The ageing workforce: a case study

This item was submitted to Loughborough University's Institutional Repository by the/an author.


Additional Information:

- This conference paper was presented at Include 2007, please visit http://www.hhc.rca.ac.uk/453/all/1/include_2007.aspx for more details.

Metadata Record: https://dspace.lboro.ac.uk/2134/3490

Publisher: The Helen Hamlyn Research Centre / Include

Please cite the published version.
This item was submitted to Loughborough’s Institutional Repository by the author and is made available under the following Creative Commons Licence conditions.

For the full text of this licence, please go to:
http://creativecommons.org/licenses/by-nc-nd/2.5/
The Ageing Workforce – A Case Study

Colette Nicolle and Rowan Thompson
Ergonomics and Safety Research Institute (ESRI)
Loughborough University, UK
c.a.nicolle@lboro.ac.uk

Abstract

The aims of this study were to investigate work conditions in a warehouse of a large distribution company, and to advise on how to eliminate gaps between job demands and how work capacities for an ageing workforce may be maintained or increased. The entire warehouse team of 56 employees was involved in the study, consisting of 26 males and 30 females ranging in age from 19 to 63 years. Methods used were quantitative analysis of accident statistics, quantitative and/or qualitative analysis of human resources and administrative records, direct observation and informal consultation, semi-structured interviews, focus groups, questionnaires, task analysis, and postural analysis. A selection of results provides a genuine illustration of an ageing workforce, which can be applicable to a wider range of employment scenarios. The study recommends that adequate training and awareness raising are required for both employers and employees of all ages to recognise limitations, coping strategies, the advantages of flexible working practices, and safe working postures. The findings and recommendations are of direct and practical value to a range of companies, and can contribute to training schemes in age awareness for employers and employees alike.

Introduction

There is an upward shift in the age profile of the working population. According to the Department for Work and Pensions (DWP) (Irving, Steels and Hall, 2005), by 2012 this workforce will comprise more people aged between 40 and State Pension Age, than people between 16 and 39. In Great Britain in 2006 over 6.3 million people aged between 50 and the State Pension Age were in employment (DWP, 2006). This translates into an employment rate for men between the ages of 50 and 64 of 72.8% and for women between 50 and 59 a rate of 68.4%, which compares to an overall employment rate of 74.4% (DWP, 2006).

In preparation for the Employment Equality (Age) Regulations which came into force in October 2006 (www.opsi.gov.uk/si/si2006/20061031.htm), the Health and Safety Laboratory was commissioned by the DWP to carry out research in the UK to better understand and dispel nine commonly held assumptions about work and age (Benjamin and Wilson, 2005). These false assumptions included the belief that age determines health, cognitive capacity, physical strength and endurance, sensory abilities, adapting to change, learning new information, levels of absence, accidents in the workplace, and productivity. The report rejects them all as more myth than reality since there is a huge
variation between individuals. In addition, the report highlights how one can compensate for these declines by using experience and redesigning workspace.

With the introduction of the new age discrimination legislation, one would expect that older workers will be able to continue working longer, if they choose to do so. However, premature departure from the workforce is commonly due to work factors not being able to accommodate changes that occur during the normal process of ageing. By identifying obstacles to overcome and then determining appropriate remedial measures to put in place, it should be possible to prevent the early exit of older employees from the workforce due to poor ergonomic conditions.

There is an increased awareness of inclusive design in industry, but although many companies are aware of it, they often don’t know how to put those principles into practice. Workplaces and work practices need to be redesigned to suit the changing profile of the working population, not only to suit the needs of older people, but because inclusive design is good design for everyone. And in these early days of the new age discrimination legislation, awareness raising not only of the legislation, but also about the needs and capabilities of older workers, is crucial. Employers will have to ensure that they make long term plans so as to manage the impact of the ageing workforce successfully. This will include maintaining the well-being and productivity of all those who wish to remain in gainful employment so that they are not prevented from doing so by a mismatch of individual capabilities with their environment.

Protecting the work capacity of the ageing workforce is of particular significance where the employee’s paid work is of a physical nature. This case study looks at a warehouse in a large distribution company, which is constantly looking at ways to increase efficiency and output, while at the same time maintaining a healthy and productive workforce.

The aims of this study were:
- To study work conditions in the warehouse of a large distribution company
- To advise on how to eliminate gaps between job demands and work capacities so that the operating efficiency of the ageing workforce may be maintained or increased.

**Sample**

The sample of 56 employees was the entire team who work in the warehouse, consisting of 26 males and 30 females ranging in age from 19 to 63 years. They comprised 51 permanent members of staff, 12 of them part time, and 5 peripheral workers employed on a temporary basis, all of whom were working on the shop floor over the period of this investigation in early 2006. All operators are required to handle, load and unload assorted boxes and pallets. In order to achieve the range of tasks expected of their role they must be physically fit, and be able to walk while pulling and pushing goods. They require the full use of all limbs and good manual dexterity. The majority of the employees work full time for 38 hours a week, and 12 employees work part time for either 15 or 20 hours each week.

An initial request to do the study was put to the company director of operations and departmental manager. Upon receipt of authorisation from the former and with an agreement from the latter, each employee was informed of the study. All of them were
either sent or given a letter in person, which included a brief explanation about the aim of the project and a consent form reassuring them of the confidential nature of any information they provided.

**Methods**

One of the main objectives of this study was to understand how age might affect employees doing manual labour in a warehouse setting, and more specifically why musculoskeletal symptoms are a particular concern. It was, therefore, decided that a case study approach would be used. Data was collected using a variety of methods including:

- Quantitative analysis of accident statistics from 1997 (the year in which a specific computer software system was implemented)

- Quantitative and/or qualitative analyses of human resources and administrative records, including working practices, job descriptions, risk assessments, sickness absence, and staff turnover patterns from the year 2000, which was when their human resource management software was implemented

- Direct observation and informal consultation, over complete shifts, to get a feel for some of the equipment used and weights handled throughout the warehouse

- Semi-structured interviews with the departmental manager, four area supervisors, two team leaders, and three trainers, covering work done in each of the sections, which includes manual handling and use of forklift trucks. 7 open-ended questions were used, looking for common themes that could form the basis of the questions for the subsequent focus groups and questionnaire

- Focus groups, one with each of the 4 areas in the warehouse, to explore from the employees’ perspective some of the most relevant issues raised during the interviews held previously with management and trainers

- Questionnaires to 51 employees (the manager and supervisors were excluded) via internal mail. These comprised 20 questions divided into three sections: 1) About you and your work, 2) About your work equipment and training, and 3) About your musculoskeletal health

- Task Analysis of 2 tasks identified by the focus groups and questionnaires as particularly difficult. The tasks were video recorded, whilst at the same time the employee used verbal protocol to “think aloud” as they performed the task (Dong et al, upcoming 2007)

- Postural Analysis, using the Rapid Entire Body Assessment (REBA) (Hignett and McAtamney, 2000), to analyse postures which were identified as being particularly problematic for employees.
Results

Given the wide range of methods employed in this study, it is not possible to provide detailed results from each, and many of these results are not publicly available. Only a selection of the results is therefore presented below. These provide a genuine illustration of an ageing workforce and are particularly relevant to a wider range of employment scenarios.

Demographics
Some interesting results emerge regarding the age range of the employees in this warehouse. For a more accurate reflection of the ageing of the warehouse team over the past 6 years, the five temporary employees were excluded from the age distribution. The total number of staff decreased from 2000. However, in 2006, the 51 permanent male and female members of staff ranged from 28 to 63 years with a mean age of 47.82 (SD ± 8.8).

![Age and Sex of Employees in Apparatus Warehouse in January 2000](image1)

Figure 1: Age distribution of permanent employees in warehouse (n = 59)

![Age and Sex of Employees in Apparatus Warehouse in August 2006](image2)

Figure 2: Age distribution of permanent employees in warehouse (n = 51)
Figures 1 and 2 above clearly demonstrate a trend towards an older workforce over a period of only 6 years. Figure 3 below shows the distribution of members of staff by years of service and gender. Over half of the permanent members of staff have worked for the company for at least 17 years, and the majority of these are women. The mean duration of service is approximately 16 years (SD ± 6.81).

![Years of Service](image)

Figure 3: Years of Service (n = 51)

**Sickness and accidents**

There has been no clear pattern of absence within the warehouse team over the past six years between the men and women. However, when comparing younger employees with older ones there is a consistent higher rate of absence for the older women. The same is not true for the men, because for 3 years the younger group had a rate at least twice as high as their older colleagues. Likewise, there was no clear pattern of accident occurrence, but younger men generally had a markedly higher rate of accidents in most years than their older colleagues. For young females the rate was higher than their older counterparts for 5 years but lower for the other 5.

**Interviews with management and trainers**

A majority of respondents reported that, in their experience, there were differences in dealing with employees of different ages, but they were equally divided as to whether the physical strength of men and women decreased with age. In addition, even though the data may suggest differences in gender as well as age, Human Resources personnel were emphatic that, from a legal point of view, the workplace must be designed to meet the needs of all workers, irrespective of gender.

Some of their comments on how they found the age groups different to manage included:

- Older employees
  - adapt work methods according to experience
  - find their decreasing physical strength frustrating
- take longer to do things – both tasks and training
- are less adaptable to change
- have a better sense of team work and mutual support

Younger employees
- are told what to do and get on with it
- are easier to manage and motivate
- are not so committed as the older ones
- have poorer timekeeping and attendance levels

These comments overlapped with their views on how they thought the decrease in physical strength of the ageing worker impacted on them in their work, but more specific comments were that older workers:

- are unable to handle as heavy loads or at the same rate
- fatigue more easily and recover more slowly
- are more conscious of their abilities and limitations
- find it more difficult to get in and out of equipment like fork lift trucks
- are more prone to avoid heavier tasks when possible

Many and varied suggestions were offered as potential solutions to resolve some of the above-mentioned issues. One popular suggestion was to plan well ahead towards accommodating older employees through a 5-year or more career plan. This would mean that those with a wealth of experience on the shop floor could benefit the business by a transfer to any or many of the less physically demanding roles in sales, quality assurance, post room, returns department, and purchasing. Other possible solutions look towards greater flexibility of the work area and equipment, for example, height adjustable workbenches, or for more user-friendly handling or reaching devices, like a shepherd's crook for use when accessing cartons at the rear of storage pallets.

Discussion

In common with the demographic trends of the country, the average age of this warehouse team has been rising gradually over the past six years, from 42 years in 2000 to 48 in 2006. The majority of permanent staff now falls into the age category of 45-54 years and can be considered ‘older workers.’ Most of the staff have worked for the same employer for more than 15 years and, with such a low turnover rate amongst the staff, there is no obvious reason at present to consider that this trend will change greatly in the near future.

Having recognised that the average age of the workforce will either stabilise or continue to rise, it becomes important for the employer to ensure that the ageing employees are supported in the most appropriate manner to maintain their health and therefore their productivity. This includes steps to prevent the employees having to take time off because of accidents or illness. Although one stereotype of the older worker is that they have more sickness absence, their short-term absence level is normally better than that of younger employees. However, owing to the increased prevalence of disease with increasing age, when an older person is taken ill, there is a tendency to be off work for longer periods at a time because of its chronic nature.
The older members of this team, and in particular the females, have fewer accidents. This may be due to the fact that older workers are often more aware of safety in the workplace, or that they develop their own coping strategies, using their experiences to adapt or compensate for evolving difficulties or impairments. Tasks that posed a particular problem for many warehouse staff were unloading high loaded pallets, which requires considerable vertical reach, and bulk picking, which requires considerable horizontal reach. However, these were problems not just for older workers but for anyone of short stature. Adequate training and awareness raising is required for both employers and employees of all ages to recognise limitations, coping strategies, the advantages of flexible working practices, and safe working postures (when carrying out activities such as pulling, pushing, reaching, lifting and carrying of burdens, squatting, crouching and kneeling). Once the employer recognises the type of issues highlighted in this study, then these can lead to more practical recommendations for the design of the workplace or working conditions.

**Conclusions and recommendations**

Employees in this warehouse remain positive about their health, and many would agree that they have learnt to adapt work practices to suit any functional deterioration they may have become aware of as they grow older.

The performance of an older worker can be improved substantially through a variety of different methods, all leading in fact to a realisation of individual capacities through ‘age free’ practice. Some specific issues relate to this particular work environment (for example, the need for adjustable work benches, or suggestions for mechanical or manual reaching devices). However, many issues centre on the importance of training in the workplace, including:

- Increased age awareness and understanding of the ageing process for all employees (particularly supervisors and managers)
- Age management training for managers and supervisors
- Exercise and lifestyle programmes to maximise function
- Training procedures that cater for varying individual learning styles
- Introduction of training and mentoring systems for younger employees, to not only benefit their own experiences, but also introduce flexibility for older workers when physically demanding work is required.

This company proved a worthwhile and appropriate environment to explore important issues of the ageing workforce. In supporting and participating in the study, the management and workers have invested in the process of reviewing and improving the work environment and processes. The findings and recommendations are of direct and practical value to a range of companies, and can contribute to training schemes in age awareness for employers and employees alike.
References


