

Adult Training as a Quality Factor in Work Trajectory: Positive Effects of Adult Training on Seniority and Ageing at Work

Abstract: Adult training is a fundamental strategy for the improvement of workers' skills and employability. However, as workers age and remain in the same company, the risk of losing motivation for learning may grow. In a sample of 1,452 workers from 17 Spanish companies, we analysed to what extent the training factor increases their quality of employment and the assessment they make of their organisation, despite the negative effect of the passing of time. To do so, we implemented a structural equation model that considered the effects of the variables "seniority in the company" and "training" on quality of employment. We tested this model through multigroup analysis by differentiating between workers aged under 50 and those aged 50 years and older, showing that the positive effect of training is stronger in older workers and reduces the negative effect of seniority in the company for those aged under 50.

Keywords: adult training, age, age management, quality of ageing at work, seniority

Introduction

This article frames the issue of training older workers as a tool to enhance their quality of work in the light of changing labour markets (Gallie, 2017), as well as in the light of a series of further challenges that further segment the labour force (Hudson, 2007; Seo, 2022). These developments are a result of the economic crisis that began in 2008 and, in countries such as Spain, provoked a downturn that lasted until at least 2014 (Cárdenas del Rey, 2020), and is aggravated by the most recent ongoing pandemic crisis.

Training support is particularly relevant for older workers, as our study explores, and is not only an effective retention factor for internal segments of the labour force

(Armstrong-Stassen and Ursel, 2009) by helping to stabilise internal labour marketsⁱ and to improve older employees' quality of work life (QWL), but also serves as an empowerment factor by enhancing employability in relation to external segments, or through the revitalisation of external labour marketsⁱⁱ by improving the overall quality of life (QOL) of a larger older population share. Moreover, as our literature review shows, investing in training, even for older workers, helps organisations to overcome internal vs. external labour market segmentations, and acts as a bridging factor that favours the extension of the benefits of adult education and training (AET) from QWL to QOL, and vice versa (Martel and Dupuis, 2006).

This investigation was conducted thanks to research financed by two projects carried out in Aragón (Spain) (X, 2018, 2019). Their main objective was to ascertain the quality of ageing in a sample of Spanish companies by implementing a specific validated tool: the Quality of Ageing at Work questionnaire (QAW-q). Age has been identified by many studies as a determining factor that reduces the quality that employees perceive in their workplace. Deterioration associated with the years workers remain in a company (seniority) has also been identified as an influential element. One strategy, which, as we hypothesised, would significantly reduce the negative effect of passage of time on perceived quality was the training workers receive both outside and inside the work environment. As research in this area is scarce, this article used the data from the aforementioned studies to explore how training could be a key element in achieving inclusive work environments, taking the passage of time into account (age and work experience in organisations).

In order to carry out this research, a structural equation model (SEM) is proposed with a sample of 1,452 workers, applying multigroup analysis to differentiate between workers aged under 50 years and those aged 50 years or more, the latter designated as "older

workers” according to the OECD (2006). Our model tested the influence of seniority in the company (passage of time) and the participation in AET activities on the variables of quality of ageing at work, employee self-assessment, and employees’ assessment of their organisation’s management of these quality variables.

Quality of Ageing at Work. The Role of Adult Training

Workforce ageing is a reality that requires an increasing amount of attention on the part of institutions, companies, and the international scientific community (ILO, 2015), especially as most jobs have been conceived without considering the potential limitations of the passage of time for workers (Burke et al., 2013). Rising employment rates of 50+ employees (59.1 per cent in 2019 in Europe, almost 14 percentage points more than in 2008, according to Eurostat, 2020a), the legal postponement of retirement age (X, 2018) and the consequent deterioration in perceived QWL as the workforce ages (Ilmarinen, 2006) all justify the considerable academic attention paid to age management in recent years. Linked with this situation, and following Marcus and Fritzsche (2016) as well as Stypińska and Nikander (2018), ageist prejudices that affect older workers are still a reality in companies, especially on the part of employers who tend to consider older workers as less motivated than younger ones (Vickerstaff and Van der Horst, 2019), and also given the possible “disqualification” process suffered by older workers when faced with new competency requirements (Hsu 2013).

Indeed, worker competencies have been identified as a factor that influences QWL because perceived well-adjusted competences at work act as a strong motivating factor (Eurofund, 2015; Kroll, 2003, Desmette and Gaillard, 2008). As such, Ilmarinen (2006) included this factor in his well-known *Workability Index* (WAI) model, along with well-being at work (also in Hotopp, 2007; Junaidah and Saodah, 2012), job satisfaction (Kroll, 2003; Newton, 2006), and organisation of work (Burke et al., 2013). However, if

companies manage these variables well, age and experience in the company can act as positive elements to face senior workforce dualisation/segmentation and to foster employee motivation, as explained by the successful ageing-at-work model (Kooij and Kanfer, 2019). The latter has been defined as “the proactive maintenance of, or adaptive recovery (after decline) to, high levels of ability and motivation to continue working among older workers” (Kooij et al., 2020).

According to Junaidah and Saodah (2012), if there is any strategic element upon which organisations can impinge directly as a means of increasing organisational performance and productivity, it would be the adjustment of worker competencies through training (McNamara et al., 2012).

Competencies therefore have a relevant effect on other individual attributes and intra-organizational factors, and thus on a company’s competitiveness and productivity (Bonitz et al., 2007). Moreover, when workers perceive that there is a good fit between their own competencies and their job, their self-perceived job quality improves likewise (Sánchez-Sánchez & Fernández-Puente, 2014). In this sense, the best way to improve the perception of a good fit between competencies and work is adult training inside and outside the workplace (X, 2019).

Despite the prejudices derived from ageism, certain studies, such as the one by Kooji et al. (2010), show that the subjective perception of performance and competency fit at work are among the few QAW variables that increase with age, since they are correlated with a greater degree of motivation at the workplace. On the one hand, studies such as Paloniemi’s (2006) demonstrate that the development of competency through training is independent of age. On the other hand, Junaidah & Saodah (2012, p. 82) find that “older workers are competent, performing well, and are trainable”, and they emphasize this factor when assessing the possibilities of implementing strategic quality policies to age

management by offering training inside the company. Moreover, despite managers' prejudices, older workers are still a trainable asset for organizations (Junaidah & Saodah, 2012). Warr (2001) even asserts that strategies for training old workers are an organisational necessity because competent workers will have a positive effect on the organization's productivity and performance. As other authors have observed, this is not only effective in the workplace; adult education beyond the workplace has a wider impact on perceived competencies, thus leading to a greater degree of personal and job satisfaction (X, 2020; X, 2020), two factors that are especially relevant in today's knowledge society (X, 2019).

However, although several contributions have systematically reviewed topics such as the relationship between lifelong learning and employability (Midtsundstad, 2019) and have critically analysed policies dedicated to the training of older workers (Hsu, 2013), the literature has not yet identified an interrelation between chronological variables, training, and perceived quality at work. This is why we propose the hypothetical model elaborated in the following section, in which training both inside and outside the work organisation acts as an element designed to mitigate the negative effect of age and seniority on quality of ageing at work.

Contextualisation of the Study: Quality of Ageing at Work and Training in Spain

Regarding our specific research context, Spain is undergoing a profound crisis due to the pandemic, which has halted its convergence process and increased the unemployment rate (16.3%: the second highest rate in Europe according to INE, 2020). Within a framework of fiscal consolidation and a credit crunch, the challenge in Spain lies in increasing productivity and competitiveness while fostering employment by establishing a close link between productivity-enhancing measures and support for potential high growth sectors.

Moreover, observed from the institutionalist perspective on employment regimes (Gallie, 2007) and comparative age management (Boehm et al., 2013), and unlike other EU partners, Spain is still characterised by a huge delay in defining and implementing public policies that specifically aim to recover from the crisis while contemplating the need to manage the ageing of the workforce (Eurofound, 2012). The most recent employment policy reform (Law 3/2012) introduced a Spanish-style flexicurity model (Santamaría López and Serrano Pascual, 2016) which neither helped to improve the protection of the most precarious employment sectors, nor managed to cushion transitions between one precarious job and another. No specific incentives were introduced to promote the employment of older workers and/or to tackle their unemployment. The most recent expansive pension reform (Law 27/2011) introduces a mechanism for a gradual increase in both retirement age and tax-paying seniority, which establishes that the quota of 67 years of age with 38.5 years of tax payments to public social security schemes will be reached by 2027.

Notwithstanding, given the possibility of accessing early retirement schemes as foreseen in an increasing number of collective agreements, the real retirement age in Spain is still far removed from the legal retirement age. The problem is aggravated when we observe that, although Spain is the third-last country in the European Union regarding expenditure on social protection in relation to GDP (Eurostat, 2020a), its state social security reserve fund (derived from by the workers' tax payments to public social security) diminished dramatically between 2011 and 2018 as a consequence of the ageing of the workforce.

Therefore, although Spanish policymakers have paid little attention to this issue (AUTHOR 4, AUTHOR 1 & AUTHOR 2, 2020), the battle against the high degree of unemployment in the older sectors of the labour force caused by the ongoing crisis,

along with the need to maintain a productive and motivated older workforce, have inevitably become areas of tension in external and internal labour markets. Spanish work organisations are aware of this situation and regard it with a certain amount of concern. This evidence is reflected in figures, which show (despite the downturn): uninterrupted growth of the rate of employment of older workers (55-64 years old), which increased from 45.5% in 2008 to 53.8% in 2019 (Eurostat, 2020a); the growth of the share of 50+ employed people in total employment, which went from 20.6% in 2008 to 30.5% in 2019 (with figures exceeding 40% in administrative service occupations and public administration); an average effective age of retirement of 62.1 years for men and 61.3 years for women between 2013 and 2018 (OECD, 2020) which, during the same time span, resulted in a 41.5% increase in the number of 60+ employed workers in the national labour market. These data are even more evident in the autonomous region of Aragon, where the rate of the employment in people over 55 years old is 1.4 percentage points higher than the national rate (26.2% in Aragon compared to 24.8% in Spain, INE, 2020).

Consequently, private companies are beginning to show more awareness of age-related issues, are becoming more open-minded about concepts such as “maintaining workability” or “promoting the quality of ageing at work”, and are thus more prepared to introduce new human resource management practices (including training and development schemes) that are sensitive to age management and the different meanings that age (e.g., chronological, subjective) and the passing of time (e.g., seniority, perception of the past, perception of the future) may have for employees in the workplace.

On the other hand, in the aforementioned context of crisis, it is necessary to develop human capital skills in order to improve the quality of education and vocational

training, and in order to address the mismatch between academic level, skills, and concrete needs. In terms of such needs, adult education in Spain is based on the idea of enabling adults to acquire basic education, improve professional options through qualifications, and acquire the skills needed to start new jobs, among others. Non-formal education, especially at work, is widespread in Spain thanks to the State Foundation for Job Training (FUNDAE), which supports production sectors through quality training with the purpose of helping companies and employees to improve skills that enable them to handle changes in the job market (FUNDAE, 2020). This foundation regulates the system of professional training for employment within the work environment and manages the funds for training allotted by companies, which they can deduce from their Social Security contributions to the national fund for free, quality training for all people of working age (active and unemployed). The training projects promoted by FUNDAE can be both sectoral or transversal, and the foundation periodically and systematically evaluates the quality and results of the professional training initiatives it managesⁱⁱⁱ. In this context, the important task of identifying professional training needs is entrusted to sectoral bipartite joint organisations.

However, involving adult populations in training remains a challenge: In the Aragón region, with a slightly lower unemployment rate than that for all of Spain (11.9%), the percentage of adults who participated in AET in 2019 was 9.7%, lower than the average recorded for all Spain (10.6%) and for the European Union (11.3%). These differences become larger if we specifically verify the participation of 50+ employees (4.8% in Spain, 6.1% in Europe) (Eurostat, 2020b). The main reason for participating in AET is “to be trained for my current job” (44.6%) and “to be trained for a possible future job” (34.0%) (Ministry of Education of Spain, 2020). Hence the main motivation seems to be to apply AET to work.

Although no specific training programme exists for older workers, the region of Aragón is firmly committed to updating older workers' competencies, well-being, and satisfaction at work by promoting an innovative undertaking: the Network of Healthy Companies (in Spanish: "Red Aragonesa de Empresas Saludables" – RAES, 2020) since 2018 and ongoing. Founded by the Government of Aragón, this public initiative aims to support "Health Promotion at Work" projects in companies in the region that join the network. One of the main novelties in this initiative has been the activation of a specific strategic trajectory for "Age Management and Healthy Ageing", in which our research project has been the first initiative of diagnosis of ageing at work. One of the RAES's main general objectives is to promote interventions that improve learning: i.e., training on how to cope with certain specific professional risks, as well as specific skill enhancement for employers and employees (RAES, 2020, p.3). Aragón was indeed the first region in Spain to carry out two research projects on the evaluation of QAW and the promotion of specific measures to improve it, among which ongoing training is one of the most prominent (X, 2018, 2019). However, but the pandemic has paralysed this RAES line of action by the moment.

Hypothetical Model. Effects of Adult Training on the Quality of Seniority and Ageing at Work

Our hypothetical model takes the theoretical and empirical research in the previous section as a primary reference that shows how the passage of time in the same organisation can imply loss of perceived quality in the work environment. Other previous studies that have helped to shape our model are detailed below.

Firstly, about the construct of Quality of Ageing at Work (main endogenous variable), in order to reflect a holistic definition, we took the four variables included in the WAI

(competences, well-being at work, job satisfaction and organisation of work, Ilmarinen, 2006), and we incorporated four additional intra- and extra-organisational factors (Gallie, 2017) into our evaluation models of job quality in order to take ageing workforce characteristics into account: professional identity (Bertolino et al., 2013), work-life balance with personal and family life (Raymo and Sweeney, 2006; Eurofund, 2015), economic security (Siegrist et al., 2008), and the quality of relationships with colleagues or superiors (Brooke and Taylor, 2005; Desmette and Gaillard, 2008). These eight factors are featured in the model applied herein. Apart from incorporating all the key WAI variables, along with the QWL and QOL dimensions taken into account by Martel and Dupuis (2006) in their Quality of Working Life Systemic Inventory (QWLSI), these eight factors likewise reflect that both age and seniority in organisations are elements which can have a negative effect when ageing in employment is not appropriately managed (X, 2018; X, 2019; X, 2019).

From our literature review and the exploratory analysis of the correlations between variables (see Appendix), we determined that seniority in a company acts as an exogenous variable in our model, since the effect of the passage of time on the “quality at work” variables was not only limited to age, but also to seniority (X, 2018, 2019). The increasing number of years that a worker remains in the same organisation can be associated with perceived loss of quality or job satisfaction. This is mainly due to psycho-social burnout when employees occupy the same position for years (Zavidovique et al., 2018), especially if they perform repetitive physical tasks by applying basic skills; such work decreases with age, and the contribution provided by experience is almost irrelevant (Warr, 1994). This variable can also affect how workers assess their organisation: for example, because they consider that they deserve more salary, compensations, and/or recognition, or because the company does not do enough

to manage their well-being (Lian and Ling, 2018). Work alienation can even occur (Erdem, 2014), especially as one of the dimensions which – along with aversion, anomie, and anxiety – characterises the external segment of the senior workforce exposed to precariousness (Standing, 2011). However, other studies associate work seniority of the internal labour force with a higher degree of perceived job quality (Orhan, 2017).

If we take AET as a mediation variable, its relevance becomes evident as a potential element of quality improvement in ageing in work (Canduela et al., 2012), as well as in the retention of older workers (Armstrong-Stassen and Ursel, 2009). In line with Hannekam (2015), the scarcity of empirical studies on this matter implies that we hardly have significant international evidence to reaffirm this thesis. This situation led us to analyse, in the present study, how AET can act as an element that significantly mitigates perceived deterioration of quality, which is intrinsic to the passage of time for workers. This variable apparently depends on seniority, as the scientific literature regards both this element and the age variable as factors that tend to mitigate older workers' (50+) proclivity to participate in AET (Lossbroek and Radl, 2019): some older workers do not have a positive attitude toward continuous training, and this can even influence their decision to retire (Hannekam, 2015). Employers tend to stigmatize 50+ workers with more seniority regarding the subject of job skills and AET because they often underestimate the ability of older employees to adapt to new methods and new knowledge (Kroll, 2003). Ageing is assumed to imply loss of skills (Taylor and Walker, 1998) which can lead to a company's diminished performance (Kunze et al., 2011 2013). This belief falls in the ageism context, a term that can be broadly defined as the "the stereotyping, prejudice, and discrimination against people based on their age" (WHO, 2018, p. 1). Harris et al. (2018, p.e2) argue that ageism in work environments

can be described as follows: “Continued institutional practices that involve restricting training opportunities for older workers can be framed as discriminatory practices linked to organizational and employer beliefs, attitudes, and behaviors. In particular, older workers may be viewed as less trainable, flexible, and efficient, and as lacking necessary physical capabilities and technological proficiency”. Regarding the concept of “older workers” as defined in this context, and according to *Live Longer, Work Longer*, a core international document on ageing and employment policies, older workers are defined as those aged 50 and over (OECD, 2006). Given the importance of this OECD document in that it places emphasis on promoting extended work lives, we chose the 50+ age group as the starting point for the present research.

Although 50+ workers possibly participate less in AET, in our model this variable appears as a hypothetical promoter not only of quality of ageing at work, but of all the variables that make up AET, and which were discussed in the previous section. Recent studies have shown that the participation of 50+ workers in ongoing learning activities exerts a positive influence on career success and career satisfaction (Hannekam, 2015), especially if these are carried out continuously (Stern and Spokus, 2019). Although the traditional benefits of AET in the labour world have been investigated, particularly for up-skilling and finding a better job or promotion, another fundamental benefit is the growth of satisfaction and motivation at work, which are essential elements in work age management. These variables can mutually reinforce one another, as the good fit perceived by workers between their own skills and their job tends to improve their self-perceived general quality of work life (Martel and Dupuis, 2004; Sánchez-Sánchez and Fernández-Puente, 2014). Along the same lines, Zacher and Schmitt (2016) point out that, for older and more experienced workers, the acquisition of improved skills, well-being, and motivation at work passes through the mediation of AET. The research

carried out by Zhang et al. (2018) suggests that high levels of job satisfaction, professional identity, and work engagement – all variables promoted by participating in AET – are predictors that substantially influence a worker's intention to remain in the company, thus prolonging work life (Midtsundstad and Nielsen, 2019). Lifelong learning can therefore result in fewer early retirements (Gries et al., 2009). Apart from improving employees' qualitative self-perception of their work, participating in AET can improve their assessments of their company's job quality management, considering the variables of the passage of time (Junaidah and Saodah, 2012; X, 2019).

Our model took all types of AET into account in which workers participate, since the previous literature confirms that they all have a positive effect on quality of employment. Among them we find: 1) training activities within the company itself which, by taking age and seniority into account, can keep employees feeling satisfied, committed, productive, and healthy (Florah, 2019); 2) participation in formal education activities outside the workplace which, according to Hefler and Markowitsch (2010), can help not only to enhance skills, but also to compensate for unavailable features at work, and 3) other non-formal education activities (Hannekam, 2015) included in the lifelong learning concept (Cedefop, 2006). According to Midtsundstad (2019), all these activities can be considered to improve older workers' employability and successful ageing at work. We also tested other models that contemplate only training at work and/or job-related training, as well as the company's main activity and its size; these models nevertheless yield a worse fit than the one that takes all the types of AET into account.

Despite the relevance of the aforementioned studies, the previous literature contains no model that contemplates all the ageing quality variables included herein. Hence we

tested the hypothetical model presented in Figure 1 by taking the “age” variable into account with a multigroup analysis, as specified in the following sections.

< Figure 1 here >

Methods

Tool

The tool used in this research was the Quality of Aging at Work questionnaire (QAW-q), designed by the authors of this article and validated in previously published studies (X, 2018; X, 2019; X, 2019, 2020). This standardised questionnaire includes eight sections that correspond to all the identified quality at work elements: well-being (health); job design and work organization (organization); employment and economic stability; work-life balance; satisfaction; professional identity; relations at work; competencies.

The data collected by QAW-q are all of the type that can be subjected to a descriptive analysis. Every item in each section uses evaluation scales, in such a way that QAW-q can produce singular scores for each section, or subindex, and a total score or index, which expresses a measure of the perceived quality of working conditions (QAWi). Specifically, our study takes as endogenous variables: the QAW organisational performance evaluation index (QAWop) (scale 1-10), designed to measure workers' assessment of their company's performance on this issue; and the QAW global index (QAW-i), designed to measure -50 and 50+ workers' self-perception of the quality of ageing at work, taking past, present, and future perception subindexes into account. For further explanation of the QAW model, please consult X (2020).

These elements are dimensions that can be influenced by the age factor, as well as by the concomitant ageing and seniority process in the workplace. The final questionnaire section collects personal data, such as gender, chronological age, level of education, year hired, and year from which the employee regularly began paying contributions to the public pension system.

Participants

Data collection through questionnaires took place between 2018 and 2019 as part of two research projects carried out in the region of Aragón (Spain). The data collection process was similar in both projects: companies based in Aragón (Spain) were invited to a project information workshop, nine of them decided to participate in the 2018 project and eight in the 2019 project. Of these companies, 12 are engaged in industry and five in the service sector; seven are large companies (> 250 employees), eight are medium-sized companies (50-250 employees) and two are small companies (less than 50 employees). In this sample, large and medium companies are overrepresented, as they suppose only 0.3% and 1.9%, respectively, of all the companies in Aragón, while medium-sized and small companies make up 97.8% of the firms in this region. This overrepresentation of larger companies is because the quantitative analysis for each company required a sizeable sample of workers in order to obtain statistically significant results for each entity. On the other hand, our sample also has an overrepresentation of companies in the industry sector, since they only make up 6.4% of companies in Aragón. The reason for their will to participate in the project was the great concern of this kind of firm about employee age management, in view of the harsher work conditions reigning in the industrial sector.

During a subsequent meeting held with the management and/or human resources personnel of each company, an agreement was reached as to how employee data would be collected. All firms decided to collect responses online. Anonymity and confidentiality of responses were ensured in all cases by respecting the ethical procedures of the Declaration of Helsinki (World Medical Association, 2001). Callegaro et al. (2015) outline some well-known issues associated with online surveys. Their advantages include speed of data collection, accessibility to respondents, ease of administration, and the higher probability of truthful answers due to guaranteed anonymity. Disadvantages can lie in eventual practical obstacles for accessing and completing an online survey, as well as a potential for respondent bias. Therefore, the convenience sampling approach entailed by this questionnaire collection method can make the final sample slightly biased, because only workers from companies that decided to participate and who had the possibility of using a digital device for completing the survey were able to participate. Another limitation in the validity of the sampling process is that only companies from the Network of Healthy Companies participated, which are organisations already committed to healthy work environments and age management at work.

The questionnaires collected in the 17 companies were valid for analysis because they did not present any missing data^{iv}. Workers answered 1,452 questionnaires, of which 1,056 corresponded to the <50 workers, and 396 to the 50+ workers. Their mean age was 42.1 (SD=10.4; median= 42), the mean seniority in companies was 11.6 years (SD=10.9; median=8), and the mean number of years of global work experience was 20.5 (SD=11.4; median=20). Gender distribution was equitable (52.3 per cent were men, 47.7 per cent were women). Regarding level of education, 7.4 per cent had concluded only primary studies, 39.3 per cent had completed only primary and

secondary studies, and 52.7 per cent had completed tertiary studies. According to position, 8.9 per cent were managers, 15.9 per cent were technicians, 49.8 per cent were administrative staff, and 24.4 per cent were shop floor personnel. Lastly, 51.9 per cent of the respondents had received some form of training in the last 4 weeks, and 78.7 per cent in the last 12 months.

Analysis

To analyse the results, we implemented two phases. In the first one, we carried out a descriptive analysis of the means of the scales that had been used, differentiating between -50 and 50+ workers, and comparing both groups with the analysis of variance (ANOVA) for an initial exploration of results as well as to verify if there were differences between the two groups.

In the second phase, we tested the hypothetical model of causal structure by applying SEM. This technique allows a series of exogenous (independent) and endogenous (dependent) variables to be tested within the same model by constructing latent variables from the observed variables, which is more reliable than using observed variables only through the inclusion of measurement errors. It also allows multiple measures of goodness of fit. We designed the SEM model by considering our previous literature review and taking our descriptive data exploration into account. ~~The SEM model was tested with the IBM SPSS software in its AMOS extension (v.22).~~ Table 1 offers the relationships among the latent and observed variables contained in it, along with the contribution of each observed variable to its latent variable. Figure 1 depicts the relations among them.

<Table 1 here>

Before comparing the two subsamples of interest (-50 and 50+), we obtained correlations among all the scores of the variable factors in the total sample and the two subsamples. Finally, we ran a multigroup analysis to verify the hypothesis that the interviewees from the two age groups would show significant differences in terms of influencing relations among variables. For a detailed explanation of descriptive analysis, variable correlations, and model comparison, please check Additional Appendix.

Findings

Before testing the SEM model, we carried out the descriptive analysis of the variables included in the model by differentiating according to age groups in order to explore the participation of both subsamples in AET, as well as the evaluation they made of the different indices and subindices contemplated in the QAWi and QAWop scales. Differences between the two age groups were statistically significant. However, as this could be due to our sample size, we tested the differences between both groups in the SEM model.

The model we finally implemented (represented in Figure 2) showed significant differences in the relations among all variables, except for the effect of seniority on AET, where the differences between coefficients of both subsamples were not significant ($p < .05$; $\beta_{1-50} = -.007$; $\beta_{150+} = -.014$). The negative effect of seniority on the two ageing quality indices brought about major variations in both subsamples, which were wider for the -50 workers in both QAWi ($\beta_{2-50} = -.317$; $\beta_{250+} = -.130$) and QAWop ($\beta_{4-50} = -.338$; $\beta_{450+} = -.094$). The positive effect of AET was stronger in the 50+

workers in both QAWi ($\beta_{3-50} = .208$; $\beta_{350+} = .360$) and QAWop ($\beta_{5-50} = .277$; $\beta_{550+} = .351$). The negative effect of the indirect effects of seniority through AET was significantly attenuated thanks to training in the case of -50 workers in QAWi (direct effect = $-.317$; indirect effect = $-.002$) as well as in QAWop (direct effect = $-.338$; indirect effect = $-.002$). Its effect for the 50+ workers had already been weaker, and was practically nullified by calculating the indirect coefficients when passing through AET in both QAWi (direct effect = $-.130$; indirect effect = $-.005$) and QAWop (direct effect = $-.094$; indirect effect = $-.005$).

In the final implemented model (C1), the explained percentage of variance for the -50 workers was 19.2 per cent in QAWi and 14.5 per cent in QAWop. For the 50+ workers, the explained percentage of variance was 13.3 per cent in QAWi, and 14.8 per cent in QAWop.

<Figure 2 here>

Discussion and Conclusions

Ultimately, perception of age at work is a subjective factor: from the theoretical life-span perspective (Hamm et al., 2019), authors such as Shane et al. (2019) find that feeling younger or older at work predicts perceived control and motivation in the workplace better than chronological age. Therefore, it is more advisable to refer to the passage of time (a construct that largely influences seniority on the job; X, 2019) and to the influence of all the areas making up quality of employment as the parameters which determine successful ageing at work. One of the fundamental variables that the scarce literature has indicated as beneficial for successful ageing at work is participation in AET (Hannekam, 2015). Since to date no comprehensive analyses have considered the passage of time, AET, and all the quality variables of ageing at work (subjective as well

as applied to the organisation itself), we chose to analyse a multigroup model that considers a relation between these constructs in function of age.

Firstly, although fewer workers aged 50+ participate in AET, which falls in line with previous findings (Vickerstaff and Van der Horst, 2019; Lossbroek and Radl, 2019; Hannekam, 2015), the differences between both groups were not excessively large (5 percentage points less in workers aged 50+). Moreover, the workers aged 50+ presented worse self-assessments in the different quality variables under study. This result falls in line with theories that associate age with a certain loss of competence, job satisfaction, motivation, well-being, and health in employment, among others (Ilmarinen, 2006; Kooij and Kanfer, 2019; Kooij *et al.*, 2020). Once again, although these differences between the two age groups were statistically significant, they were not substantial, probably because the companies that participated in this study were already concerned about age management (all of them – industry and service organisations, large, medium, or small-sized firms – participated in the study because they were already implementing, or planning to implement, specific age management actions for their workers), and age management is an element that improves perceived quality, as proven by the fact that the older workers had a better opinion of their respective companies. This result is also supported by Junaidah and Saodah (2012) as well as by Kooij *et al.* (2020). The correlations between variables reinforced the descriptive results because seniority in the company was more strongly related to loss of QAWi (self-assessment) in 50+ workers. Therefore, the passage of time (age and seniority in a post) was verified as an element that reduces this self-perceived quality. This finding confirms our previous research (X, 2018; X, 2018, 2019; X, 2019).

In the tested model, we find results that confirm previous studies, as well as others we consider novel in this area. The “seniority” variable had a markedly negative effect on

perceived quality of ageing at work as well as on the organisation's evaluation of its management. We therefore reaffirm that passage of time as an ageing management variable is not measured only in chronological age terms, but also in terms of the time that workers remain in the same job post within an organisation (Zavidovique et al., 2018), as well as in terms of their possible alienation (Erdem, 2014). However, one important contribution provided by the present study is that the "passage of time" variable has a stronger negative effect on -50 workers. For this reason, we wish to emphasize that managing ageing at work is a strategy that should not only be limited to older workers, but should be implemented sustainably from the moment when workers join the company (X, 2019) so that passage of time in the same workplace does not imply loss of perceived quality at work.

To manage this negative influence of the passage of time (and in order to uphold the present study's main hypothesis), it would seem that promoting the participation of workers of all ages in AET activities is a fundamentally essential strategy (Canduela et al., 2012; Stern and Spokus, 2019). This finding is particularly well-grounded in view of the fact that we have evaluated a construct with many quality variables, and not only competency-related ones. All of this reaffirms proposals and ideas propounded by Desjardins (2019). Specifically, the fundamental effects of AET mitigate the effect of seniority on -50 workers, and they even further attenuate the negative effect of ageing-at-work on 50+ employees. Hence, although older workers are traditionally less likely to participate in AET (Lossbroek and Radl, 2019), the negative effect of age on QWL is significantly mitigated if they do (Hannekam, 2015; Stern and Spokus, 2019; Martel and Dupuis, 2004; Sánchez-Sánchez and Fernández-Puente, 2014; Zacher and Schmitt, 2016; Zhang et al., 2018), which confirms our C1 model. Therefore, one of this article's main contributions is that the positive effect of being involved in adult learning not only

affects the perceived quality of work-related issues, but also of wider work-quality dimensions. Indeed, AET not only exerts this positive effect on variables such as well-being, satisfaction, motivation, skills, and professional identity, but also on the perception of further intra- and extra-organisational variables including work-life balance, work organisation, work relations, and the perception of economic stability, as well as the assessment of how a firm manages them all, with no differences among sectors and company sizes. Furthermore, as we found in our comparison of models, differentiation by age group was necessary because the impact on the analysed variables differed in each subsample, except for the impact seniority on AET, which was similar in each group, but not significantly so.

Another novel perspective provided by the present study is a holistic conception of AET, covering formal and non-formal training activities both inside and outside the workplace. As specified, we tested other models in which workplace learning was considered exclusively, but with a much less optimal fit. This reaffirms the idea that lifelong learning brings tangible personal and socio-occupational benefits for workers, and this is true to an even greater extent if we take the age factor into account (Desjardins, 2019; X, 2020). Thus, following Stern and Spokus (2019), learning new information and skills to keep up-to-date with changes in daily activities and on the job is a necessary challenge throughout life. Today, this challenge seems more relevant than ever, given the uncertainty caused by the COVID-19 crisis in employment. Mass unemployment, the loss of job security, the spread of telework and the resulting need to develop new skills – all these factors make it necessary for institutions and employers to rethink the need for ongoing training. Moreover, as explained above in the Methods section, we tried out different models by considering variables such as company activity and size as covariates, and we found no differences. This is a notable result in itself,

since the positive effect of AET on the “passing of time” variables is thus significant in all types of companies.

These results indicate that the progressive ageing of a workforce requires specific actions for its management to achieve inclusive work environments. The most recommendable strategies are basically those that promote workforce training and are implemented in intra- and extra organisational areas throughout the working life of employees. Moreover, such strategies need to address the low proportion of older workers participating in AET (only 4.8% in Spain), which can be due to their internal demotivation, and/or to ageist prejudices on the part of companies, which might regard older employees as “less trainable” (Vickerstaff and Van der Horst, 2019).

This study is not without its limitations. Although our sample was large, it only includes workers from companies in a Spanish region. Therefore, extending this study to a larger geographical area would be one of our future objectives. The results nevertheless indicated an optimal fit and fell in line with the previous literature. Another limitation was that further variables of interest were not included, such as gender, position, years of total work experience, level of education, etc. Although this study includes those variables, they were not significant in predicting the results, which implies a greater mismatch of the model because no significant differences were found between groups. However, such variables will need to be further explored in the future. Finally, the sample may be considered somewhat biased because all the companies participating in the study were self-selected, so they were already concerned with ageing management on the job, and were promoting strategies to address it. Hence, workers’ assessments were relatively positive. Future research would be needed using a probabilistic sampling method to check if the significant effects of adult training found in our analysis can be generalised.

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ⁱ Internal labour-market: Set of rules and institutions that govern the allocation and pricing of labour within the firm. For example, in the case of the replacement of retiring workers, this is done with employees who are already part of the company, following the rules of the organisation itself.

ⁱⁱ External labour market: Pricing, allocating, and training decisions are controlled by economic variables. Pricing, allocating, and training decisions are controlled by economic variables. For example, in the case of the replacement of retiring workers, this is done with employees that don't belong yet to the company, therefore this process is conditioned by external economic variables.

ⁱⁱⁱ For more information on the State Fundation for Training to Work and the courses that it promotes, please visit: <https://www.fundae.es/>

^{iv} The response ratio for each company was the following: Company 1 (100.0%); Company 2 (76.0%); Company 3 (30.5%); Company 4 (13.3%); Company 5 (21.5%); Company 6 (26.2%); Company 7 (15.2%); Company 8 (89.0%); Company 9 (46.2%); Company 10 (75.2%); Company 11 (48.6%); Company 12 (78.1%); Company 13 (28.8%); Company 14 (13.9%); Company 15 (8.3%); Company 16 (36.5%); Company 17 (86.9%).