

The weight of time: challenges of ageing in Higher Education

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Abstract— This working in progress aims to clarify what the ageing academy means, what practical contributions can be drawn from existing studies on the subject, with a view to mapping the main effects that academics identify due to ageing, especially in engineering. By presenting the existing studies on the ageing academy, and the effects and measures to address this issue, it can be assumed that tackling the problem of the ageing academy is a complex endeavour that requires policy and institutional measures sensible to a diversity of variables that represent the productivity of academics and researchers, as well as the sustainability of Higher Education Institutions (HEIs).

Keywords— *higher education; ageing; time; academia; research; science; engineering*

I. INTRODUCTION

Recent reports show that the ageing of teaching staff has been increasing in Europe [1]. In 2019, existing data show that the number of professors aged fifty or over is increasingly high in all European countries. This country shows one of the highest rates of ageing. In the last ten years, the number of professors under 30 has been decreasing, compared to the number of academics over 60.

Among the many ways in which institutions are beginning to feel the weight of ageing is the decreased ability to maintain the same number of study programs and therefore retain students. The OECD [2] has stated that ageing in higher education "is here to stay" (p. 119), stressing the need for policies that prevent and address the problems associated with ageing academia, as "jobs must match the age and competence of individuals. If matching is not successful and training programs or greater flexibility in job requirements cannot remedy the situation, flexible retirement schemes can help alleviate the negative consequences of ageing staff" [2, p. 119].

Studies on academic and research careers have amply shown that academic careers, and consequently academic institutions, have for centuries been built on a strong valorization of time as a resource for legitimising academic authority. Tradition, seniority, measured by the amount of time spent, or owned and experienced, as well as waiting,

delay and longevity are intrinsic marks of the weight of time in academic spaces and cultures [3, 4].

Therefore, as the ageing university implies a number of different problems for the present and the future of the HEI, it is important to discuss the causes of ageing, as well as the plethora of its effects, and the strategies that can be put in place to tackle the problem. The issue is, however, not simple, as there are different interpretations and definitions of ageing processes, as well as ways of intervening in it.

The fact is that the last decades have been marked by intense changes in the academic world. An increasing number of young people have entered academia, building high-level CVs, but with less and less chance of obtaining stable employment contracts, as recruitment has undergone a significant disadvantage.

The demographic decline, and various difficulties that HEI had to face, namely to cope with different pressures emerging from various spheres, contributed to the stagnation of recruitment, affecting ageing. Moreover, academic careers are no longer as attractive as before, and older academics are less and less interested in staying in universities after reaching the legal retirement age.

Fatigue, demotivation, higher levels of competition, lack of career prospects, are some of the reasons that should also be taken into consideration to explain the complex changes that an ageing university represents today [5]. In a context of a generalized paradigm shift regarding the management of EIS, which is furthermore pressured by COVID-19 pandemic, many issues arise that require technical and political decisions with an impact on the present and future of HEI.

This work in progress describes the existing literature devoted to the ageing university, with the aim of providing the means for a better understanding about the concept of the ageing university and contributing to a further analyze, especially in the context of engineering.

II. THEORY

Clark [6] recommended in 2005 that universities should develop salary and employment policies suitable for the new economic and demographic environment ahead, including the ageing of university faculty and administrative staff. Yakoboski [7] showed the different profiles of academics with regard to the perception of retirement. The author found two main types of academics: 'those who choose early retirement in academia and want to spend more time with their families, and those who choose to postpone retirement - so-called "reluctant retirees"'. The author argued that these may ultimately contribute to decreased productivity, lack of opportunities for younger academics, shortage of hiring vacancies, and difficulty in relocating institutional resources. More recent studies are still focused on how older academics can cope with advancing age within work environments.

Earl [8] assert that Australian universities lack proactive age management strategies. According to the authors, older people face two forms of marginalization: i) restrictive performance measures that are based on demand, internationalization and competitiveness, and ii) fewer or no career development opportunities. In a study by Read and Leathwood [9] it is said that while younger people are concerned about the precariousness associated with the probationary period, career progression and increasing difficulties in obtaining funding and publications; older people are concerned about the uncertainty of the very future of academia and the legitimacy to continue to develop institutional work.

Common sense often considers ageing as an inevitable loss for institutions, since it is assumed that ageing causes demotivation, less commitment and productive decline. Several studies, however, contradict these conclusions, as they consider the importance of an active human resources policy to keep people motivated and involved in various relevant activities. Koopman-Boyden [10] argue that age (measured in years) cannot be understood as a determinant of job performance. Kyvik [11] concluded that age may condition the number of publications but cannot be considered as a determinant of scientific performance in a broader sense. In a 2008 study analyzing the situation in the USA, it was found that "productivity and impact are not a simple result of age, because we have to take into account the collaborative aspects of scientific research. Science is a collective enterprise and, as our data show, researchers of all ages play a significant role in its dynamics" [12, p. 1]. According to Kyvik [13] researchers who receive greater recognition for their work are more likely to remain productive with age. The same study also adds that recognition affects the possibilities of access to economic resources and participation in international research networks that affect productivity. Also according to this study, older people do not engage in administrative work or outside activities, preferring research. Koopman-Boyden [10] also states that recognition strongly encourages the degree of participation of older academics.

Satisfaction is thus an important dimension to consider, since ageing may be associated with motivational factors that affect academic performance. Indeed, the issue of satisfaction is recurrently invoked in studies done on the subject to deconstruct the idea that ageing is an inevitable loss for

institutions. Webber [14] supports Fredman [15] by arguing that professor' perceptions of the institutional environment contribute strongly to their satisfaction. In a study conducted in the Australian state of Victoria, Fredman [15] identify four factors of job satisfaction: organizational culture, workload, job status and productivity. According to the authors, satisfaction among academics is directly correlated with the state of organizational culture, including workload. [15, p. 6] consider that improving career adaptability and job satisfaction contributes to retaining older people for more years in academic work.

A study developed by Yakoboski [17] found that senior professors fall into three groups: i) those who expect to retire within the age (25%), ii) those who wait for retirement age but prefer not to work after retirement age (15%) and iii) those who would like to work after normal retirement age (60%). Several authors [18–20] have been discussing strategies to be applied in the medium and long term to avoid the possible effects of ageing. Some proposed measures consisting of the implementation of early retirement, mobility of professors between institutions, retirement orientation programs, integration of seniors into governance, management and guidance functions, among others.

More recently, Baldwin [21] identify two types of profiles before university retirement: professors seeking to postpone retirement and those seeking to retire as early as possible. The authors propose active measures to address ageing, including the promotion of personal and career development from the age of 50 [22]. The need to maintain intergenerational practices in universities was the basis of the age-friendly university project that emerged in 2016 at the University of Rhode Island [23], and many other programs analyzed by existing studies [22], [24, 25].

Overall, studies confirm that ageing imposes two major challenges on institutions: facilitating the retirement of older academics and developing measures for better integration of older academics [21,26].

In the authors' view, there is a need to look at the retirement process as a sociological problem, which directly addresses human resource policies within the university, both in the sense of understating what retirement and ageing is and what it means, and in the sense of pre-venting universities from having their projects shut down or blocked due to a shortage of people.

Parker [27] focus on three strategies to harness the benefits of an older workforce. The first strategy is to include, i.e. to create an inclusive environment. The second, adapt the work to individual needs. Third, integrate through strategies that deal with age diversity and facilitate mutual learning between young and old. Several studies emphasize the pertinence of integrating older people into university management [28- 32]. Kezar [33] mentions actions such as teaching in courses where there is difficulty in recruiting professors, in guiding theses, dissertations or degree courses, in supporting research projects, in working in committees that organize events and seminars, and in providing advice on institutional problems.

In general, these practices are in line with the adoption of measures that typically favor, on the one hand, the opening up of vacancies and the hiring of young people and, on the other, the gradual and sustained departure of older professors who can continue to contribute their knowledge and capital

to the University in various respects. Table I provides an overview of the literature on the different dimensions mentioned from the beginning.

TABLE I. PROGRAMMATIC OBJECTIVE

Dimension
Planning new hires
Implement early retirement plans
Plan and know your human resources
Promote and value intergenerational teams
Including older people in plans to change and redesign universities
Promoting workload reduction
Implement retirement guidance programs
Implementing health and wellness programs
Qualifying and accommodating the workplaces
Encouraging the continuity of older faculty members in the institution

III. OVERVIEW OF THE SITUATION AND MEASURES

As recognized by OECD [34], in many higher education systems, academics tend to retire later than they used to, which stems from the ageing population in many cases, but also from the end of compulsory retirement in some countries and even from the fact that academic work for those at the top of their career is attractive in certain systems. At the same time, it should be noted that those entering academic careers are often older, because they accumulate postdoc and assistantships until career positions become available.

TABLE II. NUMBER OF TEACHING STAFF IN UNIVERSITY, BY AGE (2019)¹

Country EU	Teaching (n)	Age (%)			
		≤ 30	30 - 39	40 - 49	≥ 50
Austria	64354	8.136	23.215	27.945	40.705
Belgium	31477				
Czech Republic	18985				
Denmark	26896	18.278	23.275	23.580	34.868
Estonia	4115	4.267	25.941	30.065	39.727
Finland	15557	9.430	18.249	26.477	45.844
France	116214				
Germany	456041	22.885	28.867	18.862	29.386
Greece	19861	0.609	19.657	32.294	47.440
Hungary	25174	5.744	23.997	30.480	39.779
Ireland	8783				
Italy	95064	0.693	13.451	29.734	56.122
Latvia	6934	4.961	23.277	24.286	47.476
Lithuania	10830	4.783	24.718	31.524	38.975
Luxembourg	1318	29.125	40.601	17.468	12.806
Netherlands	70171	17.459	28.230	21.565	32.746
Poland	93198				
Portugal	35283	3.869	18.315	32.477	45.339
Slovak Republic	12004	4.657	26.233	26.624	42.486
Slovenia	7029	4.040	22.692	32.010	41.258
Spain	175759	4.125	19.180	31.706	44.989
Sweden	36113	4.588	23.203	28.571	43.638

In general, the EU is characterized by a high number of professors aged over 50.

IV. CONCLUSION

This document is based on the assumption that HEIs are facing increasingly complex issues associated with faculty

ageing. This situation is characteristic of several countries and is even more noticeable today, including in the context of the pandemic and the challenges it entails in terms of intergenerational relations.

In any case, and as we can see from the typology of measures that have been defined, ageing in higher education cannot only be seen as an issue related to negative effects and the consequences of age, even in technological and engineering areas. First and foremost, age in the academia is usually associated with the possession of international research networks that should be taken advantage of at all stages of the life cycle of institutions. As me [36, p. 59] state: "Retired professors have a wealth of experience and wisdom important to younger professors, as well as being more freed from the responsibilities of academic life. they are an untapped resource in higher education. When mentoring relationships are established between emeriti and younger faculty members, there are benefits for all involved."

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¹ <https://data.oecd.org/teachers/teaching-staff.htm#indicator-char>

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