

# MEASURES TO INCREASE THE PRODUCTIVITY OF OLDER WORKERS

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## **Abstract**

Aging is associated with various changes in abilities that can affect an older worker, including feeling and perception, as well as motor skills. In addition to anatomical and physiological changes, aging is associated with changes in visual functioning, the most significant of which are the decline in visual acuity, which occurs progressively after 50 years of age. Older workers often have difficulty processing auditory information such as speech and a reduced ability to filter out noise present in the workplace. They are employed in various positions, including executive, professional, sales, service jobs .... It is expected that in the future the percentage of older people in certain occupations such as teaching and management will increase. To ensure the safety and efficiency of older workers, it is necessary to understand these changes and their impact on them.

**Keywords:** older workers, physiological changes, motor skills, safety and efficiency

## **Introduction**

Aging is associated with various changes in abilities that can affect an older worker, including feeling and perception, as well as motor skills. To ensure the safety and efficiency of older workers, it is necessary to understand these changes and their impact on them.

Since most occupations involve tasks that rely to some extent on visual and auditory performance, these changes can have a significant impact on older workers. Age-related hearing loss is one of the most common chronic disorders reported by the elderly. Although older people have a weaker ability to accept new information, they have retained practical intelligence and wisdom to

compensate for deficiencies. Communication skills are generally stable with age. Moreover, some research has shown that aging may be associated with some improvements in speech. In contrast, older adults often have difficulty finding words, increasing the number of pauses in speech, repetition of what has already been said. Memory is another age- sensitive cognitive factor

which can affect many aspects of the performance of older workers. For example, a worker must remember the procedures that are involved in the handling of equipment for the operation. Specific types

memories decline with age, while others remain preserved. Semantic memory refers to the storage of information acquired through lifelong learning and it remains intact throughout life. This makes it easier to understand and accept new information. Also, the speed and quality of decision-making are often related to age. While some point out that older people are more cautious decision makers than younger ones, some dispute this. Older workers are better able to perform tasks that require attention if they are less complex and rely less on working memory. Moreover, with regard to age, the decline in attention can be reduced if older workers receive adequate training, when they are not hindered by irrelevant information, and if they perform complex tasks separately rather than simultaneously. As people get older, motor function slows down so that movements require more time to complete, and continuous movements become more difficult. General knowledge from the research of motor ability of older workers, observing the compromise of speed and accuracy, showed that older people are slower than younger ones when performing the same movements, because it is more important for them to do the task accurately and not fast [1, 2].

One way to align work tasks with the abilities of the older worker is to compare the knowledge, skills, experience, and other factors necessary for the job with those possessed by the employee. Knowledge and skills relate to aspects specific to the work being performed, as well as to general aspects arising from life experience. Abilities refer to the individual and can vary from physical to cognitive, which are demonstrated in different situations.

### **Measures To Increase The Productivity Of Older Workers**

#### **Use of acquired work experience with the help of well-learned skills**

Because well-learned skills are very practical and familiar, older workers can apply their significant previous experiences in this field to solve emerging problems. In contrast, older workers may work at a lower level of expertise compared to younger associates when faced with new tasks that rely heavily on acquired knowledge due to the underlying cognitive decline in working memory associated with aging. Perhaps because of this, older people tend to stay in jobs where they can use their experience and tacit knowledge of familiar workplaces to compensate for cognitively required tasks that require the acquisition of new skills [3, 4].

### **Accuracy at the expense of speed**

Older workers tend to perform tasks that have a motor component longer than younger associates. One behavioral explanation for this slowdown is that older adults tend to perform the task accurately, rather than being quick. Therefore, employers can optimize the quality of work of older workers by providing more reasonable deadlines for completing tasks [5].

### **Complex tasks and multi- task environments**

Reducing working memory capacity can cause difficulties for older workers in a number of contexts, such as completing unfamiliar procedurally complex tasks or working in a multi-tasking environment. Reduced working memory capacity is also associated with a deficit in the ability to perform multiple tasks at the same time. When they are required to perform several independent tasks at the same time, older workers show performance deficiencies compared to younger ones. Airplane pilots are one of the professions in which they age

crashes in working memory often result in reduced ability to perform multiple job-related tasks. When pilots' communication with air traffic control and routine flights was assessed, it was seen that older pilots were less able to read and execute air traffic instructions than younger pilots even when given the opportunity to practice. Additional training has helped alleviate the shortcomings associated with aging, but age differences between young and older pilots remain significant [6].

### **Arranging the working environment in order to reduce the memory load**

Research with older pilots has shown that recording data and instructions for air traffic control reduces the amount of information that must be stored in memory,

which is very helpful in this case. This is especially important when tasks are complex or only recently learned.

Another suggestion is that time-based tasks can be transformed into event-based tasks. For example, older workers may be reminded to attend a meeting in the late afternoon by leaving their umbrella at the door or recording the meeting in a planner and leaving it in a prominent place on their desk. Using an alarm or automatic reminder is also useful. The ability to effectively use these reminders as memory aids should reduce the likelihood of forgetting work tasks [3].

### **Experience and decision making**

The natural way of decision-making emphasizes the ability of decision-makers to use their previous experiences in a real environment. The decision-making model assumes that decisions are formulated by considering decision contexts for familiar patterns that are known from previous personal experience. Because seniors retain extensive knowledge of semantic memory, they can be excellent at making decisions in familiar settings. For example, an older employee may remember the last time a photocopy problem occurred. An older worker with access to this past experience could offer a current solution that works or easily eliminate solution options that have not passed in the past. In this way, the broad knowledge and experience of the senior worker domain should be considered a resource that can benefit older workers, associates and the organization. [4].

### **Arranging the work environment in order to improve the compliance of workers and tasks**

When older workers are given tasks that use their abilities and minimize their limitations, employers must understand that work takes place in a physical environment that often requires the use of tools such as computers and other equipment. Employers need to know how older people communicate with computers, the problems they experience during use, and the relatively simple adjustments that can be made to equipment to make it easier for older workers to use [1].

Many perceptual, motor, and cognitive changes that coincide with age directly affect the ability to use computers. Perceptual changes in vision such as presbyopia and sensitivity to flash actively react with the characteristics of the computer monitor display. Presbyopia can reduce the ability of older workers to see the information that appears on the monitor; however, the use of multifocal corrective lenses, especially bifocal or trifocal lenses, is one way to compensate for this decrease in visual

perception. Other ways to customize it include changing settings on your computer to make it bigger

font sizes and icons. Increased sensitivity to glare can also reduce the ability of the elderly to see the display. Adjustments to reduce glare include removing the light source that causes glare and tilting the computer monitor.

Although the reduction in visibility seems to be the most serious, the reduction in sensory sensations associated with aging can also reduce the usability of computer displays. For example, auditory feedback is useful in determining whether a word processing function has been performed. As computer systems evolve to include more complex auditory feedback, such as voice messages and commands, aging-related disorders, such as presbicusis, can seriously affect older workers' ability to use computers efficiently. Adjustments that can reduce the impact of presbicus include changing computer settings to increase the amount of feedback, using headphones to get feedback back to the ears, and reducing background noise in the office.

Motor disorders in later years also affect the way computer equipment such as computer mice is used. In many studies, seniors showed interference when they had to click on certain objects by clicking and dragging objects on the computer screen, and by clicking one object while double-clicking others. The results of a study in which older people who completed a computer training course were interviewed showed that playing computer games, such as solitaire, is useful for improving motor coordination with computer mice. Some customization of your computer's hardware and performance can fix click issues, including changing your mouse click speed or using a keyboard to compensate for slow clicks. If these adjustments with computer mice fail,

Cognitive changes that affect computer use include reducing working memory as well as retaining semantic memory. Declining working memory seems to explain why older people have difficulty performing complex computer tasks such as Internet searches. As they search for information within a website, older workers need to remember the information they are looking for, where they have been looking for it, and where it is currently located. As a result of declining working memory capacity, older workers have noticed that they revisit pages within a web page they have already viewed and have trouble tracking the current page they are visiting. Therefore, poor working memory can result in an inaccurate mental representation of the hierarchical structure of a web page or, more generally, a computer system.

As semantic memory is preserved in older adults, so the aging process must minimally affect well-learned tasks that require the use of familiar computer systems. Problems arise when technology and systems are improved, forcing older workers to acquire new skills through training. When new information is encountered during training, it is often interpreted in the context of an existing knowledge base. For this reason, the teaching material should be presented using familiar terminology that refers to earlier technology. Since metaphors touch well-developed crystallized knowledge, they can be an effective means of simulating experience when teaching older people.

**Factors of the work environment that accelerate the performance of the work task**

Changes in equipment design and work environment, which take into account changes related to aging, can also improve the productivity and safety of older workers. Due to the reduction in vision and hearing that often occurs with aging, lighting optimization and noise reduction can significantly improve the working environment for the elderly. Older workers require higher levels of illumination than younger ones, although the optimal amount of illumination is relative and different for each. In a series of readability check tasks, it was found that the performance of older office workers improved to a greater extent than that of younger ones when the brightness increased. In particular, performance was improved when the brightness was in the range of 450 to 600lx. Generally speaking, higher levels of illumination are required as the size of relevant visual details decreases and the need for speed and precision increases. Karnes and Dijkstra (1999) recommended that workers over the age of 40 should increase their lighting when performing clerical tasks, such as finding information in catalogs. Moreover, it has been suggested that both younger and older workers should increase lighting for official tasks such as searching for documentation. Given that the optimal level of illumination can vary from person to person, it is recommended that the individual need for illumination determine the required level. While some findings have suggested that individual lighting preference may predict optimal performance (e.g., Hughes and McNellis, 1978), other results suggest that there is none. 8].

Reducing noise would also help optimize working environment conditions for older workers. This can be achieved by installing sound-absorbing materials in offices and factories. The invention called "silent curtains" was designed in an attempt to reduce night noise in nursing homes. Curtains are made by placing noise-reducing material between two pieces of fabric. Ahuja's prototype reduced noise by about 7dB, and by adding a similarly made extension, noise was reduced by 12dB, indicating a reduction in sound intensity by a factor of 16. Noise that occurs in a work environment using sound-reducing materials can be significantly reduced which is especially useful for older workers.

### **Promoting safety at work with the use of warnings**

Work-related injuries occur much less frequently in older workers than in younger ones for almost all occupations. It is believed that their experience is responsible for that. However, another factor may be the importance that older people attach to warnings about identified hazards. Alerts are a means of communication designed to improve safety by alerting people to the presence of potential hazards in the environment and giving instructions to avoid injury [9].

One of the models of communication or human information processing consists of three components of the alert process: (1) the source or sender is the trigger of the alert, (2) the channel is the medium (eg visual or auditory) used to deliver the alert, and (3) ) the recipient is the end user who, by processing the given information, determines the further course of the action. Cognitive and perceptual changes that are consistent with age are characteristics that can affect how an older worker can respond to warnings.

Alerts can be transmitted through almost any sensory modality or channel, but most commonly occur visually (sign or signal) or audibly (e.g. fire alarm sirens). For example, older workers in a factory environment may not

notice an audible alarm if there is a high level of ambient noise. Also, the same older factory workers may not notice the visually displayed warning if a flash from an adjacent window obscures the message. Given the age-related perceptual reduction of vision and audition, it is important that employers understand any changes in perception in relation to age before applying the warning in the work environment.

The characteristics of the receiver, in this case the older worker, such as age-related cognitive changes in text comprehension and memory, may also affect how the older worker may respond to the warning. Given the reduced ability of older workers to respond to new warnings, they may be at a particular disadvantage when encountering a complex set of warning labels.

### **Training course**

Training is one aspect of the workplace that should not be underestimated. Computers and other technology have developed the way almost all workers do their jobs, from the office to the factory and the farm. Especially with



this technology that is constantly changing, there is a need for workers to be willing and able to learn new skills. Occupations that require extensive computer skills tend to employ fewer older workers, perhaps because they believe that older workers have difficulty learning new skills. Indeed, changing technology can be especially difficult for older people who have been educated and trained in a different way of working. However, some research has shown that older people are capable and willing to learn new skills. In contrast, a study was conducted on the aging and training of workers. It was concluded that older workers have a lower performance in the overall result, less mastery of the material and slower work compared to younger workers. Although the evidence does not confirm whether one type of training is more beneficial for older workers than younger ones, the evidence suggests that older workers may benefit from training that is conducted at a pace that suits them and when they learn with their peers. Older workers also benefit from training when they are goal-oriented, allow for exploratory learning, include a task of interest to the student, allow active participation in the learning process, include adequate practice and provide prompt feedback. What is also important is that the alignment between the form of training and the requirements of the task is more important for older workers than for younger ones. less mastery of the material and slower work compared to younger workers. Although the evidence does not confirm whether one type of training is more beneficial for older workers than younger ones, the evidence suggests that older workers may benefit from training that is conducted at a pace that suits them and when they learn with their peers. Older workers also benefit from training when they are goal-oriented, allow for exploratory learning, include a task of interest to the student, allow active participation in the learning process, include adequate practice and provide prompt feedback. What is also important is that the alignment between the form of training and the requirements of the task is more important for older workers than for younger ones. less mastery of the material and slower work compared to younger workers. Although the evidence does not confirm whether one type of training is more beneficial for older workers than younger ones, the

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## **Conclusion**

There are many benefits to hiring and retaining older workers. Older workers have many positive attributes such as experience-based knowledge. For example, research in the United States indicates that older people have lower accident rates and feel greater job satisfaction than younger workers [1].

Experts for human resources from the USA also say that the tendency of employment of the elderly is growing in the world. They highlighted several benefits of hiring older workers, such as their willingness to work in different shifts and their invaluable experience. Surveys have shown that older workers have a stronger work ethic and are more reliable than younger employees.

Various flexible working arrangements are proposed for employers in order to prolong the working life of older workers, such as: re-employment of pensioners, reduced work schedule, gradual retirement and distribution of jobs. Although there are flexible work schedules, they are often limited and uncommon. By finding solutions to the ergonomic risks associated with aging, employers can extend and optimize the working life of older people. In the moment when the all talk on extending the working life and age of employees, it is crucial to use the abilities of older people, recognize their age restrictions and design a working environment to adapt to such changes.

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