average income are the most important indicators of this other-pensions-pathway. Even though the effect of the preference variable is not statistically significant (p=.06), this is probably the most voluntary pathway. Compared to other early withdrawees, those ending up on the other-pensions-pathway have been better off financially, have regarded their state of health as better and have worked in more rewarding occupations and experienced less unemployment.

The field of work plays an important role in the network of exit pathways. A comparison of two different fields, textile industry versus finance and insurance, shows some firm-related cultural explanations of the variation between these pathways. Because of the small number of cases in each industry (58 in textiles and 57 in finance) the comparison presented in Figure 3, should, however, be interpreted with caution.

The fields of finance and the textile industry are quite different, but in some respects they resemble each other. They are both female dominated and they both had an above-average shrinkage rate at the beginning of the 1990's. In the sample, the average age of the respondents from both fields is also the same: 59 years. As Figure 3 illustrates, there is not much difference in the total early exit rate of these industries but there is a big difference in the emphasis on different pathways ($p<.001$). The disability pension and various early old-age pension arrangements are the most important exit pathways in finance and insurance, while unemployment is the major route out of the textile industry.

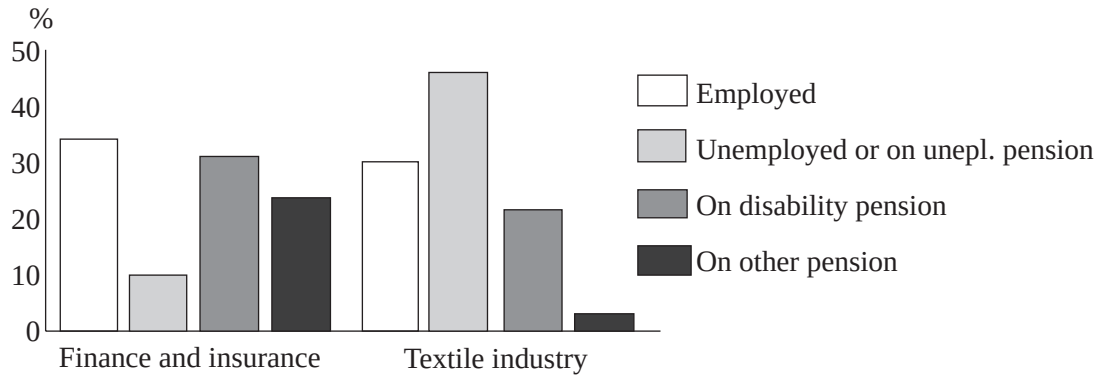

Figure 3. Employment situation in 1994 of employees aged 55-64 and employed in 1990 in the fields of finance and insurance or in the textile industry.

The differences in the exit pathways are not explained by, for example, the state of health of the elderly workers in these fields; there is no statistically significant difference between the health ratings of the two groups. Rather, the explanation can be found in the institutional setting. There is some variation in the exit pathways available in these fields. Finance and insurance have, for example, more firm-specific programmes than the textile industry. However, more important than the range of different programmes are the firm-and industry-specific exit practices. In those fields where spells of unemployment are frequent, the withdrawees from work are likely to stay on the unemployment pathway even with reduced health. On the other hand, in the fields were unemployment is more exceptional and steady careers are a norm, economic difficulties are more likely to be handled by disability programmes (8). Thus a combination of exit pressures and strategies related to the cultural and historical features of the branch of industry are directing the choice of exit pathway.

Conclusion

Prior to the present period of high unemployment, the disability insurance pathway used to be the most common way of opting out of the Finnish labour market. The strained labour market situation, the automatic features of the unemployment pension scheme for the elderly, and the control practice of the disability programme have contributed to the fact that it has now become more common to experience a period of unemployment before entering the early retirement pension system.

Early retirement is often seen as a policy for tackling increasing unemployment (e.g. 7, 11). The substitution of the disability pathway for the unemployment path-

way, which is particularly distinctive in the exit process of the rejected disability pension applicants, indicates, however, that the interaction can also be quite the opposite. At a time of economic depression, unemployment may be moulded into a tool for tackling increasing early retirement.

This instrument substitution is connected with some of the unintended and uncontrolled outcomes of the institutionalisation of early exit. The sharp distinction between different pathways makes it difficult to control the exit process as a whole; all bodies involved try to cut the costs of the particular pathway for which they are responsible (1). Taking the expansion of the unemployment path and especially its origin in the dismissal process as an example, it can also be argued that the exit process is increasingly controlled by firms' strategies and labour-market policies. The control exercised by the welfare state institutions is mainly limited to directing elderly people away from one exit pathway into an other.

Besides tackling unemployment, early retirement policy has also been aimed at smoothing out the last stage of working life for the elderly. In this respect, individual characteristics of the elderly employees should affect the type of exit. The findings of the study give some support to this assessment by revealing the independent roles of such factors as poor health and hopes for early retirement in the early exit process. On the other hand, labour market constraints, firm-related features and traits of the welfare state arrangements proved to be more important determinants of exit pathways, suggesting that early exit is more a question of a strategy employed by firms to restructure their work force (16). The institutional factors are also important for the disability pathway, indicating that the disability scheme, as well as other early exit measures, is used as a tool of economic restructuring.

Even though institutional factors are the clearest determinants of the exit process, the determination of different exit pathways exhibits some variation. "Unemployability", either in the form of reduced working capacity or reduced opportunities for employment, is typical of the disability or unemployment pathway, while a more privileged position is characteristic of those ending up on an early old-age pension or with firm-related retirement arrangements. These differences should be taken into account in attempts to reverse the early exit trend. All in all, the functioning of the exit process in a period of high unemployment indicates that without an active labour market policy for the elderly combined with revaluation of firm policies in favour of the elderly, the institutional setting continues to intensify the exit process by contributing to the production of normative pressures and exit-promoting images of elderly employees.

Summary

This article analyses the structure and functioning of Finnish early exit pathways. It is based on pension and labour force statistics as well as data drawn from a survey of elderly employees. The findings of the study show that especially the labour market situation and features of the institutional arrangements of early exit have contributed to the expansion of the unemployment pathway. Individual characteristics, such as poor health and preference for early retirement over employment increase the probability of early exit, but institutional factors such as labour market constraints, firms' policies, and the functioning of the different exit measures play the leading role in the exit process.

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Well-being and self-change for elderly public employees after a close-down

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Introduction

Work-related changes or transitions may pose problems to elderly employees. Both in formal and informal learning settings at work, older employees often perform less well than younger ones, and unemployment durations are typically longer for older than for younger employees (14, 15). Such age-related differences have, however, not been seen in the data for mental health in connection with close-downs and resulting unemployment. Mental health is usually not lower or does not decline more during job loss and unemployment for older than for younger or middleaged persons (14).

One reason for this may be that middle-aged persons have more pronounced roles as economic providers than older persons, but another reason my be that less age-sensitive indicators of mental health have been used. Mental health has mostly been measured by scales of affective well-being, i. e. of pleasure and arousal, but according to many views, scales of mental health should also include aspects of psychological growth (see e. g.(7, 10, 13). Ryff (11) has found that persons over 65 years report less psychological growth than younger persons, and both perceived professional and personal growth have been found to be higher among younger than older employees (3). Hence, studies relating job loss and mental health, where the latter variable include growth-related items, may then give another view on the impact of job loss on younger and older persons.

Here data will be presented on how younger and older public employees managed a close-down, and how they perceived that they changed after this event. In addition to the traditional indices of mental health applied in unemployment studies, such as the General Health Questionnaire, measures of perceived psychological changes were used. These changes are here called ”self-changes” (3), referring to processes such as professional-personal growth and decline as well as attitude changes. The term ”self-change” is preferred to ”psychological growth”, since many psychological changes in connection with job loss may be expected to have an aversive quality, related to learned helplessness. Although it is generally acknowledged that job loss and unemployment may result in stress, crises and new coping patterns, such psychological changes have barely been touched upon in unemployment studies.

The aim is here to present empirical data on how public employees perceived that they changed professionally and personally in connection with the close-down, and how these changes are correlated with demographic variables and employment position after the close-down, as well as with traditional indices of affective well-being.

The self-changes are divided in two categories: Professional and personal changes. Professional changes refer to changes in professional or occupational skills and knowledge. Personal changes, on the other hand, refer to more general or context-free skills and knowledge that may be used in various settings. Three aspects of personal changes are distinguished: Attitude changes, increased self-knowledge and increased communicative skills. Four questions are in focus:

- How many employees report self-changes after the close-down?
- How are the affective well-being and the self-change variables related to each other?
- How are the self-change and affective well-being variables related to employment position after the close-down?
- How are the affective well-being and self-change variables related to age and other demographic variables? Were there any age-interactions? Did age e.g. moderate the the influence of employment position on affective well-being and self-changes?

Method

The data come from the former employees at the National and County Boards of Education (NCBE), which were the first public authorities to be closed during the present economic recession in Sweden. All staff members, around 750 employees, were unexpectedly noticed to termination during the autumn of 1990, and approximately 125 persons were re-employed in the new, downsized Board of Education, which started in July 1991. A support program was organised during 1990-91 and various courses and counselling programs were submitted to the personnel. Persons over 60 years were offered pension allowances, and the unemployment benefit was 85% of the salaries.

The close-down and its consequences for the former employees have been examined in a longitudinal study. But here, just the cross-sectional data from 1992, one year after the closure, are presented. The study mainly relies on questionnaire data. The methodological procedures have been described elsewhere (4) as has the questionnaire (2).

A sample of 412 persons, all employed at the NCBE at the notice of termination, was drawn for the study. The number of responses to the first questionnaire in 1991 was 368, of which 328 (89%) responded to the current 1992 questionnaire. Two thirds of the respondents were women, the average age was 52 years and 80 percent was over 45 years. Sixty percent had some academic training. Just six percent were openly unemployed and 62 percent had new, permanent jobs in May 1992. There were no age-related differences in re-employment rate up to 60 years. For persons over 60 years, just 31 percent had got permanent jobs, while 57 percent had chosen pension allowances on part or full time.

The dependent variables were based on the sum of the responses to a number of items, all forming scales with satisfactory internal consistencies (> 0,80). The following central variables were used in the study (see (4) for a detailed description):

Employment position. This variable was divided in two categories, ”Permanent job” (permanent employment, self-employment) on at least part-time and ”No permanent job” (temporary work, studies-training, unemployment, pension and sick-leave).

(Low) Affective well-being. Measured by two scales. One was the short version of *the General Health Questionnaire* (GHQ-12), where high values indicate low well-being. The other was a *symptom scale*, based on seven psychological symptoms, e. g. tiredness, irritability, depressive feelings, sleeplessness, etc., that has been widely used in the assessment of health for governmental employees during the 1980's. The symptom scale was of an ordinal nature, and it was dichotomised at three symptoms.

Professional changes-growth. Measured by an index from two items concerning increased breadth and depth in professional knowledge or skills since the notice of the close-down. (E.g. " My professional skills have increased considerable since the close-down".) For some computations, the index was dichotomised between those whom on average agreed, respectively disagreed, that their professional knowledge had increased.

Personal changes-growth. The scales for the perceived self-changes since the notice of the close-down were based on the answers to a number of retrospective questions. Three indices were used: a. *Increased self-knowledge* (new insights, knowledge of weaknesses and strengths, new personal goals, etc.); b. *Increased communicative skills* (ability to communicate, increased spontaneity, openness, etc.); c. *Reorientation* (attitude changes towards work, people and to their former work accomplishments and life-pattern, e.g. "I have begun to question my earlier life-pattern".). The first two indices were based on five items, the third on four items. These aspects of personal changes-growth were derived from the ego-developmental frameworks (8, 9). Similar dichotomisations were made on these scales as for professional growth. For all the self-change variables, a high value indicates a high degree of perceived change.

Of the four self-change scales, three (professional growth, increased self-knowledge and increased communicative skills) might chiefly be characterised as growth-scales, while reorientation essentially was a decline-scale, being more related to aversive experiences. In addition, a number of demographic variables were used, such as gender, age, marital status and social status. The statistical analyses were partly based on simple descriptive statistics, partly on stepwise logistic and multiple regression techniques. Age-interaction terms used in the latter ones were based on standardised variables.

Results

A considerable proportion of the former NCBE-employees, 39%, stated on average that their professional knowledge and skills had increased during the last two years. The corresponding proportions for increased self-knowledge and communicative skills were in both cases 37%. Somewhat fewer agreed to the statements that they had changed their attitudes toward, work, people and their earlier life-pattern, 24%. The levels of affective well-being were within the range usually found in unemployment studies (5). Subjects with new permanent jobs reported higher degrees of professional growth and higher affective well-being compared to those lacking permanent jobs, but there were no differences between the groups for personal changes-growth.

The correlations between the well-being and self-changes are shown in Table 1. All the self-change variables were positively correlated with each other. Low

well-being, i. e. the GHQ-12 and the symptoms scale, was negatively correlated with professional growth, positively correlated with reorientation, and roughly zero-correlated with increased self-knowledge and communicative skills. Thus, the self-change scales gave somewhat different information than the traditional scales of mental health.

Table 1. Product-moment correlations between the affective well-being scales and self-changes scales. N= 275-308. ** p<0,01

	Low affective well-being		**Self-changes**			
	GHQ-12 scale[1]	Symptoms tation	Reorien- growth	Professional knowledge	Incr. self- skills	Incr.com
GHQ-12	-					
Symptoms scale[1]	0,69**	-				
Reorientation	0,23**	0,29**	-			
Professional growth	-0,29**	-0,21**	0,16**	-		
Incr. self-knowledge	-0,10	-0,01	0,51**	0,37**	-	
Incr. commt. skills	0,01	0,06	0,50**	0,34**	0,68**	-

[1]= point-biserial correlations, since the symptoms scale was dichotomised at ≥ three symptoms.

The results from the logistic and multiple regression analyses are shown in Table 2. First all the independent variables were entered into the equations, then in a second step all the age-multiplicative terms (e. g. age * gender, age* marital status, etc.) were included. If these multiplicative terms are significant, it means that the independent variables had different effects for the younger and older age groups.

Table 2. Significant regression coefficients from the stepwise multiple and logistic regression analyses. N= 286-303. * p<0,05; ** p<0,01

	Low affective well-being		**Self-changes**			
	GHQ-12	Symptoms scale[1]	Reorien- tation	Professional growth	Self- knowl.	Comm. skills
Gender (1=men, 2=women)	-	-	-	-	-	-
Cohabiting/married (1=no, 2=yes)	-	-	-	0,57*	-	-
High social status (1=no, 2=yes)	-	-	-	-	-	-
Age	-	-	-	-0,26**	-	-
Employment position (0=no perm. job, 1=perm. job)	-1,83*	6,99**	-1,07**	0,75**	-	-
Age*gender	-	-	-	-	-	-
Age*cohabiting/married	-	-	-	-	0,59*	-
Age* high social status	-	-	-0,51**	-	-	-
Age*employment position	-	-	0,55**	0,27*	-	-

[1]= logistic regression and Wald-coefficients

Few demographic variables had any significant effects on either the well-being or the self-change scales. Age had no clear, main effect on either the well-being or the self-change-variables. However, age in combination with other variables had

some influence on three of the self-change-variables, reorientation, professional growth and increased self-knowledge, but not on the well-being scales. Thus, the seemingly significant, main age-effect on professional growth was at least partly a result of the age* employment effect.

For dismissed employees who had got new permanent jobs, perceived professional growth was about the same for both younger and older persons (Figure 1). For those lacking new permanent jobs, however, perceived professional growth was lower for persons over 55 years.

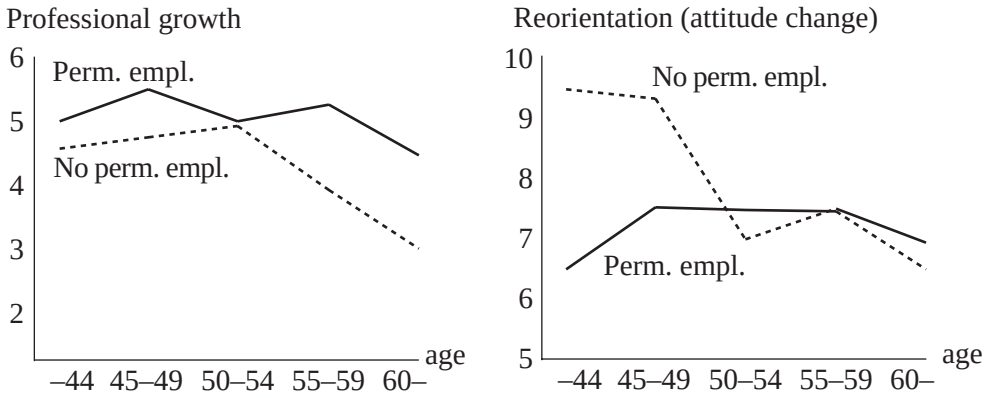

Figure 1 & 2. Scale values for perceived professional growth and reorientation in relation to age one year after the close-down for persons with and without new, permanent jobs (N= 192 and 103).

For the attitude changes, i. e. reorientation, there was an also an age*employment multiplicative effect. Elderly persons over 50 years without a permanent job did not report more attitude changes than those with permanent jobs, while younger persons without new permanent jobs reported more attitude changes (Figure 2). An age*social status effect was also found, in that reorientation increased with age for persons in the low social class, while an opposite tendency was seen for those in the high social class.

In general, perceived personal growth, as measured by increased self-knowledge and communicative skills, did not differ by age. Neither age, nor any other variable was related to the personal growth variables, with the exception of an age*marital status effect for increased self-knowledge (self-knowledge decreased with age for single persons while it was constant for cohabiting/married persons). Hence, elderly persons tended as often as younger persons to report increases in personal knowledge and communicative skills during the two preceding years. These two variables were instead related to job-seeking experiences and changed communication within the family.

Discussion and conclusions

Perceived professional and personal growth were common phenomena among the former NCBE-employees, even among those without new, permanent jobs. Nearly 40 percent of all employees reported such changes while somewhat fewer (24%) expressed attitude changes. The levels for personal growth and reorientation for the NCBE-group were about the same as for employees in another Swedish public

organisation, who were not threatened by job loss (3). Just professional growth was lower for the former NCBE-group studied here. Two aspects of these self-changes would be interesting to further scrutinise. One issue concerns the question if all this perceived growth referred to acquisition of simple facts and skills (assimilation) or if some part also referred to more comprehensive forms of learning, such as perspective changes (accommodation). The other pertains to whether a considerable part of the increased self-knowledge had the character of learned helplessness or not. Anyhow, it should be noticed that the close-down and job loss not just resulted in psychological decline but also in perceived psychological growth, which corroborates earlier findings from answers to open questions about the ”lessons” from the close-down (6).

The well-being and self-change variables gave somewhat different information, and consequently, the inclusion of self-change variables may give a broader view of the psychological and mental health effects of job-loss or unemployment. This was also seen in the correlations with the demographic and job position variables. Age moderated the impact of employment position on reorientation and professional growth, but not for the affective well-being scales. Subsequent analyses showed that the multiplicative effect for professional growth seemed to be dependent on the specific activity chosen by the individuals without permanent jobs. More younger than older persons chose work-related training rather than open unemployment, which contributed to a relatively high level of professional growth. This may imply that the multiplicative effect can be explained by situational or life style variables rather than by cognitive factors (c.f. (12)). This was not the case for the age-multiplicative influences on the attitude changes, which could not just be explained by the specific activities chosen. Psychological or cognitive factors might here have played more important roles.

All in all, age had few strong associations to the well-being and self-change variables, and the elderly public employees showed a clear adaptiveness in connection with the close-down. Many got new, permanent jobs and their well-being and growth were about the same as for younger persons. Negative attitude changes were less frequent among older than among younger employees lacking new, permanent jobs. So, even according to these extended measures of mental health, the elderly public employees seemed to manage the close-down as well as the younger ones.

Summary

Mental health was measured both by traditional indices of affective well-being and by scales for perceived self-changes, in a study of 328 Swedish public employees one year after a close-down of their organisation. Both psychological decline and growth were expressed. Nearly 40 percent of the employees reported perceived professional and personal growth, while 24 percent reported, primarily negative, attitude changes. The well-being and self-change scales gave somewhat different information, and the inclusion of self-change variables may give a broader view of the psychological and mental health effects of job-loss and unemployment. Age moderated the impact of employment position on attitude changes and professional growth, but not on the affective well-being scales. All in all, the elderly public employees showed a clear adaptiveness in connection with the close-down. Many got new, permanent jobs and their well-being and growth were about

the same as for younger persons. Negative attitude changes were less frequent among older than among younger employees lacking permanent jobs.

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Early retirement and ”bridge jobs”: A case study of blue-collar workers in a troubled industry in the USA

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Introduction

The conditions of employment after age 45 are quite varied, historically and in any given period, at both individual and population levels. Beginning at about age 45, for example, morbidity curves gradually accelerate, with implications for labor supply and mode of work. Apprehensions of the finitude of a life tend to become less abstract, more particularistic and insistent, and sometimes stimulate personal revaluations. Tugs of the path not taken may yet lead to a switch in careers. Likewise, soon after age 45 parenting responsibilities are sharply curtailed, freeing one or both parents to experiment with alternative employments or, often in the case of mothers, opening the prospect of entering the market of paid employment for the first time or of returning to an interrupted career. Then, too, for some workers as young as 50 the circumstances of a current employment allow an early retirement (thus perhaps creating a career-advancement opportunity for a co-worker). And having retired at an early age, a person may later conclude that ”leisure time” is less felicitous than had been imagined, or income security less enduring, and seek to return to the labor market for full-time or part-time employment.

Across those and similar dimensions of variation in the conditions of employment after age 45, changes in the industrial and occupational composition of labor demand affect the probabilities of continued employment, new employment, and re-employment, for mature as well as for younger workers. Of course, the composition of labor demand continually changes. But the secular trend tends to be gradual, and the composition of labor supply remains in reasonably close correlation. Occasionally, however, a particular industry or industrial sector undergoes massive expansion or reduction. When this happens – and especially when large-scale *reductions* occur rapidly – labor supply faces wrenching adjustments. The adjustments typically vary by worker’s age, since biographic age correlates positively with job tenure or ”career age.” But the component relationships involved in the age-linked adjustments of labor supply are complex, owing to a variety of factors including industry characteristics (e.g., unionization, modal skill levels), employer characteristics (e.g., a firm’s investments in job-specific training, provisions of early-retirement opportunities), public policy (e.g., legislation regulating age discrimination in employment), and the specific circumstances of the reduction in labor demand.

As the pace of economic change quickened during the 1960s and 1970s, public policies in many societies were designed to encourage early retirement as a means of alleviating problems of unemployment. The policies have generally been quite effective, stimulating growth in the rate at which workers retire from their career jobs at ever younger ages. As one important consequence of that growth, transitions from full-time employment to complete retirement have tended to lengthen in duration and to become more varied in pattern. For many workers retirement is a punctual event: one day, in the labor force; the next day, and ever after, out. But for increasing numbers of workers the transition is gradual (a shift from full-time full-year employment to part-time and/or part-year employment) or repetitive (a sequence of one or more cycles of exit and re-entry before the final exit). With few exceptions, public policy has failed to keep pace with these behavioral changes – changes induced, at least in part, by previous policy formations. Public pension systems are rarely flexible enough to accommodate alternative pathways from full-time full-year employment to an eventually complete and permanent withdrawal from the labor force. Only in Sweden, to the best of our knowledge, has the public system recognized ”partial retirement” as a formal status available to workers at relatively young ages (6). In the United States, by contrast, the public pension system (Social Security) is tied to age 65 as ”normal retirement age” (soon to be gradually increased toa ge 67) and to age 62 as ”early retirement age.” Provisions for early retirement at ages younger than 62 have been left to employers and unions. These private-sector early-retirement plans do not cover all workers, of course, but for workers who are covered the plans provide opportunity for an unoffical ”partial retirement” status. However, these plans also tend to contain restrictions that adversely affect the retiree who needs or wants to find a job that will ”bridge” the difference between an early retirement from career job and an eventually complete withdrawal from the labor force. Yet this difference has become an increasingly common concern for many older workers.

The prevalence of ”bridge employment” during the 1970s in the United States was documented through analyses of longitudinal data such as the Retirement History Survey. Three general conclusions from that survey are pertinent. First, retirement from what amounted to a career job was very common: about half of the male retirees had been employed in a single job for more than 20 years, and nearly one-fourth had been employed in a single job for more than 30 years. Second, retirement from career jobs occurred before age 60 in one-half the cases; before age 55 in one-third of the cases. The availability of private pension plans generated a substantial flow of early retirements at ages several years younger than the onset of public-pension eligibility. But third, whereas half of the men had ended their career jobs before age 60, only one in ten had *fully* retired by that age. In other words, early retirement from a career job usually did not mean permanent or final retirement from the labor force. The transition to permanent retirement was usually gradual or episodic, involving stages of partial retirement (e.g., part-time employment) or repeated cycles of retirement and re-entry (3,4,5).

While a number of studies have demonstrated that the transition from full-time full-year employment to complete and final retirement is often not a punctual event, what remains unclear is whether the increase in gradual retirement is linked primarily to changes in worker preferences or to changes in the demand for older workers; much about the transition process in its many variations remains to be

investigated. National surveys of employment patterns, such as the Retirement History Survey, generate important understandings of average or modal tendencies. But averages often conceal as much as they reveal – especially when the conditions of retirement and employment are highly heterogeneous, as they often are during times of rapid change. Case studies can offer useful supplements insofar as they focus on specific conjunctions of relevant conditions within the general relationships. The present paper reports a case study of the employment behavior of a highly specific population of men who, mostly in their fifties, ended their career employments with a particular firm, General Motors, by accepting offers of early retirement under special circumstances which prompted some workers to retire at ages considerably younger than they had anticipated.

Historically the largest of the U.S. auto manufacturers, General Motors had steadily lost market share during the 1970s and 1980s. In response to the increasing redundancy in its production capacity, the company began a series of plant closures and permanant layoffs among its hourly wage workers. These layoffs were met by the resolve of the United Auto Workers to defend the job security of current workers and the financial security of retired workers. One solution to this conflict of interests was to shift some of the excess labor supply into a retirement queue rather than into the permanent layoff queue. Thus, GM sought to increase the number of early retirements among its older workers by offering a ”special plan” of early retirement, which included enhanced financial incentives and relaxed the usual severe restrictions on post-retirement employment earnings.[0] Ordinarily, workers interested in an early retirement waited until completion of their 30th year of service, since their pension benefits reached maximum at that date. Under the special plan, however, workers with fewer than 30 years of service could elect early retirement and receive nearly the same level of pension benefit. Faced with impending plant closures, pressures from younger co-workers whose lack of seniority meant automatic job loss, and the possibility of retiring with a comparatively high monthly pension at an age as young as 50, many of the workers did just that, even though they had not planned to retire so young. Who of these retirees then re-entered the labor force, who did not, and what accounts for the difference? What are the conditions of re-employment after age 50, when the *issue* of re-employment has arisen because of an unexpectedly early end to a career job? To what extent do differences in the conditions of an early retirement later reappear as conditions affecting the decisions of early retirees to accept permanent retirement ”now” or to re-enter the labor force? Because the sampled population is in several respects highly distinctive, by comparison to the general population of men aged 50 or older, our analyses of data pertaining to those questions provide an opportunity to assess the sensitivity of the re-entry process to some rather specific circumstances of employment at older ages.

Methods

The population consists of all male hourly wage workers who were 50 years of age or older as of October 1987 (the beginning of the 1987-89 GM-UAW contract) and who were eligible for early retirement under terms of at least one of the plans. Because women comprised such a small fraction of the production workforce, they were excluded from the defined population. The population was stratified into (1) workers who had not retired by the end of the 1987-89 contract peri-

od, (2) workers who had retired via the regular early plan or (3) via the special early plan during the contract period, and (4) workers who had retired either via the normal retirement plan (i.e., age 65 or older) or via disability. Probability samples of all but the fourth stratum were constructed. The following analyses are based chiefly on the sample of special retirees (N = 513), since these were the workers who could engage in post-retirement employment without penalty. However, we also make use of the other samples in order to assess the issue of selectivity in the retirement sorting process (as described below). Data from personnel records (e.g., current age, age at retirement, years of service, pension characteristics, skill classification) were supplemented by data from individual interviews conducted after the contract period (e.g., questions about work at GM, the retirement event, post-retirement employment, other demographic characteristics).

Of the various kinds of factors that can be expected to have affected the retirees' labor-force re-entry behavior, the following are here considered: retirement income, relative to income demand; health status (here indexed by self-assessment); skill level; age at retirement; conditions of the retirement event; and individual preference for nonmonetary rewards of paid employment relative to nonmonetary rewards of "leisure time." Specific variables and measurement distributions are summarized in Table 1, which also reports pertinent bivariate distributions.

Results

Approximately 31 percent of the men had returned to the labor force by interview date. The rate varied by year of retirement, of course. However, 81 percent of the retirements occurred during 1987 or 1988, and the re-entry rate among these men was only slightly higher (33 percent). Half of the re-entries occurred within the first six months following retirement, and another third occurred during the next six months. Two-thirds of the re-entrants reported only one post-retirement job; another 17 percent reported two. While comparisons to the results of other studies are inexact because of compositional differences, these findings accord reasonably well with results obtained from national samples. Quinn *et al*. found, for example, that re-entries typically occurred within a year after ending a career job, and most re-entrants reported only one or two post-retirement jobs (3). The one notable difference is in rate of re-entry. According to analyses of data from the Retirement History Survey, the re-entry rate among male wage-and-salary workers who retired from a career job with private pension benefits was 24 percent; among male wage-and-salary workers who retired from a career job in the durable-goods manufacturing industries, only 19 percent (3). Our rate of 31 percent is no doubt due at least in part to the fact that our sampled population was younger than the RHS population. Other compositional differences preclude exact comparisons, but the difference in rates could also reflect the particular circumstances under which our auto workers had retired.

Judging from the bivariate relationships described in the latter two columns of Table 1, the men who did return to the labor force tended to be distinctive in several ways. For example, on average they had retired after fewer years of service, had lower monthly benefits, more often judged themselves to be in better health- than other men their age, and more often said that retirement had occurred "too soon." However, these results are not net of each other or of differences in "risk

Table 1. Descriptive Statistics for Selected Variables*.

		Re-entered?	
	Total	Yes	No
Retirement Age	57.1	56.8	57.2
	(2.2)	(2.0)	(2.3)
Years of Service	29.1	27.0	30.0
	(8.2)	(8.8)	(7.8)
Pension Benefit	1160.70	1098.22	1187.74
	(295.54)	(320.25)	(280.43)
Household Size	2.4	2.5	2.3
	(0.9)	(1.0)	(0.9)
Married (%)	87.7	87.0	88.1
Wife Employed (%)	32.9	40.0	29.7
Good Health (%)	51.1	58.4	47.7
Plant Closed (%)	25.3	20.5	27.6
Retired Too Soon (%)	25.1	32.3	21.9

*Means (standard deviations), unless specified as percentage.

period" (and therefore some of the observed relationships may be spurious), nor do they control for the self-selection of workers who opted to retire via the special plan. A better assessment can be achieved from multivariate analyses, to which we now turn.

The results of some probit regressions of the binary-coded dependent variable (Y = 1 if the respondent reported at least one post-retirement paid employment; Y = 0 if none) are shown in Table 2. Note that these estimates for the several predictor variables are net of Retirement Year, which itself was a significant net correlate of the likelihood of re-entry. Note also that the regressions reported in columns 2, 3, and 4 include a variable (Lambda) that enables us to deal with the fact that our sampled population of special retirees had reached that status as a result of a nonrandom sorting process within the larger population of auto workers. The metric of Lambda describes the *unlikelihood* that a given member of the sampled population had elected early retirement via the special plan. Of course, all of the sample members had in fact done just that. But they were not a random selection of all of the auto workers who *could* have retired via the special plan. In order to take that nonrandom selectivity into account, we estimated a model of the decision to retire via the special plan, using 15 predictors of the retirement decision.[1] This model formulated a theoretical expectation for each of the auto workers in the "at risk" population – that is, a likelihood that a given worker with a specific set of characteristics would in fact retire via the special plan. The workers' actual decisions (to retire via the special plan or not) corresponded with theoretical expectation reasonably well. More particularly, most of the auto workers who did retire via the special plan "should" have done so according to theoretical expectation. But some of the special retirees had characteristics which led to a low theoretical expectation of retiring via the special plan, yet they nonetheless did decide to accept a special offer; unobserved factors (i.e., variables not included in the

Table 2. Predicting Post-Retirement Employment: Probit Regressions.

	1	2	3	4
Constant	23.42***	23.03***	22.47***	23.99***
	(6.76)	(6.71)	(6.85)	(7.03)
Retirement Year	-.42**	-.48**	-.49**	-.46**
	(.15)	(.15)	(.15)	(.15)
Retirement Age	-.40**	-.40**	-.39**	-.42***
	(.12)	(.12)	(.12)	(.12)
Pension Benefit	-.018**	-.017**	-.017**	-.018**
	(.006)	(.006)	(.006)	(.006)
Age x Pension	.0003**	.0003**	.0003**	.0003**
	(.0001)	(.0001)	(.0001)	(.0001)
Married	-.43+	-.43+	-.42+	-.36
	(.23)	(.23)	(.23)	(.24)
Wife Employed	.27+	.22	.22	.21
	(.14)	(.14)	(.15)	(.15)
Extra Adult	.25**	.24*	.24*	.23*
	(.10)	(.10)	(.10)	(.10)
Good Health	.32*	.29*	.28*	.25*
	(.13)	(.13)	(.13)	(.13)
Plant Closed	—	—	-.20	-.22
			(.16)	(.16)
Retired Too Soon	—	—	.32*	.09
			(.15)	(.19)
Lambda	—	.28**	.27**	.27**
		(.11)	(.11)	(.11)
Skilled Worker	—	—	—	-.11
				(.16)
Skilled x Too Soon	—	—	—	.68*
				(.31)
-log likelihood				
restrained	290	290	290	290
regression	267	263	260	253
X^2	47.4	54.4	60.1	74.3
p<	.001	.001	.001	.001
prediction success (%)				
Y = 1	21	22	24	30
Y = 0	94	95	94	92

***p<.001 **p<.01 *p<.05 +p<.05 (one-tail)

model) must have prompted them to accept the offers. In short, these latter special retirees were the most improbable special retirees; they had the highest ”unlikelihood” values, relative to the theoretical model of retirement.

The coefficients for Lambda (columns 2, 3 and 4) are positive and significant. This means that special retirees for whom the theoretical expectation of retiring

via the special plan had been low (i.e., the most improbable special retirees) were more likely to reenter the labor force than were the special retirees for whom the theoretical expectation of retiring via the special plan had been high (i.e., the most probable special retirees). Unobserved factors associated with the decision to become a special retiree correlated with (or perhaps were the same as) one or more re-entry determinants not directly specified in the regressions in Table 2. Lambda acts as a surrogate for those unmeasured factors and thus improves specification of the equations predicting re-entry.[2]

The re-entry predictors examined in columns 1 and 2 are broadly pertinent to labor supply, whether of older or younger adults. Results obtained for GM's special retirees correspond to findings from studies of the general population. The probability of post-retirement employment was greater among those who had retired at younger ages, those whose pension benefits were comparatively low, and those who were in good health. The net effect of the presence of one or more extra adults in the household was to increase the likelihood of re-entry, arguably because of greater demands on household income.

Contrary to expectation, men who had been employed at GM as machinists, tool-and-die makers, electricians, or in some other skilled job were generally not more likely to re-enter the labor force than were their semiskilled colleagues. On the assumption that skilled workers who had retired at the youngest ages would have been likeliest to have retired in anticipation of a re-entry, we tested interactions between skill level and pertinent age categories. None was significant. As we will see below, however, there is more to the story concerning the effect of skill level.

The fact that our sampled population consisted of men who had retired from career jobs in a shrinking industry, and in many cases had done so at ages younger than anticipated or desired, is hardly a basis for expecting that considerations of financial or health capability, for example, would not have affected their post-retirement labor supply decisions in much the same way that they affect the labor supply decisions of other men in their fifties. But our special retirees varied among themselves not only in terms of these broadly pertinent determinants of labor supply; they also varied in characteristics pertaining to the fact that they had ended their career jobs at GM under *special* circumstances. We now shift attention to those characteristics.

A worker who elected early retirement under the special plan well after having completed his thirtieth year of service was apparently responding to an "offer he could not refuse," either because the special plan relaxed restrictions on post-retirement employment or because of increased pressures due to plant closures (or perhaps both). After all, he could have retired at the end of year 30 with maximum benefits under the regular early retirement plan; and each year of delay beyond the thirtieth had cost him pension wealth. Presumably these men had evinced a comparatively strong preference for employment over leisure. This suggests a plausible hypothesis – namely, that special exits occurring well after the thirtieth year of service were associated with a greater likelihood of post-retirement employment *(ceteris paribus).* Accordingly, we tested the presence of a category effect at various years of service exceeding 30. None was significant. Note, however, that this result does not necessarily contradict the assumption that the men who had left GM after year 32 or year 35 (for example) had been comparatively reluctant reti-

rees. Rather, it indicates only that, whatever their attitudes at the time of retirement (i.e., whether reluctant, eager, or indifferent), men with ”excess” service years were on average no more likely to re-enter the labor force *(ceteris paribus)* than were men who had ended their career jobs after 30 or fewer years.

But there is other evidence that satisfaction with the timing of retirement from GM did influence re-entry behavior. Recall from Table 1 that for one-fourth of the sample members' retirements had occurred sooner than desired; and the proportion was significantly higher ($p<.01$) among the re-entrants. Moreover, in keeping with our assumption, the relationship between length of service and the ”too soon” response was bimodal: among the retirees who had left before year 30 the proportion saying ”too soon” fluctuated around 30 percent; among those who left with 30 years it dropped to 20 percent; among those who left after 31 to 36 years it fluctuated between 26 and 27 percent; and among those whose retirement came after 37 years only 8 to 17 percent said they had retired too soon. Of course, since length of service was implicated in Pension Benefit, one might expect that the bivariate relationship observed in Table 1 between the ”Too Soon” response and re-entry was spurious. But in fact, as can be seen in column 3 of Table 2, the relationship persisted net of other predictors, including Pension Benefit: re-entry was likelier if retirement had occurred ”too soon.”[3]

Next, consider Plant Closure. All of the special retirees, it bears repeating, had been affected by GM's decision to abandon several of its production facilities. But some of the men had been more immediately affected than had others. Indeed, the majority had *not* been employed in plants that closed but had received special offers nonetheless, because of management's desire to alleviate the problem of excess labor supply across *all* plants. Of course, workers who had been employed in plants scheduled for shutdown and who had received special offers were likelier to accept the offers *(ceteris paribus)* than were workers who had received special offers even though the plants in which they worked were not scheduled to be closed. This implies a nonnegligible selectivity among the special retirees which could, and did, confound estimation of the effect of Plant Closed on re-entry behavior.

In general, the men who had retired from a closing plant less often returned to the labor force (Table 1). Moreover, the negative effect of Plant Closed persists net of age at retirement, pension income, marital status, health, and the other predictors shown in column 1. But the results shown in column 3 tell us that that net effect of Plant Closed actually represented the impact of Plant Closed on the retirement decision, not on the probability of re-entry. Once the effect of nonrandom selection in the retirement sorting process is taken into account, the estimate for Plant Closed is not significant (column 3). The likelihood of accepting a special offer had been greater among the auto workers whose plants were being closed; and those with characteristics that increased the likelihood of accepting a special offer tended not to return to the labor force once they had retired.

Since both Retired Too Soon and Plant Closed are indicative of differences in the conditions of the retirement event, we hypothesized that the effects of some of the other predictors of re-entry would be sensitive to those differences. For example, it is plausible to expect that the effect of pension income on the likelihood of re-entry would have been weaker among the retirees who had ended their GM employments before they were ready to cease all labor-force activity. Such was

not the case, however; the interaction between Pension Benefit (whether by interval or categorical measure) and Retired Too Soon was not significant. Nor were any of the other plausible interactions – with one exception.

Recall that a return to the labor force was in general neither more nor less likely among the men who had retired from skilled jobs at GM. As can be seen in column 4, however, that was not uniformly true. Skilled workers who had "retired too soon" resumed paid employment more often than did the other skilled workers or the semiskilled workers.[4] This difference probably reflects an opportunity effect: skilled workers generally had better chances in the post-retirement labor market, but only those skilled workers who had ended their career jobs at GM before they were ready for complete retirement tended to convert those better chances into bridge jobs. It is also worth emphasizing that the effect of Retired Too Soon among the skilled workers is net of pension income (as well as age and the other predictors): these men simply were not ready to relinquish a place in the world of paid employment – not because (on average) they needed earnings in a financial sense but because of the noneconomic rewards of employment. We are not suggesting that the semiskilled workers who deemed their departures from GM as premature were necessarily any less interested in the noneconomic rewards of employment (although on average they were receiving somewhat smaller monthly benefits). But as can be seen in column 6, their evaluations of whether they had retired too soon or not made no net difference in re-entry behavior, probably because of poorer opportunities in the post-retirement job market.

Summary and conclusion

The evidence from this study suggests that, while differences in contextual features (e.g., industry contraction, characteristics of private pension plans) are no doubt important considerations in re-entry behaviors among early retirees, the effects of such differences are manifested primarily in the prevalence of those factors that motivate the re-entry decision. In other words, the *process* of re-entry operated basically the same among our retired auto workers as among the more general population of early retirees, despite the fact that our auto workers were descriptively quite distinctive in some important respects. They had retired from plants that were closing on their heels; many of them had retired unexpectedly early; and they retired with relatively high pension wealth, certainly higher than they had expected before the special offers came their way. Even so, the rates at which they returned to employment were comparable to reported rates for the more general population, and the factors that discriminated those who did re-enter the labor force from those who did not re-enter were very similar in order of importance. These conclusions suggest that the factors which sort early retirements into permanent retirements, on the one hand, and labor-force re-entry, on the other, within the general population also predict re-entry among older workers within a much more homogeneous labor market. Societal standardization of the life course has produced much uniformity in behaviors across major variations in contextual features.

Burtless and Moffitt found that the negative net effect of pension income on the re-entry decision was much stronger than the positive net effect of wages from a post-retirement job (1). This is indicative of a strong underlying preference for leisure with pension income over the resumption of work and wage income. Al-

though the limits of our data precluded a replication of Burtless and Moffitt's analysis, all of the evidence of our study is consistent with their conclusion. However, it is also clear from our study of the auto workers that that conclusion depicts a general tendency. It is not uniformly true of all workers, for some would prefer the pension income *plus* post-retirement work for pay. Our auto workers, because they had retired under the Special plan, had been free of one major impediment to that joint preference – namely, the marginal taxation of post-retirement earnings, a feature of union contracts designed to protect the labor-market opportunities of younger workers. Public pension systems have typically contained the same restriction. The U.S. Social Security system not only reduces retirement benefits when earnings exceed a given threshold, but it sets the highest rate of taxation for the youngest retirees. Greater flexibility in "retirement pathways" would facilitate opportunities to satisfy mixed or joint preferences. It would also respond to public-policy concerns about increased rates of early retirement in persistently aging populations.

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Footnotes

0. The present study is an extension of a larger study of the conditions and determinants of early retirement among hourly wage workers at GM during the 1987-89 contract period (2). Details of the pension plans and retirement decisions are provided there.

1. The predictors (with estimates and standard errors) were: age in years (.373; .075); a dummy for the category effect of age 62 or older (-1.539; .233); service years (-.539; .128); a dummy for the category effect of 30 or more service years (-2.180; .270); a term for interaction between age and service years, which reflects a characteristic of the pension plan (.006; .002); the present discounted value of pension wealth, in thousands of dollars (.056; .005); hourly wage rate (-.168; .034); skilled worker vs. semiskilled (.706; .149); household income before retirement, in thousands of dollars (-.026; .005); married vs. not (.454; .204); could keep up with pace of work vs. not (-.216; .178); African American vs. not (-.445; .224); Hispanic American vs. not (.034; .359); had recently been laid off vs. not (-.445; .154); and worked in a plant that closed vs. not (.378; .157). The model fit was quite good: the restricted slopes log likelihood ratio was -1013; the full-model log likelihood ratio was -275; the resulting $\_^2 = 1476$ was significant at well beyond $p<.001$. The model correctly predicted 81 percent of the cases. Further details concerning the retirement behavior of the auto workers can be found in (2).

2. By describing the issue as one of specification we mean to emphasize that it is not simply a "technical" issue; it is also substantive. The technical aspect may be summarized as follows: insofar as the probability of retiring under the special plan and the probability of post-retirement employment share determinants that are not directly measured (e.g., underlying predispositions), the estimates predicting re-entry will be biased unless appropriate correction (i.e., inclusion of Lambda) is made. But substantively this means that when people are sorted (or sort themselves) into different statuses in nonrandomly selective ways, the effects of that nonrandom selectivity can and often do extend to their subsequent behaviors. Without taking those effects into account (when

they are present), one's explanations of the subsequent behaviors in terms of some set of observed variables may be seriously mistaken.

3. Note that the question about "retiring too soon" was asked and answered after the respondents' possible experiences with labor-force re-entry, which means that the answers could reflect those experiences as much or more than their earlier judgments about the timing of retirement. However, if most of the men who said they had retired too soon rendered that judgment because of disgruntlement about failure to find a post-retirement job, the coefficient for Retired Too Soon would have been negative, not positive. This suggests either that re-entry was more likely because the GM exits had occurred before the men were ready to leave the labor force altogether or that the men who did re-enter were likelier to give the "too soon" response as a rationalizing account of their re-entries. We cannot discriminate between these latter two alternatives.

4. Relative to the combined reference group of semiskilled workers who had not retired too soon (combined reference group coefficient = 0), the comparative coefficients are: semiskilled workers who had retired too soon, .087; for skilled workers who had not retired too soon, -.105; and for skilled workers who had retired too soon, .676 + .087 - .105 = .658. This last coefficient (.658) is significantly different from each of the three others ($p<.05$), which do not significantly differ from one another.

Worker's life-cycle: Older workers, sickness, and re-entry into the labor market

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Introduction

Both old age and long-term sickness have been viewed as increasing the risk for early exit from the labor market (2). This paper analyzes the situation for 1,450 employed individuals over 55 years old after a long-term illness. The group of older employees are a part of material gathered concerning 8,000 concluded long-term sick leaves (exceeding 60 days) in the south of Sweden between 1990 and 1993.

Older workers have been considered a weak group in terms of maintaining their position of employment (4). There are a variety of reasons why older workers are not considered attractive in the labor market. The primary reason for a worker's diminished attraction within the labor market is rapid changes in the organization of work and changes in the structure of the labor market (1). For older workers, however, the increasing modernization of production has rapidly diminished their competence. At the same time, increasing the competence and skills of older workers is considered too costly by the employer.

Method

The methodology involved is based on the use of a unique data bank of 8,000 sick leaves involving a compensated sickness of at least 60 days, ending between 1990 and 1993 in the South of Sweden. Of these cases, 17,5% or 1,450 included workers over 55 y ears of age who were wage-earners at the onset of their sickness.

The quantitative material gathered on each case includes work biography as well as sickness and rehabilitation information. Comparisons between the older worker who is back at work and the worker who is not are presented. Fifty detailed interviews are conducted with older workers, each representing a certain typical profile of the older worker at work to provide additional information. The quantitative and qualitative material is analyzed in relationship to structural changes within the Swedish work force.

Results

Employment and unemployment in Sweden shows that labor force participation rates for the elderly in Sweden have remained constant for the last 16 years. (See Diagram 1) This is a participation level about 20 per cent units below participation rates for individuals between 25-54. Compared with young workers aged 15-24,

the elderly have fared much better during the period of recession and restructuring of the Swedish labor market (1990-1995). Figure 1 shows that whereas the age group 15-24 decreased their participation rates with approximately 20 per cent units, the elderly experienced only a slight decreased in labor participation rates.

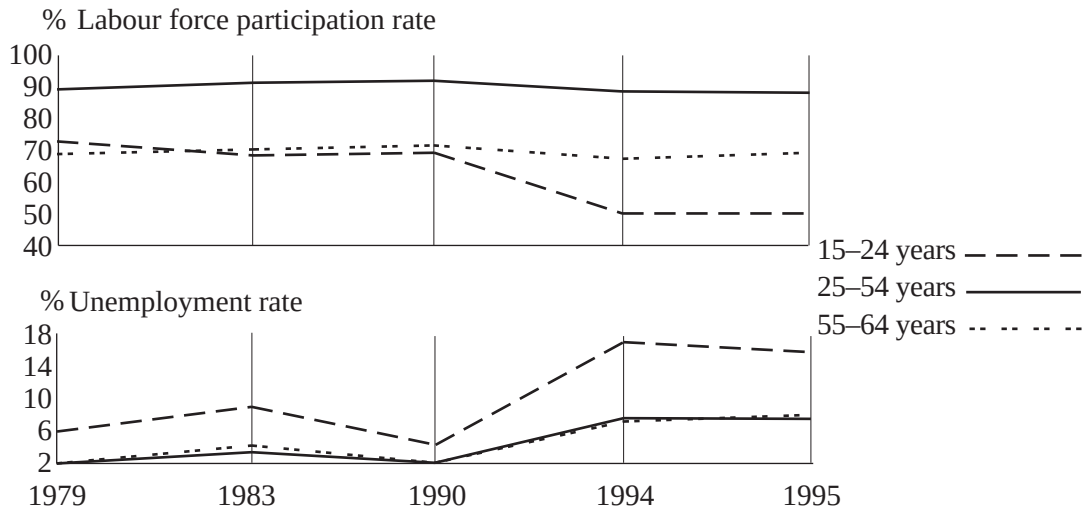

Figure 1. Employment and unemployment in Seden.

The same pattern in the relationship between young and older workers can also be seen in an analysis of unemployment rates. (See Figure l). The young have always been more susceptible to higher unemployment rates than other groups. For the period of the current recession 1990-1994, the elderly however have had an unemployment experience similar to the working population between 25-54 years old. Diagram 1 also shows that unemployment rates for the elderly during the 1983 Swedish recession were higher than rates for the 25-54 age group of the working population.

Given the background of a general increased employment stability for the older Swedish worker in relationship to the 25-54 age group, the consequences of long term illness for the elderly in terms of influencing employment relationships becomes an area of interest. It is reasonable to test the assumption of long-term illness as intervening in employment relationships for the elderly work force to a more severe degree than for other age groups. Thus the expectation is that labor participation rates decrease and unemployment rates increase for the older worker after a prolonged illness.

Figure 2 shows that for the population studied, the elderly do exhibit different patterns of sickness conclusions than other workers.

The elderly tend not to return to employment to the same degree as other workers after a long-term illness. On the other hand they are not as likely as other workers to be unemployed after a sickness. Instead they are more likely to be subjected to an early pension. These findings concerning early pensions are not surprising. It is well known that age is the highest risk factor connected with a early pension (3). What is surprising, given the high risk of older age and early pensioning, is that so many older individuals return to work after a long-term sickness. What is also unexpected is that the relationship of illness and labor market participation for men and women , controlling for age groups (under 55 and 55 or over) show that whereas younger women return to work after a long-term ill-

ness less often than younger men, the relationship for older female workers is the opposite. That is, older female workers return to work more than older men after a long-term illness. The same discrepancy between younger and older women after a long-term illness when compared with their male age cohort, shows up in early pension statistics. After an illness more older men than women are granted an early pension. Yet more younger women than men are granted an early pension after a long-term illness.

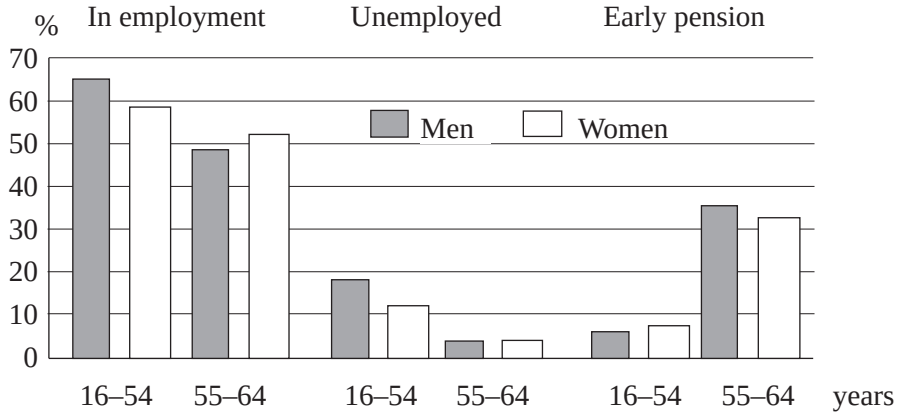

Figure 2. After sickness. Employment, unemployment, early pension.

Rates of returning to work controlling for sex, age (under and over 55 years of age) and cause of long-term illness (according to mental or physical primary diagnose) show that both male and female elderly workers have lower labor market participation rates after a long-term physical sickness than workers under 55 years of age. (See Figure 3).

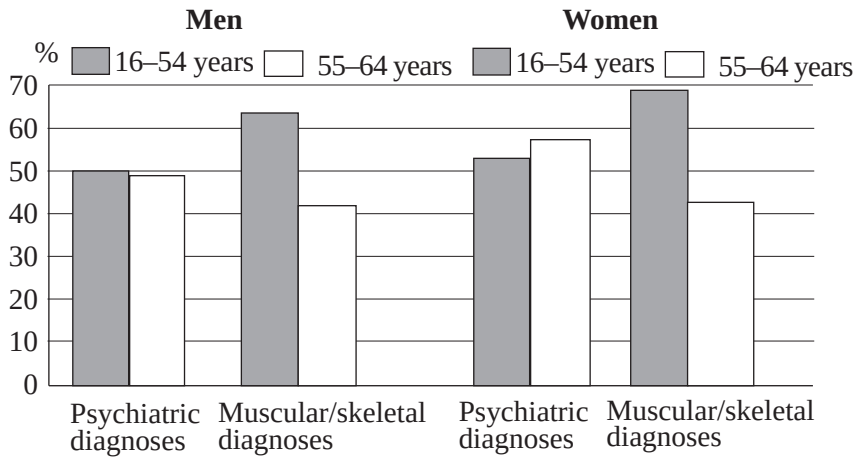

Figure 3. Rate of returning to work after sickness.

This is not the same pattern for concluding a long-term sickness with primarily a psychiatric diagnose. Here age does not have the same importance in determining return to work. For men the return rate after an illness with a psychiatric diagnose is about 50% independent of age. For older women with a psychiatric diagnosed long-term sickness, 57,3% returned to work where as only 53.9% of younger

women with similar type diagnoses returned to work. In the population studied, return to work rates after illness were generally higher for women than men.

In order to understand in what way the seriousness of a long-term illness determines return to work rates, sick leaves were divided into two categories: less than nine months and more than nine months. Seriousness of an illness was operationalized in terms of the length of sick leave time needed for recovery. (See Figure 4) The chances of returning to work decrease in relationship to length of illness. Only 40% of workers under 55 years of age returned to work when their recovery period exceeded nine months and their illness diagnose was a primary physical diagnose. And age, 55 or older, decreased this return to work rate to only 14,8%. Length of long-term illness, a measure of seriousness of illness,shows that age as a factor for defining exit patterns from the labor force becomes important as the illness increases in severity. If a long-term illness is limited to nine months of recovery being elderly does not influence rate of return. For individuals with muscular/skeletal diagnoses rates of return after a long-term illness not exceeding nine months was 74% for individuals under 55 and 66.7% for individuals 55 years or older. And for individuals with a sick leave not exceeding nine months for a psychiatric diagnoses return to work rates were 74,2% for the elderly, 55 or older, and 59,9% for individuals under 55 years of age.

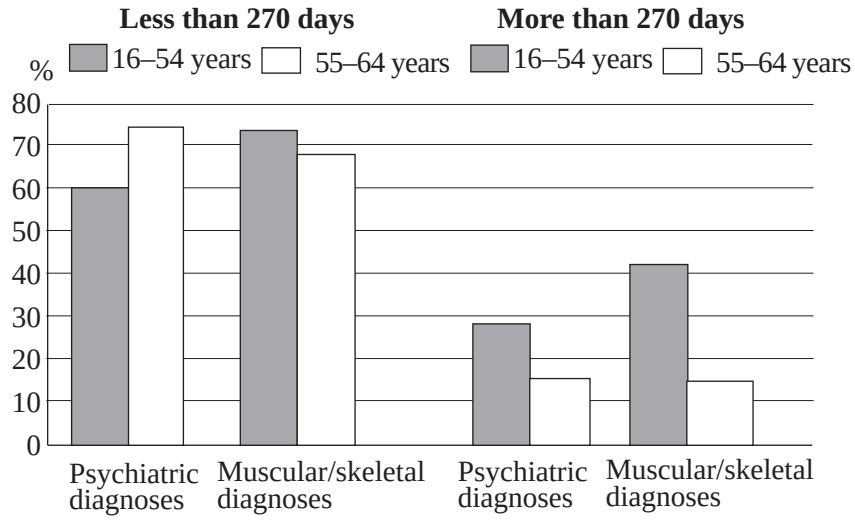

Figure 4. Rate of returning to work after sickness by duration of sickness.

It is reasonable to expect return to work rates after a long-term illness to vary according to the job type, white collar or blue collar work, as well as to an individuals profession. Both in terms of the work environment as difficult/agreeable as well as the organization of work according to flexible/inflexible suggest that not only individual related characteristics such as age and illness influence a return to work rate after a long-term sickness. An analysis of different vocations represented within the population showed that high return to work rates were found within the nursing profession. Given the highly gender segregated labor market in Sweden, female nursing staff in the population was compared to female office workers for return to work rates controlling for age of 55 years or older and under 55 years old and psychiatric and Muscular/skeletal diagnoses. (See Figure 5)

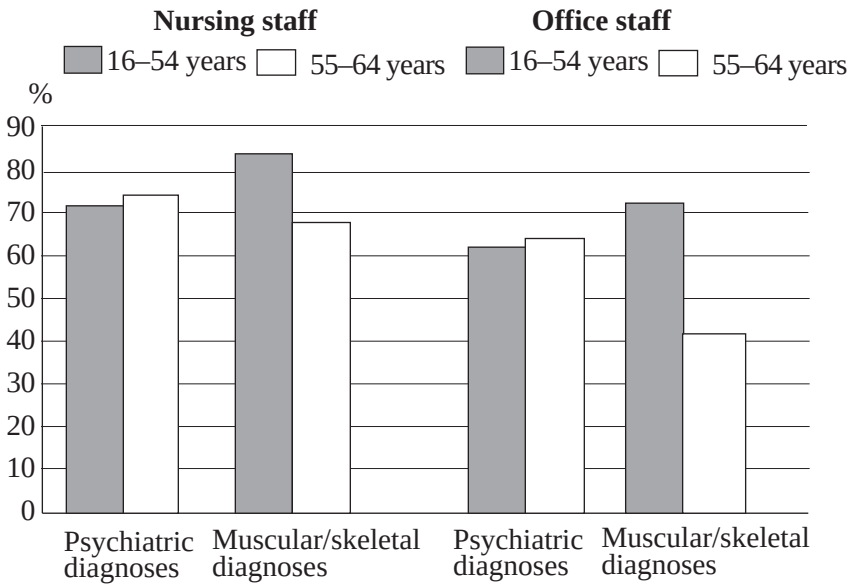

Figure 5. Rate of women returning to work after sickness.

What is most amazing as shown in Diagram 5 is that for the nursing staff there is a very high rate of return to work. Here older female nurses return to work given a muscular /skeletal diagnose in 68% of cases of long-term illness. They narrow substantially the difference in return to work rates with their younger colleagues (83,8%). And in terms of long-term illness with a psychiatric diagnoses we note that work return rate for elderly women is higher both in the nursing profession(75%/73%) and in the office work jobs (62.5%/61.5%).

The high rates of return to work for women in the nursing profession as compared with women in white collar jobs (office workers) suggests that it is possible to obtain high rates of return to work for the older labor force, even with psychiatric diagnoses. There can be two different reasons why return to work rates are high within nursing. Nursing is a vocation with a ”calling”. That is the voluntary devotion to a profession might function to mitigate difficulties with overcoming a difficult illness and returning to work. Another possible explanation is that in nursing there might be more understanding from the employer for accommodating the work place for a returning worker with diminished working capacities. More research is needed to explore which of these two possibilities can explain the higher observed return to work rates.

Figure 6 and 7 look at the work environment and the rate of return to work. In Figure 6 return rates for men and women are shown according to psychiatric and muscular/skeletal diagnoses as well as for under/over 55 years of age. We notice high return to work rates in every category except older female workers with muscular/skeletal diagnoses. White-collar jobs almost always insure a return to work both with psychiatric diagnoses and with physical diagnoses except for the older woman. The older man does not have the same pattern. A possible explanation of the discrepancy in patterns between older men and older women in white collar jobs is that white collar jobs for women are often low-paid jobs with static work elements such as a typist /secretary whereas men in white collar jobs more often find themselves as administrators and managers. In such a situation muscular/ skeletal diagnoses for the older women have as important influence as for older

colleagues within blue-collar jobs in return to work rates. Figure 7 shows that the older blue-collar male worker in fact has a substantially different rate of return than his white-collar colleague and his younger blue-collar male colleagues. Work environment takes its toll on the older worker.

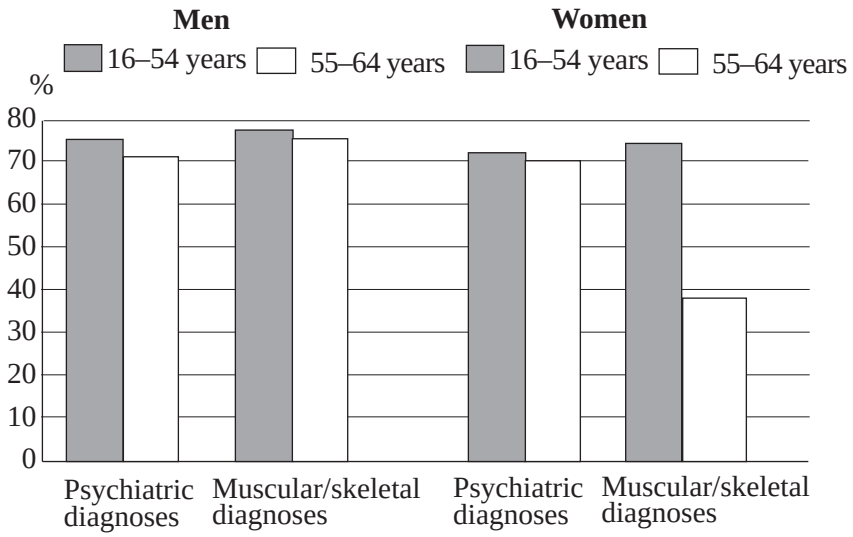

Figure 6. Rate of white-collar workers returning to work after sickness.

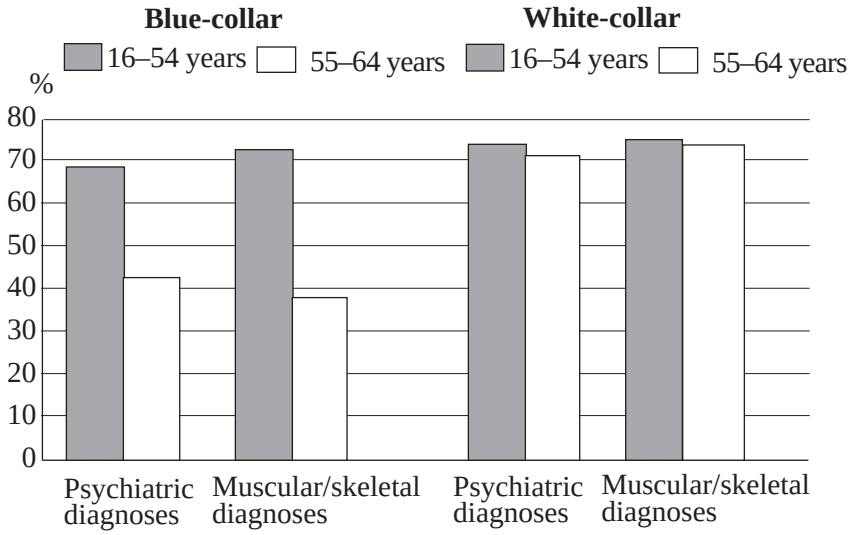

Figure 7. Rate of men returning to work after sickness.

Rehabilitation is an integrated function and responsibility for the Swedish social insurance office during the time an individual is long-term sick. Continual decision-making takes place within the social insurance office concerning the allocation of rehabilitation measures (Eriksson (unpublished, 1996)). Decision-making is based on assessment of the individual, the illness and his work situation. Rehabilitation as a responsibility of the social insurance office is vocational rehabilitation with a stated purpose of helping the individual to return to work and minimizing the time on sick-leave.

Figure 8: Rehabilitation: preparations and measures shows what proportion of the long-term sick receive rehabilitation. The diagram compares received rehabili-

tation between those 54 years of age or younger with those workers 55 years of age or older. Contact with the individual and contact with the employer is somewhat less for the older worker but does not exhibit strong variation. However such concrete rehabilitation measures such as writing a rehabilitation plan or taking a rehabilitation measure show clearly that the older worker is given only about one third the amount of rehabilitation resources as those individuals under 55 years of age.

It is interesting to observe that even for the worker between 16 and 54 rehabilitation measures are the exception. Taking into account the lack of concrete rehabilitation, it is fair to assume that return to work rates for the entire population are high.

Interviews conducted with older workers who directly in connection with their long-term illness were granted an early disability pension showed a variety of tendencies in the related individual experiences. Both male and female older workers experienced a lot of social support during their illness and their following transition from the labor market into early disability pension. The older early pensioned worker was aware of not being offered rehabilitation but accepted that as a matter of course. Several individuals arranged vocational rehabilitation for themselves.

Three trends were discovered in the related accounts from early disabled pensioned individuals. Both men and women saw their situation as a result of 1)no other possibility. Whereas women often talked about their early pension as 2)glad to get away from work, men stressed the seriousness of their illness and the 3)extensive rehabilitation effort to regain function capacity. These three tendencies were woven into the interview accounts and often overlapped each other.

A 62 year old female graphic worker at a newspaper characterizes the *”No other Possibility”* attitude many of the early pensioned individuals held: ”I was never in question for rehabilitation but they talked about it every now and then. I had the impression that they thought I was too old, though they never said it to my face. I was convinced that that was the case.” A 57 year old male electrician also expressed a variation of the ”no other possibility” attitude: ”The tempo is higher nowadays, and it is difficult to keep up at my age. There was no possibility to reassign me within the company and it just didn’t seem right to put me back in the classroom to learn another trade.”

Another attitude towards early exit from the work place has to do with negative feelings about work and was more apparent in interviews with women than men. Work was considered a burden and an obligation and an early pension was positive to the extent that it alleviated the duty to work. A 60 year old female secretary at a law firm expressed a *”Glad to get away from Work”* attitude. ”I pushed myself to do more and more at work. And when the boss saw that I succeeded, I got even more work to do. Eventually I couldn’t take it any more. Now I feel pretty good because I decide over my own tempo.”

In general women that left the labor market through early pensions expressed concern with rapid changes at the work place. They did not think it was possible to adapt to change. Courses for internal training were often experienced as anxiety producing. Women often expressed the idea that they should step aside and give the younger workers a change.

Men experienced work as friendship and as integral to their identity. They experienced an early pension as negative but as inevitable when it came because of a lack of alternatives. Men most often talked about the changing tempo of work and the increased stress at the work place. They experienced this as the most negative changes at the work place. But they were careful to point out that these changes affected everyone and not only the elderly.

Many times an early pension involved an extensive rehabilitation after which the diminished work capacity made work continuation impossible. Permanent diminished work capacity is the legal requisite for obtaining an early disability pension in Sweden. The overwhelming effects of a serious long-term illness on work capacity more than the consequences of old age are also reflected in the interview material. A comment of a 55 year old male office worker in the paper industry who was granted an early pension because of total diminished work capacity expresses an attitude of *"Extensive Rehabilitation Effort."* "I have slowly fought my way back. I was forced to learn how to walk, write and sleep again. Actually, I was the oldest person at the company but I never experienced any problems. On the contrary, rather, since it was I who had the long experience."

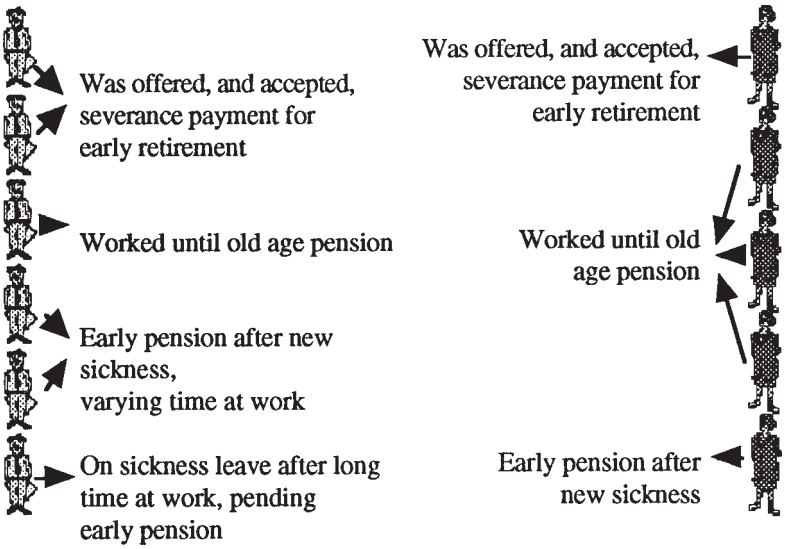

Figure 8. Back to work? – Four years later...

For those older workers who returned to work results of a follow-up analysis of where they were September, 1996, up to four years after their long-term illness is shown in Figure 8: Back to work? - Four years later... For some older workers termination of their sick-leave and return to work resulted in an immediate offer by their employer of severance pay for private early retirement. This was more apt to happen to men, 33%, than to women 20%. Only 16% of men worked until the normal pension age of 65 whereas 60% of women were still working or were pensioned at the normal age after their long-term illness. 33% of men held an early disability pension after a new sickness after varying time at work. 20% of women were also early disabled pensioned after a new sickness. 16% of the original population of older working men who returned to work after their long-term illness were at the time of the follow-up four years later on a new sick-leave.

For those men who originally returned to work only to find themselves in a new sickness at a later date, changing concepts of workers competency were apparent in their understanding of the older work forces situation today. A 65 year old male carpenter returned to work after a four month recovery from an operation. Two years later, at the age of 63, he was offered severance payment for an early private retirement. He expresses an attitude of ”*Changing Competency Demands*. There is a lot more stress now and there is also a demand for more education. Before you had apprentices and there wasn't so much theory. Then you were looked upon as having a 'good hand' for the work. Today if you can't keep up with the work pace you are not worth much.”

A 60 year old male plumber who returned to work after a two month sick leave for back pain was later early disabled pensioned when he got throat cancer. He also talks about changing competency demands. ”Of course demands have increased, but work tempo has always been hard. My last time at work we started using computers and a lot of the older workers couldn't managed that. You see the older guys were the foremen in the company and they couldn't keep their position without computer know-how.”

For women who returned to work after a long illness and worked till pension age, changing capacity meant an *Emotional Demotion.* A 65 year old female office worker with rheumatic pain was sick for two months at the age of 61. She returned to work and worked until pension age at 63 and describes her time back at work as follows: ”I really fought during that time to give as much as a could to my work even if this wasn't so good for my rheumatism. But I felt that my boss didn't think much of me. He told me that I always had done such a good job but now I was getting slow. They gave me a hand support to help me work faster but it was difficult. My opinion is that when the older worker can't live up to work demands, they stop caring about you. I think a lot of people are in that situation.”

Conclusions and summary

Several conclusions can be drawn from this study of the older worker and long-term illness. There are mechanisms that work to determine if an illness together with older age eliminates a person from the active labor force. In the study presented there is no clear relationship between illness and old age on the one hand and lower participation rates in the labor market on the other. Although chances for an older worker with a long-term illness to leave the labor market at the conclusion of his illness are slightly higher than for the population 54 years old or younger after a long-term illness, the relationship is not clear-cut. There are differences between men and women, between diagnoses primarily psychiatric or physical and between white-collar and blue-collar workers.

Since older male blue-collar workers with muscular/skeletal diagnoses have the largest variation in return to work rates when compared with younger colleagues with the same type of illnesses, it is reasonable to conclude that environmental factors at the work place determine if an individual will return to work regardless of age or sickness. This is supported by return rates of older men with white collar jobs and muscular/skeletal sickness diagnoses. They have high return rates. This suggests that work environment with flexibility for accommodating the return worker or with flexibility in the organization of work influences whether the worker will return to his job.

The relationship of the older female worker with a psychiatric primary diagnose shows higher rates of return to work than any other category of worker with the same diagnose, even when compared with younger women. Together with the fact that older women, when they return to work, more likely will remain at work until they reach normal pension age, means that older female workers are more tenacious in the labor market.

Interview material suggests that older women experience themselves exploited, misunderstood, and held in low esteem. Despite negative feelings about work older women returned to work more often than older men. Men experienced work as a place of friendship and as an integral part of their identity. If they were subject to an early disabled pensions they experienced it as a negative but inevitable step in life often not related to their age.

An interpretation of differences between older men and older women and return to work rates is that women do not build their identity around work to the same extent as men do. Their more negative and in some ways more realistic views of work make them more capable of adaption to changing situations. Men talk about work as a place for friendship and often when they are older find themselves in positions of authority at the work place. This makes it harder for the man and for the work place to accept a decrease in capacity that a long-term illness implies. If a work place has been a source of positive reinforcement for an individual's identity, it is more difficult to accept returning to work if relationships have changed or are perceived as having changed.

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