

Workability of older academics

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Abstract. The population is aging. The proportion of the older and experienced workforce is increasing in intellectual work. There are those people who are dreaming of retirement activities but not everybody. Many older specialists are interested in working longer, after the traditional retirement age. In comparison with times past, ‘young-old’ people (aged 65–74), are healthier than their predecessors. There is an accepted retirement age (65–70) in most European universities and also in the universities of many other countries. However, studies show that there is not any need for a special retirement age as there is no biological basis for retirement at a fixed age. Older and experienced academics should be used, first and foremost, for students’ instruction (at the MSc and PhD level) and on research. Their accumulated wide knowledge should also be used in big projects. The best solution is an age-diverse workforce at the university.

Key words: aging, older specialists, universities, workability.

INTRODUCTION

The population is aging. Aging processes in people are changing: mostly, they occur a little later than before. Every year people live in developed countries 0.2–0.3 years longer. In comparison with times past, ‘young-old’ people (aged 65–74) are healthier than their predecessors. Working conditions are also changing. People are using much more information technology and less physical effort. There is an accepted retirement age of academics in most European universities and also in the universities of many other countries. It is generally a little later (65–70 years) than for blue-collar workers (65–67 years). The University of Cambridge (UK) operates a retirement age that is at the end of the academic year in which the University officer reaches the age of 67. The University proposes that those who want ‘to continue in active research in a voluntary unpaid capacity after retirement’ can do so (University, 2012).

Thinking about the person’s age and retirement in terms of chronological aging is widespread. Most people, especially the young, think that aging processes are similar in most men/women of the same age group.

Factually older people have very varied health and workability. There is a danger of paying too much attention to the physical ills of older specialists and too little attention to their knowledge and productivity. The aging rate is different among older people of the same age. It depends on earlier quality of life, living and working conditions, professional and occupational activity, family and sexual life, friends, food,

and income. There are different rates (velocities) of various biochemical and biophysical aging processes in various humans (interindividuality). There is also considerable genetic background in the individuality of human aging. As aging is an individual thing there is no biological basis for retirement at a fixed age. Therefore, the use of the concept of a 'normal retirement age' is debatable. Mandatory retirement in the 60s that is common in developed countries would often be a disaster for many who love their profession.

'Normal' retirement age

Mandatory retirement age is widespread, the *age* at which persons that hold certain jobs or offices are required by custom or by law to leave their employment. The traditional mandatory (standard or 'normal') retirement age at universities has some advantages:

- it facilitates planning;
- it creates easy opportunities for promotion.

However, using older experienced white-collar workers is one way of remaining efficient in the contemporary world of work. In the European Union, any direct or indirect discrimination based on religion or belief, disability, age or sexual orientation as regards the areas covered by this Directive should be prohibited throughout the Community (Council, 2000). Despite this Directive, there is some age discrimination in most of these countries. Opportunities for funding and work for older and young academicians are not equal. There are many special funds for young and middle-aged scientists, but not for old scientists. Employers often pay attention to age but not so much to experience in science.

Very common is the fear that older academicians are less effective than their younger colleagues. 'The young bring fresh ideas' is the widespread thinking. Factually, the popular myth about the correlation between youth and scientific discovery fails to take into account the proportion of young scientists in the population of scientists (Brad Wray, 2003). Additionally, relatively fewer discoveries have been made by the old; therefore, when old specialists have fundamental ideas they don't have enough years left to fight for these ideas and their achievements will not be widely recognised.

Some younger professionals are interested in the mandatory retirement of others in leading posts – directors, department leaders, and professors – as they are looking to fill the posts themselves. Some of them are afraid that without mandatory retirement present older academicians will work up to their deaths and they never get good posts. Factually, after the elimination of compulsory retirement in universities the retirement age in the U.S. rose a little. The retirement rates of those aged 70 and 71 were comparable to those aged 69 before (Ashenfelter & Card, 2002).

Why older academicians are effective

Frequently it takes more than 30 years of studies at general schools and universities to become a good academic, a highly paid specialist. An academician or university teacher will reach their career peak after many years of his/her professional studies and working.

Sometimes the efficiency of a professor diminishes before retirement. When a young scientist is preparing his PhD thesis this has a strong stimulus as possibilities and income will increase. There are no stimuli to work for the older academician if after some years he/she should leave the university for mandatory retirement.

At present the situation is slowly changing. Living and working conditions are improving. There are people who are dreaming about retirement activities. Some academics are interested in having more free time and fulfilling their dreams, and eagerly await retirement. Some older academics have health problems, so retirement is a good solution. Some like early retirement as they are afraid of competition. However, more people in intellectual work are interested in work some years after traditional retirement age.

In the mid-20th century it was often thought that mandatory retirement at 60–70 years made positions available to younger specialists who needed the work. In fact, statistical data from developed countries shows that a low employment rate among older people does not correlate with a high employment rate among the young.

Many private universities remain effective without ‘normal’ retirement age. In some countries, for example the United States, there is no mandatory retirement in universities. This had no negative effect on teaching and science in universities in the United States. Most universities from the best 20 universities in the world are universities in the United States. The abolition of mandatory retirement laws began in colleges and universities in America in 1994 under the federal Age Discrimination in Employment Act (ADEA).

There are many causes why older academicians are effective:

- Old academicians are a choice of young scientists. Mostly only well performing young scientists remain in science when they are in their 60s and become old specialists.
- After the age of 20–25 there is the constant accumulation of knowledge in the field of the subject activity (competence), especially tacit knowledge (which is difficult to explicitly transfer to users).
- Older specialists can be wiser decision-makers compared to younger adults because they have collected much more information.
- Older academics have more social experience.
- Older academics have more established research connections and therefore can better participate in collaborative projects.
- Older people have more time to work. Many problems of younger people e.g. love, renting or buying a house and car, have been solved.

After the peak in 60s and 70s specialists’ workability decreases, but specialists should also be used after the peak work ability. It is interesting that workability in heavy physical work decreases much earlier, sometimes after 40s, but they have to work till state pension age in their 60s.

Longer health of higher educated persons

Majer et al (2010) showed that higher educated persons live longer in good health before retirement and can expect to live longer afterwards. Men with higher education

compared to basic education had a life expectancy 5.9 years longer in Finland in the early 1990s (Valkonen, 2006).

It is interesting that during the last decades average life expectancy in some developed countries has increased among people with a high education level (tertiary education) more than among the compulsory education level. Between 1994 to 2005 life expectancy increased by 1.9 years for men and 1.5 years for women in Denmark (Brønnum-Hansen, 2008). Comparing the group with the highest level of education to that of the lowest showed that those with more years of school had larger gains in life expectancy (2.7 years for well-educated men and 2.2 years for well-educated women). During ten years the increase in life expectancy was much more impressive among educated men despite the high living standards and economically low inequality in Denmark. Denmark has a publicly funded health care system (the government pays for medical care), so everyone should have equal medical care. Health knowledge and social hierarchy have probably played some role in men and women with the highest level of education.

Positive emotions connected with professional work are very important for work efficiency and health. Sometimes only one event in a social hierarchy can prolong life more than one year. When 524 nominees for the Nobel Prize were examined and compared to the actual winners from 1901 to 1950, the winners lived longer by 1–2 years and even 2.1 years in America (Rablen & Oswald, 2008). It seems that just having won and knowing you are on the top gives you a boost to your life expectancy.

We studied life expectancy in Tallinn, Estonia (Kristjuhan & Taidre, 2010). Tallinn University of Technology had 13,000 students, 138 full professors and 47 professors emeriti. For 6 years (2000–2006) we collected lifetime data from male professors and professors emeriti and compared these data to average male data in Estonia. The average length of life of studied academics was 72 years compared to 63 years for the general population.

High workability later

Educated persons have better workability when they are not young. Among the over-90-year old working population entrepreneurs make up 85% in the United States (Growing, 2007). Income is a measure of effective activity. In 2012, the average age of the world's 10 richest billionaires was 70.8 years (The World's Billionaires, 2012). Most of them were intensively working and rapidly increasing their wealth despite their age. Many of the billionaires are investors, an occupation that requires a lot of knowledge and experience.

Educating a good academician takes huge expenses from public and private sources. His/her workability and productivity increase over dozens of years.

There are several causes for why the workability of older academics depends on the specific person; the same age groups have very different health and workability:

- Health is an individual thing.
- The differences of the functional state of organs and systems of the body in the old compared to the young are much broader.
- Aging processes are very individual in the brain.

Some specialists are very attached to their work and can successfully work even when they have serious disabilities and need to be in bed most of the day (e.g. Professor Stephen Hawking from the University of Cambridge). At present health problems are often not a serious hindrance to an academician's productivity.

The average number of papers in highly cited journals and among highly cited papers rises continuously until retirement (Gingras et al 2008).

For a scientist born 100 years ago, the distance from knowing nothing to knowing all there is about a particular field was significantly shorter than it is in 2011. That is, the knowledge frontier that a scientist must reach before he or she can add to that body of knowledge has expanded. Breakthrough discoveries are no longer dominated by the very young. The circle of all that is known has grown larger (Jones, 2010; Jones & Weinberg, 2011).

If only employed doctoral scientists and engineers in the education sector are considered, the patent activity rate for those aged 65–75 was about the same as for all doctoral scientists and engineers in education (Morgan, 2002).

If one considers (a) the financial costs to a society of training a scientist, (b) the fact that half of these individuals trained at high costs will later be relatively unproductive, and (c) that by the time these individuals reach age 60 there is more than enough information to identify the top half of the population who are responsible for 90% of publications, it seems wasteful to prevent those productive researchers from continuing to make major scientific contributions (Stroebe, 2010).

Study in Tallinn University of Technology

We carried out a study about university professors in Tallinn, Estonia (Kristjuhan & Taidre, 2010). Wages and salaries are relatively low in Estonia even at present as in most former Soviet Union countries, but university education has developed from the XVII century. The average age of academics at Tallinn University of Technology is similar to most western universities, but the University has a long tradition of using an older workforce and working from home. The University encourages age diversity. Even during the Soviet period academics were permitted to work part-time at home according to negotiations between employers and employees.

Data regarding academics' scientific productivity at the university were collected and questionnaires compiled in the School of Economics and Business Administration of Tallinn University of Technology. The questions considered different aspects of working conditions, health, motives for working, efficiency and plans for the future including activities at pension age. All 97 School of Economics and Business Administration academics received anonymous questionnaires. The biggest age group (one-third of all academics) was 56–65 years old. The age groups < 26 and 66+ were relatively small. The most important motives for working were developing self-identity, interesting work and possibilities for self-fulfilment.

Many significant ($p \leq 0.05$) correlation coefficients (Pearson) were found. A significant correlation existed between a lack of time and the intensity of mental stress (0.64), between the intensities of depression and sleep disturbances (0.46), noise and sleep disturbances (0.43) and lack of time and no control over activities (0.40). There was no correlation between disturbances of health and age. The intensity of physical symptoms among older academics was similar to the intensity of these symptoms among younger academics.

The oldest age group 56–65 showed the highest productivity. Academics in this age range were also the most effective as supervisors of Master of Science and PhD students.

Much attention in the scientific literature of occupational health has been paid to the negative aspects of computer work for academics, particularly uncomfortable working (sitting) positions. There are also occasionally other negative factors at universities: time pressure and stress; intense visual strain; decreasing recreation time and recreation activities; chronic fatigue and burnout; and respiratory infections (from contact with many other people).

However, professional work was mostly not too hard for academics in Tallinn University of Technology. Their working conditions are relatively good. There are more positive factors: interesting work; self-paced work; academic freedom; mental stimulation; work with young people; relatively high salaries (and thus better food and housing conditions); and better than average knowledge related to lifestyle and prevention (health behaviours, optimum mental load, recreation and sports). At present, older academics work using computers (at home or in an office), printers and mobile phones (often with touchscreens). Computer work can be a real pleasure. The work is sometimes so interesting that an academic becomes a workaholic (Kristjuhan, 2009; Kristjuhan & Taidre, 2010).

Classrooms with computers, Internet, video/data projection and sound systems are used. The environmental conditions (temperature, noise, light, psychological conditions) are near optimum in workplaces.

Scientific literature indicates that academics who want to work beyond the traditional retirement age remain productive enough in research and teaching roles, are highly satisfied with their work, and feel they are making a contribution to their field (Berberet et al 2005). 77% of American professors who continue to work say that they do so mainly because they enjoy their work (Dorfman, 2002, 2009).

The survey showed that over 70% in the US and Europe said that age is irrelevant for working in the forefront of their fields. Over 10% of those responding in the US nominated age 50 and over (Urashima & Ito, 2005).

Literature data show that the peak age of scientific activity depends very much on the specific situation, and is sometimes near age 60. The mean peak age for the citation stock for the six samples was 59 years of age (see Bhattacharya and Smyth, 2003) that was similar to our data.

Nobody doubts that accumulated knowledge is useful for traditional tasks, but it is often also useful in finding solutions for new tasks, since this activity requires wide knowledge. This aspect of gaining new knowledge also opens up possibilities in terms of making use of older academics, especially in big projects.

Some possibilities to work after mandatory retirement

If the academician leaves the university, this part of his/her knowledge or sometimes all this knowledge will be lost for the society.

There are several possibilities to work for older academics after mandatory retirement. He/she has the possibility partly to use accumulated knowledge and so also avoid stress connected with changing lifestyle.

- High quality academicians, university professors and associate professors, can have the title ‘emeritus’ in many countries when they have retired. They may continue

to exercise some of his/her duties. This part-time working is not popular in some former socialist countries as income decreases drastically.

- Sometimes part-time work and lower qualification work are recommended to lecturers and assistant professors.

- Research organisations.
- Some private universities.
- Start-up their own firms.
- Industry and services.
- Working as consultants.

CONCLUSIONS

- 1) Mandatory retirement should be eliminated in the universities.
- 2) The selection of academics should be based on the candidates' knowledge and ability to work.
- 3) Older academics should be encouraged to do research.
- 4) There should be special funds for older academics.
- 5) Older academics' knowledge and experience should also be used in big research projects.
- 6) The best solution is an age-diverse workforce at the university.

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