



Doctoral School in

Psychological Sciences and Education – XXVII cycle

Department of Psychology and Cognitive Science

University of Trento

Age-Diversity and Inclusion at the Workplace:

Implicit and Explicit Attitudes, Personality and Fit

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Academic Year 2013/2014

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INTRODUCTION

Working is a journey that people continue for a substantial part of their lives. As people age, they proceed from being younger to older workers and they face many changes. The way other people, co-workers and employers see them and behave towards them changes, so do they change themselves. The way people experience work at age 30 might be different than at age 50. Not so long time ago this journey had a clear start and ending, and was accompanied by a clear division of roles. A person entered the workforce at the end of education process, was working most of the time for the same company advancing with seniority and was finished the career by the time he/she reached obligatory retirement age.

However, times have changed. Today's working life has different characteristics. Together with the aging of the world's population (United Nations [UN], 2013) workforce becomes more age-diverse (Bell, 2012). At the same time older workers are encouraged to continue being professionally active and younger workers face postponed and precarious entry to the world of work. Moreover, there is a growing problem of generational division (e.g., Shore, 2008) and skills shortage (Hertel, van der Heijden, de Lange, & Deller, 2013). Therefore, contemporary policy makers, companies and workers are facing a challenge of building a long-term productive and engaged age-diverse workforce.

It has been estimated that the global share of older people will increase from 11.7% in 2013 to 21.1% in 2050 (UN, 2013). Ilmarinen (2001) reports after International Labour Organization that by the year 2025, the proportion of people over the age of 55 years will be 32% in Europe, 30% in North America, 21% in Asia, and 17% in Latin America. At the same time, the global youth unemployment rate continues to rise and is projected to reach 12.8% by

2018, with 17% in 2015 in Europe and North America, and over 20% in Asia (International Labour Organization, 2013).

This situation is unprecedented. Therefore, the journey through working life becomes one without clear roadmaps neither for younger nor for older workers, and neither for policy makers, nor for organizational practitioners. However, what is clear, is that age inclusion needs to be actively addressed in the organizations as it brings both risks and benefits.

Growing age-diversity at the workplace makes age a more salient characteristic of others, intensifies age-based comparisons (Shore & Goldberg, 2005) and makes age bias more complex (Weiss & Maurer, 2004). This implies a greater risk of age discrimination, which even if unintentional and subtle is illegal (e.g., Age Discrimination in Employment Act, 1967; Employment Equality Framework Directive 2000/78/EC). Recent reviews and meta-analysis show that both younger and older workers may be at risk of unfavourable perceptions (Posthuma & Campion, 2009) and treatment (North & Fiske, 2012). For example, both younger (Duncan & Loretto, 2004) and older workers (e.g., Bal, Reiss, Rudolph, & Baltes, 2011) may experience limited career progression. However, studies examining factors contributing specifically to equal treatment of workers of different ages are more scant than those about gender or race (Nelson, 2005; North & Fiske, 2012).

Finally, high diversity in organizations might increase creativity, innovation, and problem solving due to plurality of perspectives and backgrounds (Milliken & Martins, 1996). However, we are only starting to understand how within a life-span the work environment is related to the work engagement (e.g., Truxillo, Cadiz, Rineer, Zaniboni, & Fraccaroli, 2012). For example, only recently have conceptual works proposed that age may moderate the relation between

person-environment fit and experience of work (e.g., Feldman, 2012; Feldman & Vogel, 2009; Zacher, Feldman, & Schultz, 2014).

These issues open space for many questions about age-neutral and age-specific human resource policies, processes and practices from selecting, periodically assessing to retaining workers in different age. The big question is how to build age-friendly, open and welcoming workplace. What factors put at risk versus facilitate building a long-term productive and engaged workforce? More specifically, what factors affect performance evaluations of older versus younger workers? Are we at risk of subtle or even unintentional unequal treatment of older and younger applicants? Does age bias lead to disfavoured of older workers due to giving higher ratings to younger applicants or lower ratings to older applicants? Are there situations in which older workers may be favoured compared with younger ones (e.g., due to similar-to-me effect, Byrne, 1971)? Finally, how do age-related work and non-work changes affect workers engagement? What is the role of work environment?

Therefore, this thesis was designed to address these questions by studying factors that contribute to age-neutral vs. age-biased evaluations in selection (paper 1) and job performance evaluations (paper 2), as well as by studying the joint effects of age and working environment on work engagement (paper 3).

Paper 1

Effects of Implicit and Explicit Age Bias in Resume Evaluations of Older versus Younger Applicants

The first paper of this thesis entitled: "*Will you still hire me when I am over 50? Implicit and explicit age bias in resume evaluations*", focuses on age specific attitude, the age bias. We

examined the relationship between explicit and implicit age bias and general and performance evaluations of equal younger and older applicants resumes.

Hiring decisions, especially in the initial stage of resume screening, are made with little time and information. This makes them prone to overt-explicit age bias, preference, as well as covert-implicit age bias, a more subtle form of discrimination or unintentional preference (Levy & Banaji, 2002). We based our research first, on findings that age dominates categorization processes (Feldman, 1981; Fiske, 1998) and it may easily lead to attitudes which could form attitudes-based expectations (Macrae & Bodenhausen, 2000) and evaluations (Brewer, 1988, Fiske & Neuberg, 1990). Second, on assumption that as a given attitude increases and becomes more pronounced, people might attend more to information related to it, thus affecting their behaviour to a greater extent (Hamilton & Trolier, 1986; Stangor, Lynch, Duan, & Glass, 1992). Third, on findings that attitudes may be explicit and implicit (e.g., Fazio & Olson, 2003; Gawronski & Bodenhausen, 2006), and that these two types of attitudes may differently affect evaluations and behavior (Bohner & Dickel, 2011; Fazio & Olson, 2003; Greenwald, Poehlman, Uhlmann, & Banaji, 2009; Johnson & Saboe, 2011). Fourth, on findings reporting existence of implicit bias towards older adults (Axt, Ebersole, Nosek, 2014; Hummert, Garstka, O'Brien, Greenwald, & Mellott, 2002; Levy & Banaji, 2002; Nosek, Banaji & Greenwald, 2002). Finally, on findings that implicit bias may have negative effects on hiring decisions about other social groups (Agerstrom & Rooth, 2011; Deros, Nguyen, & Ryan, 2009; Deros, Ryan & Nguyen, 2012; Rudman & Glick. 2001).

We proposed that workplace specific implicit age bias existed and we expected it to negatively affect older compared with younger applicants' general and performance evaluations independently from raters' age. Moreover, we expected that implicit bias would explain

additional variance above the one explained by the explicit age bias. We also proposed to use an explicit age bias measure that accounts for the comparison between younger and older workers. We expected it to be more informative in an age-diverse context, where comparison processes become more salient (Shore & Goldberg, 2005). Finally, we explored whether explicit and implicit age bias led to disfavouring of older workers due to giving higher ratings to younger applicants or lower ratings to older applicants.

We implemented a within subjects and time-lagged design, and gathered data from respondents with a wide age range (18-65 years). Participants ($N = 110$) at Time 1 completed an Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998) and filled in explicit age bias measures, and at Time 2 rated equivalent older and younger applicants' resumes in terms of general impression and task performance.

We are preparing this paper to be submitted to the Journal of Applied Psychology.

Paper 2

Effects of Rater Conscientiousness on Evaluations of Older and Younger Workers

The second paper of this thesis entitled: "*Effects of rater conscientiousness on evaluations of task and contextual performance of older and younger coworkers*", presents two studies focused on investigating whether rater-ratee personality similarity in terms of conscientiousness, inferred from rates' age, influences performance ratings.

Although careful evaluations could be expected particularly from conscientious raters (Bernardin, Cooke, & Villanova, 2000; Kane, Bernardin, Villanova, & Peyrefitte, 1995; Tziner, Murphy, & Cleveland, 2002; Yun, Donahue, Dudley, & McFarland, 2005) they might still show a bias towards certain groups. We based our research first, on the findings that older workers are perceived as more conscientious (Bertolino, Truxillo, & Fraccaroli, 2013; Truxillo, McCune,

Bertolino, & Fraccaroli, 2012). On findings that highly conscientious raters evaluate higher those they perceive as similar to them on conscientiousness (Sears & Rowe, 2003; Strauss, Barrick, & Connerley, 2001), and on proposition of the Realistic Accuracy Model (RAM) of personality judgement (Funder, 1995), that different people have different levels of sensitivity for different information.

We proposed that rateses' age can be used as a cue suggesting rateses' conscientiousness, and that this information might be particularly relevant for conscientious raters. Consequently, we expected that conscientious raters would make more positive evaluations of older coworkers in terms of their task and contextual performance.

We conducted 2 studies using time-lagged design and two different samples. In Study 1 we collected data from an American population, mostly working students ($N = 149$), and in Study 2 from Italian working adults from a variety of industries ($N = 242$). At Time 1 participants completed a questionnaire measuring their conscientiousness, and at Time 2 evaluated conscientiousness and performance of either younger or older "typical" worker (Study 1) or an actual coworker (Study 2).

This paper has been submitted to the European Journal of Work Organizational Psychology.

Paper 3

Effects of Age on Relation between Person-Environment Fit and Work Engagement

The third paper of this thesis, entitled: "*Does It Fit Me? Effect of Age on Relation between Person-Environment Fit and Work Engagement*", focuses on the relation between person-environment and work engagement within a life-span.

Work engagement is important for employees' work-related well-being (e.g., Rothmann, 2008; Sonnentag, 2003) and performance (e.g., Bakker, Schaufeli, Leiter, Toon, & Taris, 2008; Salanova, Agut, and Peiro', 2005). However, as workers age their level of work engagement may be affected differently by different factors.

Specifically, we based this research on findings that work engagement is positively related to congruence between employees' characteristics and their working environment in terms of values, skills and needs (Cable & Parsons, 2001; Edwards, Cable, Williamson, Lambert, & Shipp, 2006; Edwards & Shipp, 2007). We integrated these findings with the literature on age-related changes. Life-span theories suggest that with age people prioritize situations that allow them to maintain their performance and to avoid loss (Baltes & Baltes, 1990; Ebner, Freund, & Baltes, 2006; Lang & Carstensen, 2002), as well as to increase positive socio-emotional experience (Charles & Carstensen, 2010; Kooij, De Lange, Jansen, Kanfer, & Dikkers, 2011). Consequently, we expected that experiencing person-environment fit would be more important for work engagement of older than younger workers.

We used time-lagged design and collected the data in the social cooperative. Participants at Time 1 ($N = 116$) provided information about their person-organization fit, needs-supplies fit, and demands-abilities fit, and at Time 2 about their work engagement.

General Discussion

Finally, the last section of this thesis is devoted to the general discussion, including a summary of the results obtained, the main limitations of the reported studies and the most important implications for practice.

Paper 1

Will you still hire me when I am over 50? Implicit and explicit age bias in resume evaluations.

Abstract

Nowadays increasing workforce age-diversity raises concerns about employment discrimination. Despite little evidence for an age-performance relation, older workers are less frequently selected for jobs than younger ones. Past research aiming to understand age discrimination mainly focused on examining separately explicit bias towards older workers or towards younger workers, and used self-reported measures. We proposed that when investigating decisions about older workers we need to account simultaneously for comparing older to younger workers. Moreover, we measured both overt-explicit age bias and covert-implicit age bias. We found that explicit age bias had a positive effect on younger applicants' evaluation and no effect on older applicants' evaluation. The implicit age bias had negative effect on the evaluation of older applicants and no effect on the evaluation of younger applicants. This study shows different ways in which implicit and explicit age bias might lead to disfavoring older applicants. It raises awareness about spontaneous reactions to applicants' age (e.g., from age on resumes) and the importance of confronting decision-makers with their implicit age bias.

Keywords: age, hiring discrimination, age bias, implicit attitudes,
resume screening, task performance

This manuscript has been in preparation as: Kmicinska, M., Zaniboni, S., M., P. Palladino, D. Truxillo, K. Kahn, & F. Fraccaroli. Will you still hire me when I am over 50? Implicit and explicit age bias in resume evaluations.

The demographics of the global workforce are becoming more diverse in terms of age (Bell, 2012). Older workers are encouraged for social and economic reasons to remain or reenter in the workforce. Consequently, also applicants' pool becomes more age diverse. This makes age a salient characteristic in the selection process and rises concerns about age discrimination and factors contributing to it. Especially in case of older workers who are repeatedly found to be less frequently selected for promotions (e.g., Bal, Reiss, Rudolph, & Baltes, 2011) and job interviews (e.g., Blaine, 2012), and seems to find it difficult to re-enter the labour market (Chan & Stevens, 2001, 2004). Our research proposes that for understanding why age may affect negatively employment decisions we need to investigate the effects of understudied firstly, explicit age bias measured as simultaneous comparison between younger and older workers, and secondly implicit age bias.

Understanding factors that may contribute to age discrimination is important given that the equal treatment in terms of age is garanted by the law (e.g., Age Discrimination in Employment Act, 1967; Employment Equality Framework Directive 2000/78/EC). At the same time unbiased selection evaluation is crucial for bulding companies' competitive and committed workforce (Guthridge, Komm & Lawson, 2008; Kunze, Boehm, & Bruch, 2011), as well as positive image outside (Edwards, 2009).

While hiring decisions, especially in its initial stage of resume screening, are made with little time and information, they may be influenced by ready-to-go age bias guidance. The decision whether proceed with the given applicant or not is often based on a set of evaluations composed of measurable evaluations (e.g., fulfilment of formal requirements) as well as unmeasurable evaluations (e.g., general impression and performance predictions) (Sackett, & Lievens, 2008). Therefore, decision may be influenced by overt-explicit bias, preference, as well

as by covert-implicit bias, a more subtle form of discrimination or unintentional preference derived from superficial elaboration of information about the applicants (Gawronski; Hoffman, Wilbur, 2006; Levy & Banaji, 2002).

However, as pointed out by Finkelstein and Farell, (2007) the age bias-age discrimination relation has been often rather assumed than tested. Moreover, past research has concentrated on rater overt-explicit, self-reported age bias and only measured as an evaluation of one age group (e.g., older workers) (e.g., Perry, Kulik & Bohuris, 1996). Simultaneous comparison with the other age group (e.g., younger workers) may be more realistic as in age-diverse context social comparison processes become more salient (Shore & Goldberg, 2005). Furthermore, implicit age bias at the workplace has never been investigated. Finally, it is not clear whether age bias leads to disfavours of older workers due to giving higher ratings to younger applicants or lower to older applicants, and whether the same pattern of evaluations will be predicted by explicit and implicit age bias.

Investigating implicit bias could be particularly useful. Firstly, because implicit measure reveals what respondents might not be fully aware of or willing to report (e.g., Fazio & Olson, 2003). Thus it is suitable for investigating age discrimination prone to social desirability. Secondly, older adults were found to be objects of implicit bias in social context (Axt, et al., 2014; Hummert et al., 2002; Levy & Banaji, 2002; Nosek, Banaji & Greenwald, 2002). Thus similar tendency may occur in the workplace. Third, implicit attitude may predict additional variance in behavior or different behavior than explicit one (Bohner & Dickel, 2011; Fazio & Olson, 2003; Greenwald, Poehlman, Uhlmann, & Banaji, 2009; Johnson & Saboe, 2011). Finally, implicit bias was found to predict additional variance in negative hiring decisions for

other social groups (Agerstrom & Rooth, 2011; Deros, Nguyen, & Ryan, 2009; Deros, Ryan & Nguyen, 2012; Rudman & Glick, 2001).

Therefore, firstly we assessed explicit age bias towards both younger and older workers using well established age bias questionnaire (Cleveland, Festa, & Montgomery, 1988) and implicit age bias using the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998). Secondly, by implementing a within subjects design, we examined whether each of these bias affected evaluations of older compared with younger applicants resume in terms of a) general impression and b) task performance. We tested whether implicit age bias would explain variance beyond the one predicted by explicit bias in these evaluations and whether implicit age bias affected the evaluations in different manner than explicit age bias. Third, since resume screening normally is delivered in situations with a limited time, we examined postulated effects in two experimental conditions: with and without time limit.

Older Applicants are Disfavoured

Nowadays almost universal first stage of the selection process is resume screening. Surprisingly, it has received much less attention than other selection stages and tools (Deros, Ryan, & Nguyen, 2012). The goal of the resume screening is to decide quickly and based on approximately one-page long description, whether an applicant will become a high performer. This decision may be composed of various smaller, and often subjective in nature, evaluations about impression, applicants' suitability, willingness to invite an applicant for an interview (Bart, Hass, Philbrick, Sparks & Williams, 1997; Deros, Nguyen & Ryan, 2009), as well as predictions about applicants' future performance.

Despite that meta-analytic studies have generally found weak support for any actual relationship between age and task job performance (Avolio, Waldman, & McDaniel, 1990;

McEvoy & Cascio, 1989; Ng & Feldman, 2008; Waldman & Avolio, 1986), older applicants are less frequently invited for an interview than younger ones (Blaine, 2012). Meta-analysis of Bal and colleagues (2011) showed that age had a negative effect on advancement, selection as well as general and performance evaluations. Similarly, Morgeson, Reider, Campion and Bull (2008) in their review on age discrimination in the employment interview reported that in most laboratory and some field studies older applicants with the same or similar qualifications as younger ones received lower ratings and hiring recommendations (e.g., Avolio & Barrett, 1987; Finkelstein, Burke, & Raju, 1995; Haefner, 1977). Finally, Chan and Stevens (2001; 2004) repeatedly found that for many workers in their 50s and 60s losing their work results in lasting withdraw from the workforce. For example, after two years from a job loss at age 55, only around 60% of these workers were re-employed. Among a group of workers in a similar age, but who were not dismissed, the employment rate was of 80%.

Given these findings, we can expect older applicants to be in general evaluated more negatively than younger applicants:

Hypothesis 1: Older applicants will receive lower ratings than younger applicants on a) general impression and b) task performance.

However, the reason why this negative effect of age may occur and when it is stronger are not fully understood. For example, age bias seems to target most saliently older workers (North & Fiske, 2012). Despite that both positive and negative beliefs are associated with both older workers (low performance and motivation, but high experience and reliability) and younger workers (energetic and with high developmental potential, but unstable and self-centered) (e.g., Gibson, Zerbe, & Franken, 1993; Finkelstein & Farell, 2007; Posthuma & Campion, 2009). This suggests that there might be additional, than openly declared, factors that disfavour older

workers. Moreover, Finkelstein, Burke and Raju (1995) in their meta-analysis reported that distinctions between younger and older workers evaluations were especially strong when younger and older workers were evaluated simultaneously. This suggests that age-diversity at the workplace may reinforce social comparison processes. Therefore, investigating only overt-explicit attitude (age bias), and only towards older workers might miss important pieces of the puzzle.

Implicit and Explicit Attitudes Distinction

In general attitudes arise from categorizing of a given object, person, as a member of a specific category, group, and include information about cognitive, affective and behavioural responses towards attitude object (e.g., Eagly & Chaiken, 2007). Over two decades of research has confirmed that attitudes may be overt, that is explicit, or covert, that is implicit, and may or may not be consciously experienced by the holder of an attitude (Gawronski, 2007).

In particular, explicit attitudes refer to evaluations based on reasoning and inferences that require deliberation and motivation. Whereas implicit attitudes refer to spontaneous and automatic evaluations resulting from the particular associations that may serve as ‘quick guides’ to expectations and behavior that do not need full raters’ awareness and control (e.g., Fazio & Olson, 2003; Gawronski & Bodenhausen, 2006). Some works propose that implicit attitudes are based on accumulated through experience statistical regularities about the attitude object (Epstein & Pacini, 1999; McClelland, McNaughton, & O’Reilly, 1995). A set of associations that is activated automatically when a person encounters an object of the attitude (Gawronski & Bodenhausen, 2006). Therefore, implicit attitudes might act outside of awareness and in a very fast manner (i.e., processing occurs in parallel and in millisecond cycles; Lord, Diefendorff, Schmidt, & Hall, 2010).

Moreover, studies using neuroimaging (e.g., functional magnetic resonance imaging [fMRI]) confirm that while implicit processes occur in cortical areas associated with automatic somatic and affective systems (e.g., the basal ganglia, amygdala, and lateral temporal cortex), explicit processes occur in areas associated with deliberation and executive control (e.g., medial and lateral prefrontal cortex, medial and lateral parietal cortex, medial temporal lobe; Lieberman, 2007; Lieberman, Gaunt, Gilbert, & Trope, 2002).

Finally, while explicit attitudes are influenced by cognitive and motivational factors, such as social desirability, implicit processes are far less subject to deliberative influences (e.g., Fazio & Olson, 2003; Greenwald & Banaji, 1995).

In summary, use of implicit next to explicit measures is especially promising in this study given that firstly resume evaluations involve subjective evaluations. Secondly, it is socially acceptable to openly praise the youth and prefer younger workers, but not to disfavour older ones. For example, Posthuma and Campion (2009) recommended using measures that will mitigate socially desirable responding that might lead to underestimating the effects of age bias. Third, in organizational context explaining any additional variance is useful (Uhlmann et al., 2012). For example, perceptions of age discrimination within organization may negatively affect collective affective commitment and indirectly affect organizational performance (Kunze, Boehm, & Bruch, 2011). Finally, investigating both implicit and explicit mechanism might show different ways in which age bias might affect employment decisions about older versus younger applicants.

As suggested by Finkelstein and Farrell (2007) we will refer to attitudes based on age, as age bias.

Effects of Explicit Age Bias on Evaluations

As a given attitude increases, becomes more pronounced, people might tend to attend more to information related to it and thus it affects their behaviour to a greater extent (Hamilton & Troler, 1986; Stangor et al., 1992). For example, Cleveland and Landy (1983) found that a pattern of behavior stereotypical of an older person predicted negative personnel decisions. Similarly, Perry, Kulik and Bourhis (1996) found that as raters explicit age bias was increasing they evaluated worse older compared with younger applicants for a young-type job. These findings suggest that the explicit age bias towards older workers is related to disfavouring older applicants in selection decisions. However, none of the past studies has joint with-in subject design and testing of age bias effect. Therefore, it is not clear whether the difference in evaluating older compared with younger applicants results from more negative evaluations of older applicants, or from more positive evaluations of younger applicants. An issue risen already three decades ago by Avolio and Barrett (1987). Therefore, we have decided to examine a research question:

Research Question: Raters with high explicit age bias will evaluate higher younger applicants or lower older applicants on a) general impression and b) task performance?

Effects of Implicit Age Bias on Evaluations

In studies using IAT participants of all ages were found to be quicker in associating positive valued traits with younger adults and negatively valued traits with older adults (Hummert et al., 2002; Nosek et al., 2002). Respondents also had the least strong association for older adults with “good words” compared with “other words” (Axt et al., 2014). These findings suggest a general disfavouring of older adults. Similar tendencies might occur in the working environment, where implicit bias about other social groups was found to exert a significant and

negative impact on decisions also when analysis accounted for explicit bias. The implicit bias in these studies was concluded when respondents were associating more easily positive set of categories with one social group than other.

In classical example of McConnell and Leibold (2001) study higher implicit bias towards Blacks predicted negative social interactions with a Black (vs a White) experimenter. In Rudman and Ashmore (2007) study people who held implicit bias of minority groups (e.g., Jews, Asians, and Blacks) recommended more cuts to budgets of the target minority group's student organization. In the selection context Deros, Nguyen and Ryan (2009) and Deros, Ryan and Nguyen (2012) found that dutch participants evaluated the lowest job suitability of Arab applicants when participants' implicit bias of Arabs was high. Moreover, Rudman and Glick (2001) found that implicit gender bias led to lower ratings of female for typical masculine job position. Finally, Agerstrom and Rooth (2011) found that recruiters who implicitly associated obese people with unproductivity were less likely to invite obese applicants for an interview compared with normal-weight applicants. Thus, we propose that:

Hypothesis 2: Implicit age bias will influence ratings of younger and older applicants. Specifically, raters who display high implicit age bias will rate lower older than younger applicants on a) general impression and b) task performance.

Effects of Time Limits on Relation between Age Bias and Evaluations

Raters may rely to a greater extent on both their explicit and implicit age bias when time is limited, as it often happens in real-life selection process. When time is scarce people tend to consider less information, rely more on stereotypes, use simpler decision strategies, and make more use of easily available cues in their evaluations (e.g., Dijker & Koomen, 1996; Friese, Hofmann, & Schmitt, 2009; Wright, 1974). Especially, since Perry, Kulik and Bourhis (1996)

have found that under cognitive load older applicants were evaluated even less favourably than younger applicants by explicitly high-biased raters, we expect similar effect in time limit condition:

Hypothesis 3: Influence of explicit age bias on older compared with younger applicants ratings in terms of a) general impression and b) task performance will explain more variance in time limit condition compared with no time limit condition.

Moreover, since automatic processes can be inhibited or overridden by controlled processes (Gawronski & Bodenhausen, 2006) limited time might increase especially impact of implicit bias (Frieze, Hofmann & Schmitt, 2009). Since implicit bias was found to contribute to evaluations in studies with (e.g., Frieze, Wänke & Plessner, 2006) and without time manipulations (e.g., Deros, Ryan & Nguyen, 2009; Deros, Nguyen, & Ryan, 2012), we propose two competitive hypothesis:

Hypothesis 4a: Influence of implicit age bias on older compared with younger applicants ratings in terms of a) general impression and b) task performance will explain additional variance in time limit condition, but not in no time limit condition.

Hypothesis 4b: Influence of implicit age bias on older compared with younger applicants ratings in terms of a) general impression and b) task performance will explain more variance in time limit condition compared with no time limit condition.

Method

Participants

110 university students and workers participated in the study. Participants were recruited through advertisement put on the boards of university and city library, and the network of the students' friends and their parents. Age ranged from 18 to 65 years ($M = 37.49$, $SD = 13.06$),

50% females ($n = 55$). 98% of participants ($n = 108$) had work experience on average of 15.81 years ($SD = 13.17$). 38.2% ($n = 42$) of participants had daily working contact with older workers, 22.6 % ($n = 25$) few times a week, 5.5% ($n = 6$) at least once a week, 6.4% ($n = 7$) few times a month, 4.5% ($n = 5$) once a month or less, 7.3% ($n = 8$) few times a year, and 15.5% ($n = 17$) have never worked with older workers. 47.3% ($n = 52$) of participants had daily working contact with younger workers, 25.5 % ($n = 28$) few times a week, 5.5% ($n = 6$) once a week, 4.5% ($n = 5$) few times a month, 4.5% ($n = 5$) few times a year, and 12.7% ($n = 14$) have never worked with younger workers.

Procedure

The two-phase laboratory-based experiment was conducted. Both in Phase 1 and Phase 2 all measures and conditions were administered on computer and in counter-balanced order. Prior to the experiment we developed the experimental materials and conducted a series of pilot tests¹. Full pre-tested material and results are available from the first author.

The study was presented to participants as a study on working attitudes and behavior. In Phase 1, participants responded to implicit and explicit measures related to their perception of younger and older workers, filled in measure of social desirability and provided demographic information. Around three days after completion of Phase 1 participants completed the Phase 2, resume rating task, which consisted of a 2 (applicants' s age: 30 years or less vs. 50 years or more) x 2 (time: no time limit vs. time limit) mixed-factor design. The age of the applicants was manipulated with-in subjects². The factor time was manipulated between subjects. In specific, during Phase 2 respondents were asked to play the role of a recruiter for a bank human resource department and evaluate resumes for a position of a bank teller. Participants first read a job description similar to those on selection and recruitment services (e.g., Monster.org) and

subsequently were asked to rate 6 equal resumes. Each resume was presented separately and followed by the evaluation questions about general impression and performance. Among 6 resumes, 3 were of older applicants (54, 50 and 55 years old) and other 3 of younger applicants (28, 30 and 26 years old). For half of the participants there was no time limit for the task (no time limit condition), the rest of the participants were asked to complete the task in 10 minutes (time limit condition)³. In this case, the experimenter informed the participant when time was half-way through and one minute before the end. Finally, in order to check whether participants noticed the age of applicants as the last task participants were asked to indicate a number of resumes in age below and above 50 years.

An independent-samples t-test was conducted to compare the characteristics of the participants in time limit and no time limit conditions. No significant differences were found between the two conditions for age, gender, work experience, frequency of working with older or younger workers, as well as explicit and implicit attitudes towards younger and older workers (all $t_s < 1.70$ and all $p_s > .12$).

Measures

Independent Variables

Implicit age bias. Implicit age bias was measured with the Implicit Association Test (IAT) which internal, convergent, discriminant and predictive validity has been well established (see a review by Fazio & Olson, 2003) and recommended for organizational settings (Haines & Sumner, 2006; Uhlmann et al., 2012). In particular we used IAT to measure association of younger vs. older workers with “good” vs. “bad worker” category, following those in Greenwald et al. (1998). All stimuli were previously pre-tested¹. Table 1 is a schematic representation of the IAT procedure, consisting of 5 blocks. In the first block participants were asked to categorize

face – photos into two categories: “older worker” or “younger worker”. The photos portrayed equivalent in pleasantness and familiarity white males displayed on the nondescript background. All photos were retrieved from face database (Minear & Park, 2004). On the second block respondents were asked to categorize “good worker” or “bad worker” attributes. All attributes were pretested to be age-neutral. The word stimuli for the category “good worker” were: competent, motivated, responsible, able and laborious; and for the category “bad worker”: demotivated, unreliable, incapable, low-skilled and negligent. On the remaining three blocks respondents were asked to complete a combined task that included both the categories and attributes from the first two tasks. Participants were instructed to categorize the words and photos as quickly and correctly as possible. Implicit age bias is concluded when younger workers pictures are paired faster with characteristics that refer to desirable worker than when older worker pictures are paired with the same characteristics.

Explicit age bias. Participants described older (younger) workers on 7 semantic differential scales taken from Cleveland, Festa, and Montgomery (1988). A sample item is “7 = passive and 1 = active”. ($\alpha_{\text{younger}} = .82$, $\alpha_{\text{older}} = .83$).

Control variables. Many factors can intervene to affect bias towards older and younger workers (Posthuma & Campion, 2009). In particular, characteristics related to in-group/out group bias might be age or gender (e.g., Celejewski & Dion, 1998) as well as contact with members of the potentially discriminated groups (Sherif, White, Hood, & Sherif, 1961; Turner, 1987). Therefore *age, gender, work experience and frequency of working contacts with older and younger workers* were used as control variables. Finally we expected age discrimination issues to be sensible to tendency to present oneself accordingly to the socially approved manner, regardless of the true beliefs (Crowne & Marlowe, 1960). Therefore, following the suggestion of

Podsakoff, MacKenzie, Lee, and Podsakoff (2003), we decided to measure also *social desirability*. We have used reduced 13-item version of Crowne-Marlowe Social Desirability Scale (Reynolds, 1982; Johnson & Fendrich, 2002). A sample item is “I’m always willing to admit it when I make a mistake” (1 = *strongly disagree*; 6 = *strongly agree*) ($\alpha = .68$).

Dependent Variables

General impression. General impression of each applicants was calculated averaging the responses to the following 3 questions: “My overall impression of this applicants is” (1 = *very unfavorable*; 6 = *very favorable*) taken from Bart and colleagues (1997); “This applicants is suitable for this job” (1 = *not at all*; 6 = *completely*); and “The likelihood that I would invite this person for an interview is” (1 = *very low*; 6 = *very high*) from Derous and colleagues (2009). These items were positively correlated (r from .72 to .85, all $ps < .001$) ($\alpha_{\text{younger}} = .90$, $\alpha_{\text{older}} = .93$).

Task Performance. To assess expected performance of older and younger workers we used 4 items adapted by Van Dyne and LePine (1998) from Williams and Anderson (1991). This scale measures individual in-role behaviors directly recognized by the formal rewards system as a part of the job description. A sample item is “Applicants will meet formal performance requirements of the job” (1 = *strongly disagree*; 6 = *strongly agree*). ($\alpha_{\text{younger}} = .92$, $\alpha_{\text{older}} = .93$)

Manipulation check. As a manipulation check, participants were asked at the end of the resume evaluation session to report how many applicants were within the age range of “less than 50 years old” or “50 years old or above”. ($M_{\text{younger}} = 3.02$, $SD_{\text{younger}} = .41$; $M_{\text{older}} = 2.97$, $SD_{\text{older}} = .44$).

Results

Implicit and Explicit Age Bias

In order to analyze and interpret the IAT measure we used guidelines on improved scoring algorithm developed by Greenwald, Nosek, & Banaji (2003). IAT-effect d was calculated as the difference in average response speed (latency in msec) between the compatible and incompatible pairing conditions, divided by the standard deviation of all latencies for both pairing conditions. That is, implicit age bias toward older workers is reflected in faster pairing of younger worker photos and words describing “good worker” (compatible condition) compared to older worker photos and words describing “good worker” (incompatible condition). Greenwald and colleagues (2003) suggested interpreting the IAT- effect sizes using criteria for small, medium and large effect sizes of Cohen’s (1977) d measure. That is .20, .50, and .80 could be considered respectively as small, medium, and large. The effect size in the present study was on average .53, this medium. On average participants were faster in associating the attributes of the category “good worker” and photos of younger workers, than associating the attributes of the category “good worker” and photos of older workers. That is, participants of all age displayed on average a medium implicit age bias toward older workers.

Moreover participants in general displayed less favorable explicit age bias towards older ($M = 3.86$, $SD = .95$) than younger workers ($M = 2.38$, $SD = .84$); $t(109) = 13.18$, $p = .00$. The IAT scores did not correlate with the explicit responses, which is consistent with the previous research (see Nosek & Smyth, 2007, for an overview). Subsequently we have calculated a united index of explicit age bias by calculating the difference between age bias towards older and towards younger workers ($M = 1.48$, $SD = 1.18$). In this way we could examine the effects of comparison between older and younger workers, which would not fully emerge from

investigating age bias only towards one of these groups. No significant difference was found for implicit and explicit age bias between experimental conditions.

Resume Evaluations of Younger and Older Applicants

80% ($n = 88$) of respondents correctly indicated that 3 resumes referred to old and 3 to young applicants, and all respondents reported at least 2 resumes in each age range. Therefore, all ratings were taken into consideration in the analysis. In general, participants evaluated better on all dimensions resume of younger than older applicants in both experimental conditions.

Older applicants were given lower ratings than younger applicants in terms of general impression ($M_{older} = 4.03$, $SD_{older} = .93$; $M_{younger} = 4.37$, $SD_{younger} = .72$; $t(109) = -3.50$, $p = .00$) and task performance ($M_{older} = 4.17$, $SD_{older} = .95$; $M_{younger} = 4.45$, $SD_{younger} = .79$; $t(99) = -3.36$, $p = .00$). These results support Hypothesis 1 and are similar to those repeatedly found in the research on explicit attitudes reporting less favourable evaluations of older workers in general and in task performance (e.g., Bal et al., 2011; Finkelstein & Farrell, 2007; Posthuma & Campion, 2009).

The Effect of Explicit Age Bias, Implicit Age Bias and Time on Resume Evaluation

In order to test the research question and Hypothesis 2-4 we used moderated hierarchical regression. Since each of the participants evaluated both younger applicants' and older applicants' resumes we analyzed data using the method developed by Judd, Kenny and McClelland (2001) for testing moderation effects in within-participant designs. This method involved computing the differences between participants' ratings of younger and older resumes and then regressing these differences on our independent variables of interest.

Means, standard deviations and correlations for the variables in the study are presented in Table 2. Regarding correlations among the primary study variables, we found that general impression was positively correlated with explicit age bias ($r = .28$, $p < .01$) and implicit age bias

($r = .30, p < .01$), and task performance was positively correlated with explicit age bias ($r = .29, p < .01$) and implicit age bias ($r = .21, p < .05$). Providing initial support for Hypotheses 2 and 3. Moreover raters' explicit age bias was negatively correlated with rater age ($r = -.30, p < .01$), and work experience ($r = -.28, p < .01$), suggesting that explicit, not implicit age bias, may decrease with time.

In the regression analysis, in order to facilitate the interpretation of coefficients, we standardized independent variables. In the first step, the control variables were entered (rater age, gender, working experience, and frequency of contact with younger and older workers). In the second step was entered the rater age explicit bias. In the third step, the rater implicit age bias was entered. In the fourth step we entered the experimental condition (time limit vs. no time limit). In the fifth step the interaction between rater explicit age bias and experimental condition was entered. In the sixth step the interaction between rater implicit age bias and experimental condition was entered. Table 3 shows the results of the regression analyses.

The interaction between applicants age and rater explicit age bias was significantly related to the ratings of applicants general impression ($\beta = .40, p < .001$) accounting for additional variance ($\Delta R^2 = .13, \Delta F = 13.53, p < .001$). Subsequently we performed separate analysis for younger applicants evaluation and for older applicants evaluation in order to test which exactly evaluation were influenced by explicit age bias. The slope of younger applicants evaluation line was significant and positive ($\beta = .21, p < .05$), and not significant for older applicants evaluation. As shown in Figure 1, there was a positive relationship between rater explicit age bias and rating general impression of younger applicants compared with older applicants. The interaction between applicants age and rater explicit age bias towards older workers was significantly related to the ratings of task performance ($\beta = .45, p < .001$)

accounting for additional variance ($\Delta R^2 = .17$, $\Delta F = 20.87$, $p < .001$). The slope of younger applicants evaluation line was significant and positive ($\beta = .24$, $p < .01$), and not significant for older applicants evaluation. As shown in Figure 2, there was a positive relationship between rater explicit age bias towards older workers and rating task performance of younger applicants compared with older applicants. Therefore the response to our research question is that older applicants were relatively evaluated worse than younger applicants because explicit age bias resulted in more positive evaluations of younger applicants. Not more negative evaluations of older applicants.

The interaction between applicants age and rater implicit age bias was significantly related to the ratings of applicants general impression ($\beta = .30$, $p < .01$) accounting for additional variance ($\Delta R^2 = .08$, $\Delta F = 9.15$, $p < .01$). The slope of older applicants evaluation line was significant and negative ($\beta = -.28$, $p < .01$), and not significant for younger applicants evaluation. As shown in Figure 3, there was a negative relationship between rater implicit age bias and rating general impression of older applicants but not younger applicants. The interaction between applicants age and rater implicit age bias was not significantly related to the ratings of task performance ($\beta = .18$, $p = .054$). As shown in Figure 4, there was however a tendency for negative relationship between rater implicit age bias and rating task performance of older applicants ($\beta = -.17$, $p < .10$) not younger applicants. Thus, Hypothesis 2 was partly supported. There was a tendency to evaluate older applicants relatively worse than younger applicants because implicit age bias resulted in more negative evaluations of older applicants. Not more positive evaluations of younger applicants.

Finally neither inserted at step four experimental condition nor inserted at step five interaction between experimental condition and explicit age bias, nor inserted at step six

interaction between experimental condition and implicit age bias significantly contributed to explaining the variance. Therefore, Hypothesis 3, 4a and 4b were not supported.

To re-test the statistically significant effects the analyses were also performed with no control variables. The effects for general impression remained significant. The effect of age bias on task performance remained significant and the effect of implicit bias was significant ($p = .025$).

Discussion

The study examined the effects of implicit and explicit age bias on general and performance evaluations of older compared with younger applicants. We have found firstly, that participants of all ages displayed on average the implicit and explicit age bias disfavoring older workers. Secondly, participants gave lower ratings to older compared with younger applicants of equal qualifications. Third, explicit and implicit bias significantly contributed to explaining the variance in these evaluations, but in a different manner. The explicit age bias had a positive effect on younger applicants' evaluation and no effect on older applicants' evaluation, for both general impression and task performance. The implicit age bias had negative effect on the evaluation of older applicants and no effect on the evaluation of younger applicants for general impression. Similar tendency was detected for task performance. Finally, there was no difference in effects whether evaluations were conducted with time limit or no time limit, suggesting that manipulation might not have been successful.

This work contributes in several ways to the organizational literature and practice related to age diversity and inclusion, and to the applying of the implicit measures to organizational studies. This is the first contribution that examined next to explicit also the effect of implicit age bias in selection process. Moreover explicit age bias was measured as a comparison between

younger and older workers, not a mere evaluation of one age group. Since increasing age-diversity of the workplace means that people in wider age range work next to each other, treating age bias as a comparison between younger and older workers might be more realistic.

Furthermore, we used with-in subject design, which reflects better selection situation in a real-life than between-subject design (Hosoda, Stone, & Stone-Romero, 2003). As the applicants' pool becomes more age-diverse resumes of applicants in different age are evaluated one next to another. With-in subject design also permitted us to test more in detail the way in which age bias affects evaluations. Finally, our sample was of a wide age range with mean age of 37. This allowed us to infer more general conclusions than studies involving only college students.

We found that raters associated more easily younger compared with older workers with desirable working characteristics (competent, motivated, responsible, able and laborious), and more easily older than younger workers with undesirable working characteristics (demotivated, unreliable, incapable, low-skilled and negligent). That is, all participants displayed a negative implicit attitude, an implicit age bias towards older workers of a medium size (.53). Similar findings come from studies on implicit age bias towards older adults (Hummert et al., 2002; Nosek et al., 2002). Our findings suggest that also implicit age bias at the workplace, might be developed early and may persist as the person is moving from being younger towards older worker. Furthermore, the current results provide the evidence that implicit age bias affects negatively ratings of applicants' general impression and might tend to affect also task performance (with $p = .054$). The difference in significance may be related to the difference in specificity of measures or a sample size. While implicit measure reflected the general idea about a given applicant desirability, scale of task performance has more specific content.

Moreover, we found that explicit age bias led to higher evaluations of younger applicants and implicit age bias to lower evaluations of older applicants. This shows different ways in which implicit and explicit age bias might lead to disfavoring older applicants, and explain repeatedly found relation between advancement in age and difficulties in the selection process (e.g., Bal et al., 2011; Posthuma & Campion, 2009). Our findings are alarming as resume screening is widely first filter of applicants selection (Piotrowski & Armstrong, 2006). Only after passing this filter applicants are given attention and opportunity to present themselves.

Moreover these findings suggest that we should further examine the role of social desirability and awareness in age discrimination. For example, works of Mummendey, Otten and colleagues (e.g., 1996, 2000) repeatedly found that people seem to feel free to differentiate groups on positive dimensions, but not on negative dimensions, so called positive-negative asymmetry. Benefiting the in-group is considered normative, while expressing negative evaluations about the out-group is not (Blanz, Mummendey, & Otten, 1997). It is much more difficult to justify relative harm towards others. In the context of this study older applicants might have been default members of an out-group as people seems to be reluctant to including themselves in older adults category (Blaine, 2012). In case of implicit bias, which is much harder to control (e.g., Bohnet & Dickel, 2011; Greenwald & Banaji, 1995) it might manifest in the direct disfavoring of older workers. Finally, people may also be unaware of holding an age bias and unintentionally disadvantage older applicants.

Finally our findings confirm that studying jointly explicit and implicit bias can enrich understanding of the content and role of the bias in work and organizational context. Including implicit measurement may enhance and enrich the findings especially when one wish to study socially and legally sanctioned issues related to employment discrimination.

Limitations and Future Research

First, implicit age bias should operate especially in situations of time limit and cognitive load (Frieese et al., 2008). We found no influence of the time limit manipulation on ratings, which might suggest that our manipulation was ineffective. The future study might introduce the manipulation based on cognitive load as the working environment is characterized by multitasking. Second, although in a wide age-range, the participants were not professional recruiters. However, Hosoda and colleagues (2003) in their meta-analysis found that within selection studies similar effect sizes with professional recruiters as with students. For example, Dipboye, Fromkin, and Wiback (1975) found that students and professional interviewers evaluated similarly job resumes. Although, we could expect the same tendency in evaluations among our participants and recruiters, it would be interesting to investigate whether study on recruiters would find similar effect sizes. Third, new study could also investigate further why older workers are disfavored. For example older workers might be not seen as interesting partners for the social and working interactions (e.g., having nothing to share with).

Practical Implications

The growing number of older workers at the workplace suggests that age discrimination needs to be actively addressed within organizations. It is illegal to refuse to hire an applicant based on his/her age (e.g., Age Discrimination in Employment Act, 1967; Employment Equality Framework Directive 2000/78/EC). Moreover, perceptions of age discrimination within organization may negatively affect collective affective commitment and indirectly affect organizational performance (Kunze, Boehm, & Bruch, 2011). At the same time positive age diversity climate builds strong relationship between employees and their employer, and indirectly contributes to companies' performance and employees' turnover intentions (Boehm,

Kunze, & Bruch, 2013). Therefore, organizations need to educate their recruiters and hiring managers about the risk of age bias. Firstly, by increasing awareness of the spontaneous categorization of others based on their age, and implicit and explicit bias that may arise. Secondly, by increasing the knowledge about the difference between stereotype-based and research-based consequences of aging. For example, differences in performance seem to be greater within age groups than between age groups (Posthuma & Campion, 2009) and older adults might be more skilled in amassing abilities (Salthouse, 2011). Finally, based on our findings we would recommend implementing into the selection practice next to resume submission also asking for work samples or performing work simulation exercises, as evaluations of these is based on formal criteria (Roth, Bobko, & McFarlan, 2005).

Conclusion

Older workers are working longer for economic and social reasons. This situation calls for developing more age-inclusive HR practices, such as age-neutral recruiting activities. Our study suggests that even in age-neutral jobs implicit and explicit age bias might lead in different manner but to disfavoring older applicants. These findings are rising awareness about spontaneous reactions to applicants' age (e.g., from age on resumes) and the importance of confronting decision-makers with their implicit age bias.

Footnotes

¹ Experimental materials for *IAT stimuli* and *resume pictures* was pre-tested on 32 students and workers (age range 23- 42, $M = 29.68$, $SD = 4.38$), in 68.8% males ($n = 22$) and with the average working experience of 3.41 years ($SD = 3.83$). a) Among 25 resume-like face photos retrieved from Minear and Park on-line database (2004) were chosen 5 younger and 5 older photos equal in terms of pleasantness and familiarity for visual stimulus for IAT; and a set of 3 younger and of 3 older photos equal on pleasantness, familiarity, competence, dependability and warmth for resumes; b) From a list of 50 adjectives related to two key determinants of performance: competence and motivation (e.g. Schmitt, Cortina, Ingerick, & Wiechmann, 2003) were chosen 5 age-neutral adjectives related to the concept of a “good worker” and 5 to the concept of a “bad worker”; *Job-age prototypicality* was pre-tested on 39 students (age range 19 - 57, $M = 31.3$, $SD = 12.66$), in 33.3% males ($n = 12$). We choose bank teller among variety of 66 jobs selected from O*Net database because it is age-neutral, foreseen as widely requested and gender neutral (Gabriel, Gygax, Sarrasin, Garnham, & Oakhill, 2008). Six equivalent short *resumes* contained applicants’ photo, name, age, humanistic degree from the same University, and a short description of the bank teller position held in the last two years. Descriptions were based on O*Net materials, such that each contained at least two core activities, one related to contact with clients and one to data elaboration. All other personal information were omitted.

² There is no consensus about age range of younger and older workers (Finkelstein & Farrell, 2007). However in general we can define “older” workers as those in proximity of retirement (50 years and more) and “younger” as those at the initial stage of their careers (34 years or less).

³ The time limit of 10 minutes was established based on time of 20 participants, who took on average 11.84 minutes to complete the task ($SD = 3.27$).

Table 1.

Schematic representation of the IAT procedure

Block	Trial	Left-Key response (d)	Right-Key response (k)
1	20	Good worker attributes	Bad worker attributes
2	20	Younger worker faces	Older worker faces
3	40	Good worker attributes + Younger worker faces	Bad worker attributes + Older worker faces
4	20	Older worker faces	Younger worker faces
5	40	Good worker attributes + Older worker faces	Bad worker attributes + Younger worker faces

Note: The procedure in Blocks 3 and 5 was to alternate trials that present either a desirable or undesirable words with trials that present either an older versus younger worker photos. The order of words and photos was randomized within each of the blocks. In order to counter-balance the exposition to the stimuli for half of the participants, the positions of Blocks 2 and 4 were switched with those of Blocks 3 and 5 respectively.

Table 2

Means, standard deviations and intercorrelations for all variables

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10
1. Rater age	37.49	13.06	—									
2. Rater female	.50	.50	-.07	—								
3. Rater working experience	15.81	13.17	.93 ***	-.11	—							
4. Rater social desirability	2.52	.46	-.20 *	-.09	-.17	—						
5. Rater frequency of working with older workers	5.00	2.28	.38 ***	-.08	.38 ***	-.08	—					
6. Rater frequency of working with younger workers	5.51	2.10	.10	-.09	.13 .08	.38 ***		—				
7. Rater explicit age bias	1.48	1.18	-.30 **	.04	-.28 **	.05	-.17	.02	—			
8. Rater implicit age bias	.53	.39	-.02	.01	.04	.01	.06	-.07	-.01	—		
9. Applicants's Dgeneral impression	.34	.97	.09	-.18	.13	.06	.08	.02	.28 **	.30 **	—	
10. Applicants's Dtask performance	.28	.86	.15	-.08	.17	-.06	.17	.06	.29 **	.21 *	.84 ***	—

Note: *N* = 110 (*pairwise*). Rater female = 1 and male = 0. Rater explicit age bias = explicit age bias towards older workers – explicit age bias towards younger workers. Applicants's Dgeneral impression = younger applicants' general impression - older applicants' general impression. Applicants's Dtask performance = younger applicants' task performance - older applicants' task performance. **p* < .05; ***p* < .01; ****p* < .001.

Table 3.

Regression analyses for Applicants's General impression and Task performance

Step/variable	General impression/Task performance																	
	B		SE		β		B		SE		β		B		SE		β	
Step 1																		
Rater age	-.21	/.19	.31	/.26	-.22	/-.22	-.10	/-.09	.29	/.24	-.11	/-.11	.08	/-.00	.28	/.24	.09	/-.00
Rater female	-.25	/-.08	.20	/.17	-.13	/-.05	-.26	/-.11	.19	/.16	-.14	/-.06	-.23	/-.11	.18	/.15	-.12	/-.07
Rater working experience	.23	/.23	.30	/.26	.24	/.27	.24	/.24	.28	/.24	.25	/.28	.06	/.15	.28	/.24	.07	/.18
Rater social desirability	.11	/-.01	.11	/.09	.11	/-.01	.08	/-.03	.10	/.08	.09	/-.03	.07	/-.03	.10	/.08	.07	/-.03
Rater frequency of working with older workers	.06	/.14	.11	/.10	.06	/.16	.11	/.18	.11	/.09	.12	/.21 *	.11	/.16	.10	/.09	.12	/.19
Rater frequency of working with younger workers	-.09	/-.13	.11	/.09	-.09	/-.16	-.12	/-.15	.10	/.08	-.14	/-.19	-.10	/-.14	.09	/.08	-.11	/-.16
Step 2																		
Rater explicit age bias							.37	/.39	.10	/.08	.40 ***	/.45 ***	.38	/.39	.10	/.08	.41 ***	/.45 ***
Step 3																		
Rater implicit prejudice													.28	/.15	.09	/.08	.30 **	/.18
Step 4																		
Time limit																		
Step 5																		
Rater explicit age bias x time limit																		
Step 6																		
Rater implicit age bias x time limit																		
Change in F			.72 /	.79					13.53 *** /	20.87 ***					9.15 ** /	3.80		
R2			.05 /	.05					.18 *** /	.22 ***					.26 ** /	.25		
Change in R2			.05 /	.05					.13 *** /	.17 ***					.08 ** /	.03		

Note: N = 110 (pairwise). Rater female = 1 and male = 0. Rater explicit age bias = explicit age bias towards older workers – explicit age bias towards younger workers. Applicants's Dgeneral impression = younger applicants' general impression - older applicants' general impression. Applicants's Dtask performance = younger applicants' task performance - older applicants' task performance. *p < .05; **p < .01; ***p < .001.

Step/variable							General impression/Task performance											
	B		SE		β		B		SE		β		B		SE		β	
Step 1																		
Rater age	.14	/.01	.28	/.24	.14	/.02	.12	/.00	.29	/.25	.13	/.00	.11	/.00	.28	/.24	.11	/.00
Rater female	-.25	/-.12	.18	/.15	-.14	/-.07	-.25	/-.11	.18	/.16	-.13	/-.07	-.27	/-.13	.18	/.15	-.14	/-.08
Rater working experience	-.01	/.13	.28	/.24	-.01	/.16	-.00	/.14	.29	/.24	-.00	/.17	-.02	/.10	.28	/.24	-.02	/.12
Rater social desirability	.05	/-.04	.10	/.08	.05	/-.04	.05	/-.04	.10	/.08	.05	/-.04	.02	/-.05	.10	/.08	.02	/-.06
Rater frequency of working with older workers	.10	/.16	.10	/.09	.10	/.19	.10	/.16	.10	/.09	.11	/.19	.14	/.19	.10	/.09	.16	/.23*
Rater frequency of working with younger workers	-.09	/-.13	.09	/.08	-.10	/-.16	-.10	/-.14	.10	/.08	-.11	/-.17	-.10	/-.13	.10	/.08	-.10	/-.15
Step 2																		
Rater explicit age bias	.38	/.39	.10	/.08	.40***	/.45***	.34	/.35	.15	/.13	.36*	/.40**	.34	/.34	.15	/.13	.37*	/.39**
Step 3																		
Rater implicit prejudice	.27	/.15	.09	/.08	.28**	/.18†	.27	/.15	.10	/.08	.28**	/.18†	.48	/.30	.15	/.12	.50**	/.36*
Step 4																		
Time limit	.22	/.07	.19	/.16	.11	/.04	.22	/.07	.19	/.16	.11	/.04	.19	/.07	.19	/.16	.10	/.04
Step 5																		
Rater explicit age bias x time limit							.06	/.07	.19	/.17	.05	/.06	.06	/.07	.18	/.16	.05	/.06
Step 6																		
Rater implicit age bias x time limit													-.35	/-.28	.20	/.16	-.28	/-.25
Change in F			1.25	/.21					.012	/.18					3.26	/.30		
R2			.28	/.25					.28	/.26					.31	/.28		
Change in R2			.01	/.00					.00	/.00					.03	/.02		

Note: N = 110 (pairwise). Rater female = 1 and male = 0. Rater explicit age bias = explicit age bias towards older workers – explicit age bias towards younger workers. Applicants’ Dgeneral impression = younger applicants’ general impression - older applicants’ general impression. Applicants’ Dtask performance = younger applicants’ task performance - older applicants’ task performance. *p < .05; **p < .01; ***p < .001.

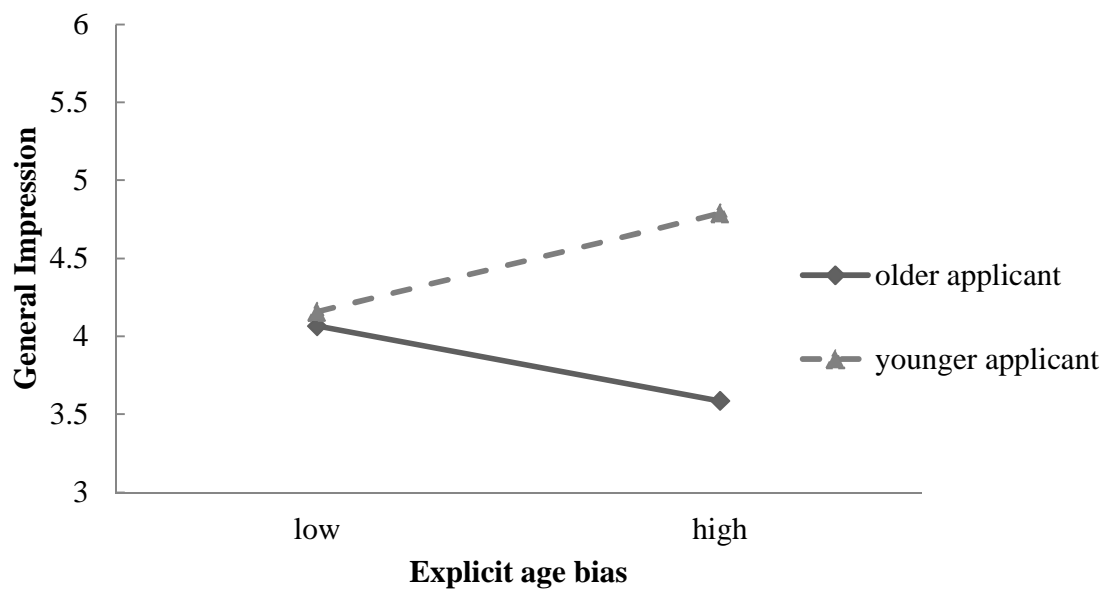


Figure 1. Interaction of applicants age and rater explicit age bias influencing ratings of applicants general impression.

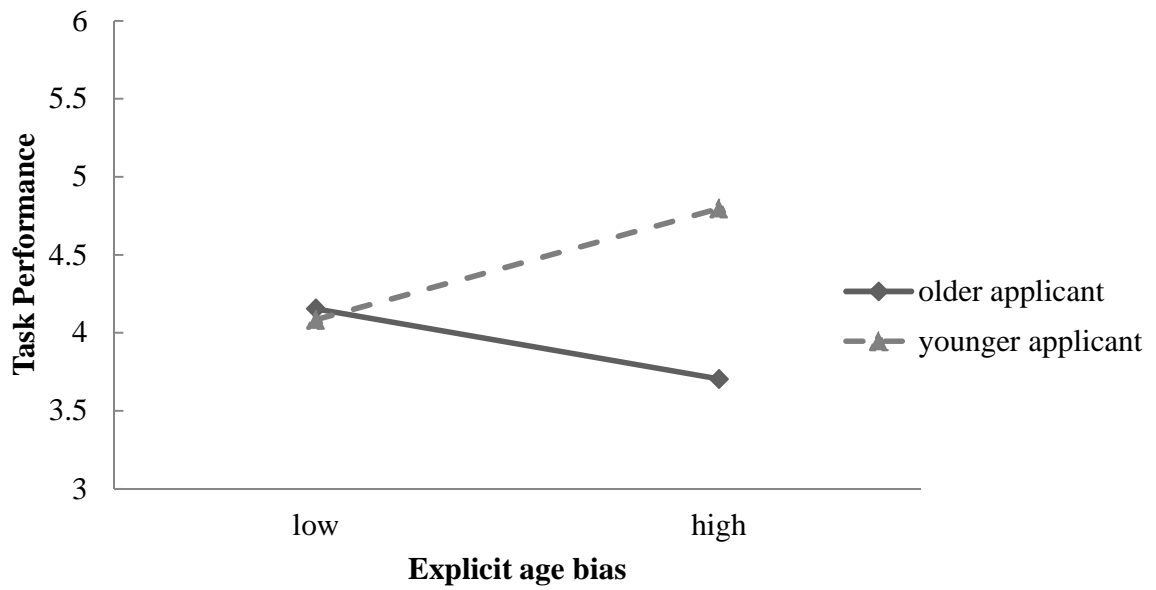


Figure 2. Interaction of applicants age and rater explicit age bias influencing ratings of applicants task performance.

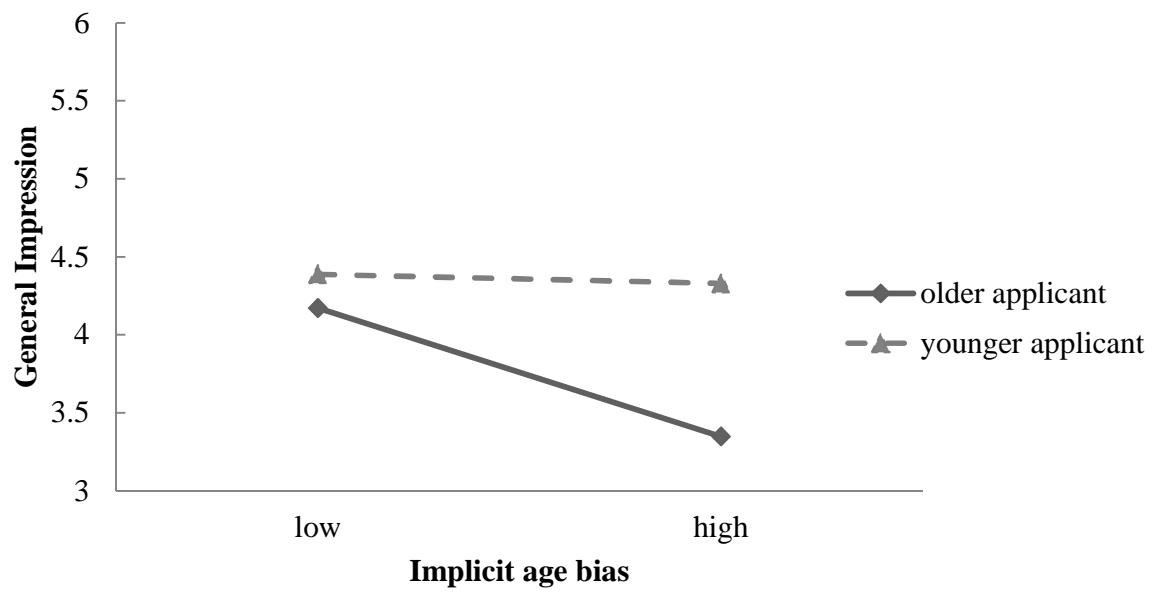


Figure 3. Interaction of applicants age and rater implicit age bias influencing ratings of applicants general impression.

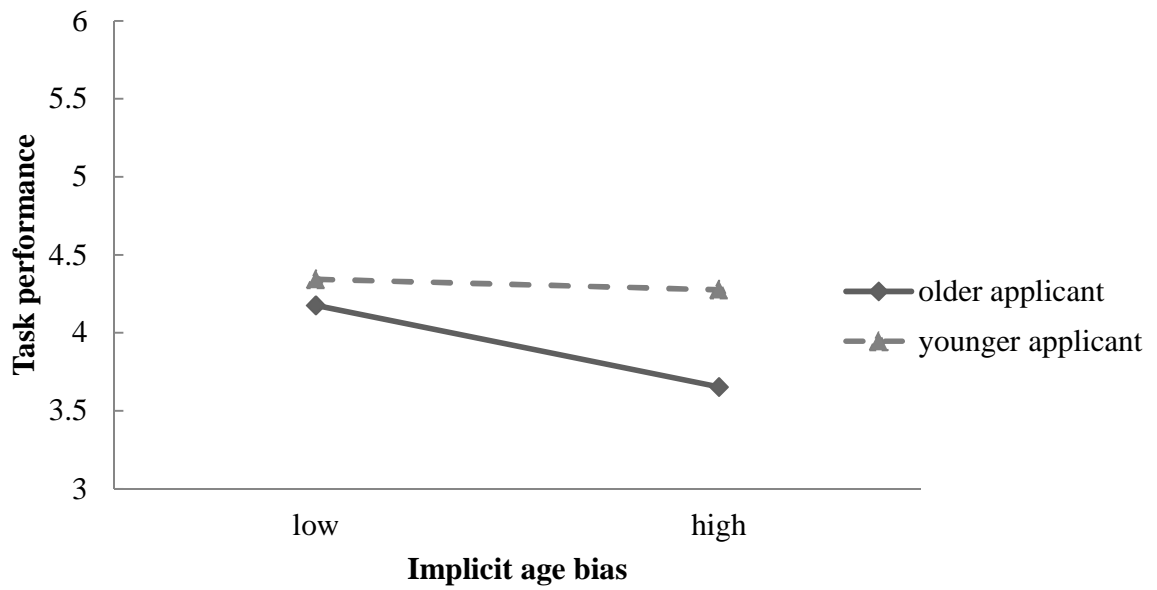


Figure 4. Interaction of applicants age and rater implicit age bias influencing ratings of applicants task performance.

Paper 2

Effects of rater conscientiousness on evaluations of task and contextual performance of older and younger coworkers

Abstract

Given age-based demographic changes at workplace, the possibility for age discrimination and stereotypes to affect performance evaluations is rising. Although careful evaluations could be expected from conscientious raters, little is known about whether they might show more or less bias towards certain age groups. Therefore, in two studies using time-lagged designs we investigated the effects of rater conscientiousness on the performance evaluations of younger and older “typical” worker (Study 1, $N = 149$, U.S. sample) and an actual coworker (Study 2, $N = 242$, Italian sample). In both studies, we found that raters who were more conscientious provided higher ratings for older workers than for younger workers on task performance and organizational citizenship behaviors. We discuss our results in terms of “similar to me” effects and implications for organizational practices.

Keywords: Conscientiousness, age bias, task performance, organizational citizenship behaviors

This manuscript has been submitted to *European Journal of Work and Organizational Psychology* as: Kmicinska, M., Zaniboni, S., Truxillo, Fraccaroli, F & D., Wang. *Effects of rater conscientiousness on evaluations of task and contextual performance of older and younger coworkers.*

The global workforce is becoming more diverse in terms of age (Bell, 2012), making age a more salient characteristic in organizational practices such as performance evaluations. It thus becomes important that raters avoid age bias, about both older workers (e.g., Bal, Reiss, Rudolph, & Baltes, 2011; Finkelstein & Farrell, 2007; Posthuma & Campion, 2009) and younger workers (e.g., Gibson, Zerbe, & Franken, 1993; North & Fiske, 2012). For example, previous research showed that raters expect older workers to have lower performance than younger workers (e.g., Gordon & Arvey, 2004; Hedge, Borman, & Lammlein, 2006). However, meta-analytic studies have generally found weak support for any actual relationship between age and task performance (Avolio, Waldman, & McDaniel, 1990; McEvoy & Cascio, 1989; Ng & Feldman, 2008; Waldman & Avolio, 1986). Instead, only a weak positive relationship has been found between age and contextual performance, such as organizational citizenship behaviors (Ng & Feldman, 2008).

Given the increase of age diversity in the workplace and the greater risk of age discrimination, it is important to examine factors that can contribute to bias in the appraisal of younger and older worker performance. It has been recognized in past research that there is systematic variance in performance evaluations that is associated with rater individual tendencies rather than ratee performance per se (Murphy & DeShon, 2000; Scullen, Mount & Goff, 2000). The relationship between rater personality and bias, such as leniency bias, has been investigated as an important factor in performance appraisals (Bernardin Cooke, & Villanova, 2000; Kane, Bernardin, Villanova, & Peyrefitte, 1995; Tziner, Murphy, & Cleveland, 2002; Yun, Donahue, Dudley, & McFarland, 2005). However, these studies have generally focused on ways in which rater personality affects performance appraisal in general rather than bias towards specific groups, such as older and younger workers. As suggested by implicit personality theory (e.g.,

Ashmore, 1981), people perceive a relationship among various individual-difference variables and categories (e.g., age and personality). Therefore, affiliation with different groups may additionally moderate the relation between rater personality and performance evaluations.

For example, people high on conscientiousness, who strive for excellence (Costa & McCrae, 1992), are generally expected to fulfill their performance rating responsibility with greater diligence (Tziner et al., 2005). In fact, conscientious raters appear to avoid the leniency bias (Bernardin et al., 2000) by providing less elevated and more accurate peer ratings in both conditions of high accountability (Roch, Ayman, Newhouse, & Harris, 2005; Tziner et al., 2002) and low accountability (Bernardin et al., 2009). These studies suggest that conscientious raters in general give more accurate ratings.

However, there is some evidence that conscientiousness does not always increase accuracy and that conscientious raters might, in specific cases, be prone to a similar-to-me effect (Byrne, 1971). For example, conscientious raters were found to give more favorable ratings to job applicants (Sears & Rowe, 2003) and to coworkers (Strauss et al., 2001) whom they perceived as more conscientious, thus similar to themselves. Furthermore, previous research showed that older workers are perceived to be more conscientious compared to their younger colleagues (Bertolino, Truxillo, & Fraccaroli, 2013; Truxillo, McCune, Bertolino, & Fraccaroli, 2012). Thus, ratees' age can be used as a cue suggesting rate conscientiousness. This is information which, as proposed by the Realistic Accuracy Model (RAM) of personality judgement (Funder, 1995), might be particularly relevant for conscientious raters. Therefore, to assume that older workers are more conscientious compared to younger workers may particularly affect the performance ratings of high conscientiousness raters, and these raters may perceive older workers as more similar to them. Consequently, we would expect that high-

conscientiousness raters will evaluate older workers more favorably than younger workers.

However, to our knowledge there is no current empirical contribution that examines the effect of rater conscientiousness on the performance evaluations of younger and older workers.

The current studies addressed this issue by investigating the effects of rater conscientiousness on the task and contextual performance evaluations of younger and older workers. This is an important issue, as research on the role of rater characteristics in evaluating workers in different age has focused mainly on ratee age and rater status (Finkelstein & Farrell, 2007). Further, this research has seldom taken into consideration both task and contextual performance (Bertolino et al., 2013; Truxillo, McCune, et al., 2012). In addition, more research regarding older and younger workers is needed, as age discrimination has been relatively less investigated than other forms of discrimination, such as sexism or racism (Nelson, 2005; North & Fiske, 2012). In particular, while only some subgroups suffer from gender or race discrimination, everybody is eventually at risk of age bias and age discrimination as they are aging (Manfredi & Vickers, 2009), either when they are old or when they are young. Using two samples, a U.S. sample of employed students and an Italian sample of working adults, we examined the effects of rater conscientiousness on performance evaluations of older and younger coworkers. In particular, we expected that conscientious raters would make more positive evaluations of older coworkers in terms of their task and contextual performance.

Task and Contextual Performance of Younger and Older Workers

Job performance can be conceptually divided into task and contextual performance (Borman & Motowidlo, 1993). Task or in-role performance is defined as “the effectiveness with which job incumbents perform activities that contribute to the organization’s technical core” (Borman & Motowidlo, 1997, p. 99). It involves behaviors that are directly related to performing

duties required by the job, that is, as defined in job descriptions (Williams & Anderson, 1991). In contrast, contextual performance is defined as individual behaviors that contribute to facilitation of the social and psychological context of the organization not directly related to the core task function (Borman & Motowidlo, 1997). Organizational citizenship behavior is one conceptualization of contextual performance (Podsakoff, MacKenzie, Paine, & Bachrach, 2000) and is defined as “individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and that in the aggregate promotes the effective functioning of the organization” (Organ, 1988, p. 4). It is often divided into organizational citizenship behavior supporting the organization (OCBO) and supporting individual coworkers (OCBI) (Williams & Anderson, 1991).

The results of research on actual and expected performance of older and younger workers are equivocal. Research has revealed that while stereotypes about older adults are complex and multidimensional, negative stereotypes prevail (Kite, Stockdale, Whitley, & Johnson, 2005). Also in the case of older workers, some negative beliefs prevail (e.g., Bal et al., 2011) contributing to negative expectations about them as employees (Posthuma & Campion, 2009). In a meta-analysis, Gordon and Arvey (2004) found that older workers are given especially lower ratings compared with younger ones on general evaluations and ratings of developmental potential. A recent literature review by Posthuma and Campion (2009) identified five major negative stereotypes about older workers as being poor performers, being more resistant to change, being less able to learn, having less time remaining with the organization, and being more costly than younger workers. Similarly, Ng and Feldman (2012) examined meta-analytically six common stereotypes about older workers found that only one stereotype – that older workers are less willing to participate in training and career development – was actually

true. On the other hand, meta-analytic studies have generally found weak support for the relationship between age and actual performance (Avolio, Waldman, & McDaniel, 1990; McEvoy & Cascio, 1989; Ng & Feldman, 2008; Waldman & Avolio, 1986). Moreover, Ng and Feldman (2008) in their meta-analysis examining the relationship between age and performance found that chronological age had a small positive relationship with some performance measures such as organizational citizenship behaviors (OCBs). Further, the recent suggests that younger workers can also be susceptible to some negative stereotypes (e.g., Bertolino et al., 2013).

To our knowledge only a few studies have explored both the task and contextual performance expected from older and younger worker (Bertolino et al., 2013; Truxillo, McCune, et al., 2012). Truxillo, McCune and colleagues (2012) found that older workers were perceived more positively in terms of OCBO than were younger workers. There were no differences in the perceived task performance and OCBI of older and younger workers. Similarly, Bertolino and colleagues (2013) found older workers to be perceived more positively in terms of OCBO and OCBI than younger workers, but not in terms of task performance. These findings confirm that performance dimensions should be examined separately in age-related studies of work stereotypes.

Forming Impressions about Coworkers' Conscientiousness Based on Their Age

Impressions of coworkers are a memory representation of what a person is like in general, including both traits and likeability (Srull & Wyer, 1989). Since these impressions serve for future interactions and judgments, we can expect that raters are motivated to pay attention to cues that will help them differentiate among ratees. In particular, age is an immediate, easily accessible and universal characteristic of others (Harrison & Klein, 2007), and as such it facilitates greatly group categorization. When meeting older or younger workers, the awareness

of age occurs automatically and serves to activate other information regarding characteristics of people of a certain age (e.g., Bal et al., 2011). For example, older adults were found to be seen as stable (e.g., Gibson et al., 1993; Rosen & Jerdee, 1976) and experienced (e.g., Scheibe, Kunzmann, & Baltes, 2009), while younger as energetic and able to learn quickly (e.g., Gibson et al., 1993). Therefore, we can expect that people will form impressions about the ratee partly based on their age, and that different age groups may be seen more positively in terms of certain dimensions. Specifically, according to implicit personality theory (Ashmore, 1981), people associate certain personality traits (e.g., conscientiousness) with membership in a particular group (e.g., older workers). For example, it has been repeatedly found that people hold different expectations for people in different life-stages in terms of personality traits (Bertolino et al., 2013; Truxillo, McCune, et al., 2012; Wood & Roberts, 2006) and that perceived age differences in personality can correspond to actual changes in personality that take place in adulthood (Roberts, Walton, & Viechtbauer, 2006; Soto & John, 2012; Soto, John, Gosling, & Potter, 2011). Accordingly, Wood and Roberts (2006) reported that people in general were perceived to increase in conscientiousness as they age. These perceptions were shared by both older and younger respondents. Furthermore, Truxillo, McCune, et al. (2012) and Bertolino et al. (2013) investigated perceptions about personality traits related to age in the workplace. In both studies it was found that older workers were perceived as higher in conscientiousness than younger colleagues. The expectation that people become more conscientious with their age might in turn contribute to formation of different impressions about older and younger workers. In particular, older workers can be perceived in general as more conscientiousness than younger ones. Therefore, we can expect that if a rater is looking for cues of conscientiousness of his/her coworker, s/he might use ratee's age to form impressions about ratee's conscientiousness level.

Conscientious Raters and Coworkers' Perceived Conscientiousness

Perceived level of conscientiousness for older and younger workers may have a different weight for different raters. Specifically, people pay more attention to characteristics of others that relate to their self-relevant information in mind (e.g., being conscientious) (Markus, Smith, & Moreland, 1985). The Realistic Accuracy Model (RAM) of personality judgement (Funder, 1995) argues that different people have different levels of sensitivity for different information. This means that raters differ in the preference or ability to perceive different kinds of information and in weighting this information. There is some evidence supporting these assumptions. For example, honest or intelligent people were found to be more attentive to information about the honesty or intelligence of others (Sedikides & Skowronski, 1993). Accordingly, we hypothesize that high-conscientiousness raters would be more likely than others to infer from age the conscientiousness of their coworkers.

Hypothesis 1: There will be an interaction between rater conscientiousness and ratee age in predicting ratee conscientiousness. Specifically, high-conscientiousness raters will evaluate the conscientiousness of older coworkers higher than that of younger coworkers, while low-conscientiousness raters will indicate no differences in ratings of older and younger coworkers.

Furthermore, this sensitivity to older workers' conscientiousness may result in perception of similarity between highly conscientious raters and older ratees. This similarity in conscientiousness might, in turn, lead to a 'similar-to-me' effect (Byrne, 1971), wherein conscientious raters give more positive ratings to older ratees.

Perceived Similarity and Conscientious Raters Evaluating Older Workers More Positively

Byrne's (1971) similarity–attraction hypothesis argues that perceiving others as similar to oneself (e.g., in terms of conscientiousness) is rewarding and might result in more favourable

evaluative responding (e.g. performance evaluation). According to the “similar-to-me” effect (Byrne, 1971), the more similar a ratee is to the rater or the more similar the rater believes ratee to be, the more positively the rater will evaluate the ratee. In workplace studies regarding age, the “similar-to-me” effect (Byrne, 1971) on performance evaluation has been examined in terms of demographic similarity (Bertolino, et al., 2013; Finkelstein, Burke, & Raju, 1995; Judge & Ferris, 1993). For example, Judge and Ferris (1993) found that supervisors’ reported more positive affect and performance evaluation when subordinates were similar to them in terms of age and job tenure. Furthermore, Finkelstein et al. (1995) found in their meta-analysis that younger raters evaluated younger workers more favorably than older workers in terms of the workers’ job qualification, potential for development, and suitability for a physically demanding jobs. There were no effects for older raters evaluating older workers. Finally, a more recent study by Bertolino and colleagues (2013) confirmed that while evaluating “typical” older and “typical” younger workers in terms of task and contextual performance, participants favored their own age group. These studies suggest positive effects of age similarity on evaluations, that is, raters tend to give better ratings to ratees who belong to the same age group as the rater him/herself.

In the present studies we were interested in examining whether other type of similarity (i.e., in terms of conscientiousness), which can be inferred from the ratees’ age, can affect the performance evaluations of older and younger workers. To our knowledge this is the first study concerned with this issue. Since personality similarity has been suggested to be an important characteristic in studying similarity effects (Bauer & Green, 1996; Landy & Farr, 1980), we focused on similarity in conscientiousness that, as previous studies have shown, can be inferred from ratees age (Bertolino et al., 2013; Truxillo, McCune, et al., 2012). In fact, there are personality similarity studies suggesting that conscientious raters might evaluate those whom

they perceive as conscientious more favorably (Sears & Rowe, 2003; Strauss et al., 2001). Strauss and colleagues (2001) found that perceived, not actual, conscientiousness similarity had positive effects on performance ratings of sales incumbents displayed by both peers and supervisors. These results suggest that people may to some extent evaluate others based on their impressions about them rather than the reality per se. Furthermore, Sears and Rowe (2003) in a laboratory study found that rater-ratee similarity in terms of conscientiousness significantly influenced applicants' interview evaluations. Specifically, high-conscientiousness raters evaluated higher competence and overall job suitability of applicants who they perceived as high-conscientiousness, compared with ratings given to applicants perceived as low-conscientiousness. No effect was found for low-conscientiousness raters. This result suggests that conscientious raters are more prone to a conscientiousness similarity effect than low-conscientiousness raters. Taken together, these two studies suggest that perceived conscientiousness similarity may result in positively biased performance evaluations among high-conscientiousness raters. Therefore, the current research aims to confirm these findings in field settings, with the consideration of ratees' age and in the context of a variety of job types.

In summary, there are studies suggesting that conscientious raters, even though generally more accurate, give higher ratings to those who they perceive as conscientious. Furthermore, there are studies suggesting that raters might perceive older coworkers as more conscientious than younger ones. Finally we could expect high-conscientiousness raters to be more sensitive to information about others' conscientiousness, making them particularly prone to "similar-to-me" effect based on conscientiousness similarity. Therefore, high-conscientiousness raters' evaluations of older coworkers might be positively biased.

Hypothesis 2: There will be an interaction between rater conscientiousness and ratee age in predicting performance evaluations of a coworker on a) task performance, b) OCBI, and c) OCBO. Specifically, high-conscientiousness raters will evaluate the task and contextual performance of older coworkers as higher than that of younger coworkers, while low-conscientiousness raters will indicate no differences in ratings of older and younger coworkers.

We examined our hypotheses across two studies. In Study 1 a sample of working students in the US were asked to evaluate a hypothetical “typical” older or younger worker. In Study 2 a sample of employed adults in Italy were asked to evaluate an “actual” older or younger coworker. Study 1 allowed us to test expectations about older and younger workers’ conscientiousness and performance in general among students with work experience. Study 2 allowed us to improve the ecological validity and confirm findings from Study 1 in an actual working situation, where additional information about the ratee was available, and among raters with longer working experience and age variety. Study 2 also allowed us to examine these issues in a different culture.

Study 1

Method

Participants

Participants were 149 students at a university in the Western US. The sample was 26.8% male ($n = 40$), and 73.2% were Caucasian ($n = 109$). The average age was 24.72 ($SD = 6.46$; range: 18-48 years). Nearly all students (96.64%; $n = 144$) had work experience with average experience of 7.96 years ($SD = 6.57$). In addition 4.7% ($n = 7$) of participants were laborers, 33.6% ($n = 50$) were service or sales workers (e.g., shop assistants, waiters, babysitters, and barmen), 10.7% ($n = 16$) were administration workers (office/clerical workers and managers),

8.7% ($n = 13$) were employed in variety of other jobs, and 42.3% ($n = 63$) were currently unemployed.

Procedure

Data were collected at two time points using a time-lagged design. At Time 1, participants completed a questionnaire about their own conscientiousness and provided demographic information. At Time 2 (2-3 weeks later), the participants were randomly assigned to one of two conditions, in which they rated either older or younger workers in terms of their conscientiousness, task performance, and contextual performance in terms of OCBI and OCBO. Specifically, 76 participants were in the “older worker” condition, and 73 in the “younger worker” condition. All participants responded to the same items, but the instructions differed based on the condition.

In the “younger worker” condition, participants were given the following instructions: “Here is a list of phrases used to describe people. Please indicate the extent to which you believe that each describes a typical worker who is 24 to 34 years old.” In the “older worker” condition second part of the instruction varied indicating age of a reference: “worker who is 55 to 65 years old.”¹

Moreover, participants were asked to fill out a measure of age bias towards the evaluated workers’ age group. That is, participants who were asked to evaluate the performance of older workers reported their general age bias towards older workers, and those who were asked to the evaluate performance of younger workers reported their general age bias towards younger workers.

An independent-samples t-test was conducted to compare the demographics of the participants in the “younger” and “older worker” conditions. No significant differences were found between the two conditions for gender, ethnicity, year of studies and job type.

As suggested by Podsakoff, MacKenzie, Lee and Podsakoff (2003) we used different procedural remedies to reduce common method variance. First, we created a temporal separation introducing a time lag between the measurement of conscientiousness of the rater and his/her perceptions of older and younger workers. Second, to reduce evaluation apprehension we protected respondents' anonymity (i.e., Time 1 and Time 2 surveys were matched via a code chosen by participants), and we assured them that there were no right or wrong answers, and that they were urged to answer questions as honestly as possible.

Measures

All measures if needed were translated into Italian using Brislin's (1970) classic back-translation approach and are available from the first author.

Rater and ratee conscientiousness. Conscientiousness of the rater and perception of the ratee's conscientiousness were assessed using 10 items, 5 positive and 5 negative, from the International Personality Item Pool (IPIP; Goldberg et al., 2006). The responses at Time 1 referred to themselves. A sample item is “I am always prepared.” (1 = *very inaccurate*; 5 = *very accurate*). ($\alpha = .82$). At Time 2 the target of evaluation was shifted from the self to the evaluated worker. A sample item was “(Younger/Older) worker is always prepared.” ($\alpha = .90$).

Ratee task performance. We used 6 items from Williams and Anderson (1991) to assess the perceived task performance of older and younger workers that is, individual in-role behaviors directly recognized by the formal reward system and that are part of the job description. A

sample item is “Younger (Older) workers meet formal performance requirements of the job.” (1 = *strongly disagree*; 7 = *strongly agree*). ($\alpha = .94$).

Ratee OCBI. We used 7 items from Williams and Anderson (1991) to assess the perceived organizational citizenship behaviors supporting individual coworkers (i.e., individual extra-role behaviours not directly recognized by formal rewards system that benefit specific individuals and indirectly contribute to the organization). A sample item is “Younger (Older) workers take a personal interest in other employees.” (1 = *strongly disagree*; 7 = *strongly agree*) ($\alpha = .91$).

Ratee OCBO. We used 4 items from Williams and Anderson (1991) to assess the perceived organizational citizenship behaviors supporting the organization (i.e., individual extra-role behaviours not directly recognized by formal rewards system that benefit the organization in general). A sample item is “Younger (Older) workers give advance notice when unable to come to work.” (1 = *strongly disagree*; 7 = *strongly agree*) ($\alpha = .83$).

Control variables. Many factors can intervene to affect bias towards older and younger workers (Posthuma & Campion, 2009). In particular, similarity in age between rater and ratee might result in the previously discussed “similar-to-me” effect. Among other characteristics that might be related to in-group/out group bias are gender (e.g., Celejewski & Dion, 1998) and familiarity with members of the potentially discriminated groups (Sherif, White, Hood, & Sherif, 1961). Moreover, raters’ job type can be related to more or less evaluation experience and job information availability (e.g., Singer & Sewell, 1989). Therefore age, gender, and job type of the rater and familiarity with workers in evaluated age group were used as control variables. Finally, since we are interested in investigating the interaction between a rater’s conscientiousness and the ratee’s age over the general age bias, we included a measure of age bias towards evaluated

age group. *Age bias* was measured with a scale by Cleveland, Festa, and Montgomery (1988). Participants, depending on the condition, were asked to describe younger or older workers on 9-point semantic differential scales. Items are: 1 = passive and 9 = active; 1 = unproductive and 9 = productive; 1 = old-fashioned and 9 = progressive ; 1 = cautious and 9 = bold; 1 = uncreative and 9 = creative; 1 = untrainable and 9 = trainable; 1 = unmotivated and 9 = motivated ($\alpha = .80$).

Results

Means, standard deviations and correlations for the variables in Study 1 are presented in Table 1. Regarding correlations among the primary study variables, we found that for the “younger worker” condition, rater conscientiousness was not correlated with any of the outcome variables. For the “older worker” condition, rater conscientiousness was correlated positively with ratings of ratee task performance ($r = .38, p < .01$), ratee OCBI ($r = .23, p < .05$), ratee OCBO ($r = .32, p < .01$) and ratee conscientiousness ($r = .35, p < .01$) providing initial support for Hypotheses 1 and 2.

We used moderated hierarchical regression to test our Hypotheses. To facilitate the interpretation of coefficients, we mean-centered independent variables. In the first step, the control variables (i.e., rater age, rater gender, rater job type, familiarity with rated age group, and age bias towards the age group rated) were entered². In the second step, the main effects for rater conscientiousness and ratee age were entered. In the third step, the interaction between rater conscientiousness and ratee age was entered. Table 2 shows the results of the regression analyses.

According to Hypothesis 1, ratee age would moderate the relationship between rater conscientiousness and perceptions of ratee conscientiousness. The interaction between ratee age and rater conscientiousness was not significant. Thus, Hypothesis 1 was not supported.

According to Hypothesis 2, ratee age would moderate the relationship between rater conscientiousness and perceptions of ratee task performance, as well as ratee organizational citizenship behavior towards individuals and towards the organization. Specifically, high-conscientiousness raters were expected to evaluate the task performance, OCBI, and OCBO of older workers as higher than that of younger workers, while low conscientiousness raters were expected to show no differences in ratings of older and younger workers.

In support of H2a, the interaction term between ratee age and rater conscientiousness on Step 3 was significantly related to the ratings of ratee task performance ($\beta = .31, p = .01$) accounting for additional variance ($\Delta R^2 = .04, \Delta F = 7.63, p = .01$). As shown in Figure 1, there was a positive relationship between rater conscientiousness and ratings of task performance of older workers but not of younger workers. Similarly, in support of H2c, the interaction between ratee age and rater conscientiousness was significantly related to the ratings of ratee OCBO ($\beta = .26, p = .02$) accounting for additional variance ($\Delta R^2 = .03, \Delta F = 5.71, p = .02$). As shown in Figure 2, there was a positive relationship between rater conscientiousness and rating OCBOs of older workers but not of younger workers. Finally, the interaction was not supported for OCBI (H2b). In summary, these results supported H2a and H2c, but not H1 or H2b.

Study 2

Study 1 showed that among working U.S. students, high-conscientiousness raters evaluated the older “typical” workers’ task performance and OCBO as higher than that of younger “typical” workers. Low-conscientiousness raters showed no differences in ratings of older and younger workers. However, one limitation of this study is that it asked participants about the performance of older and younger workers in general rather than the performance of an actual older or younger coworker with whom the rater was familiar. A second limitation is that it

was conducted with a relatively young sample (mean age of 25). And third, although most of the sample had some work experience, not all were currently working. We addressed these limitations in Study 2 where we replicated our findings using a sample of adults employed in Italy and with an older mean age of 37. Moreover, participants were asked to evaluate an actual older or younger coworker whom they had occasion to observe at work. This is important because it takes into account “individuating information” (information that allow the rater not only to rely on stereotypes) that the rater has about the actual coworker. The sample in Study 2 was also larger, providing greater statistical power. Finally, the design of Study 2 also permitted us to control for additional variables related to the ratee (ratee gender, ratee level, and whether the ratee was a past or present colleague).

Method

Participants

Four-hundred seven Italian workers from a number of different organizations located in north and northeast Italy were invited to participate in the study through a work agency. Of these, 242 completed the both questionnaires containing the variables of interest to this study (response rate 59.46%). The sample was 53.3% male ($n = 129$), and all of them were Caucasian. The average age was 37.50 ($SD = 11.11$; range: 18-66 years). The average working tenure was 16.06 years ($SD = 11.39$). In addition, 21.1% of the participants ($n = 51$) were laborers, 11.2% ($n = 27$) were service workers (e.g., shop assistants, waiters, and barmen), 58.7% ($n = 142$) were administrative workers (office/clerical workers), and 9.1% ($n = 22$) were managers.

Procedure

As in Study 1, data were collected at two time points using a time-lagged design. At Time 1, participants completed a questionnaire about their conscientiousness and provided

demographic information. At Time 2 (2-3 weeks later), the participants were randomly assigned to one of two conditions, in which they rated an actual older coworker or an actual younger coworker, in terms of conscientiousness, task performance, OCBI, and OCBO. Specifically, 128 participants completed the “older coworker” condition and 114 the “younger coworker” condition. All participants responded to the same items, but the instructions differed based on the condition. In the “younger coworker” condition, participants were given the following instructions: “Please think of a person that you are currently working with, or that you have worked in the past that is 24-34 years old. It is important that you choose a person whose work performance you were able to observe. It could be a peer, a subordinate, or a boss. It also does not matter whether or not you liked this person. The important thing is that you had the opportunity to observe his/her performance. Please evaluate the person using the words and phrases provided below. (Note: Please do not provide this person’s name.)” In the “older coworker” condition, participants were given the same instructions, but the indicated age of coworker of reference was “50-60 years old”. The age range used for “older coworker” for this Italian sample was slightly lower than in the US sample because of Italian retirement laws and norms at the time of this study¹.

Further, the participants were asked to provide information about the rated person such as gender, whether they were rating a peer, a supervisor, or a subordinate, and if the ratee was a past or a present colleague. Moreover, participants were asked to provide information about their general positive age bias towards the age group of the rated coworker (older or younger). An independent-samples t-test was conducted to compare the demographics of the participants in the “younger coworker” and “older coworker” conditions. No significant differences were found between the two conditions for gender, educational level, and job type, but differences were

found for age ($t(240) = 3.32, p = .00$), such that the age was slightly higher for participants in the older coworker condition (39.70) than for those in younger coworker condition (35.04).

However, we examined whether respondent age would moderate the effects of ratee age on performance outcomes, and we didn't find statistically significant interactions, that is, rater age did not moderate the effect of ratee age on performance outcomes. Moreover we included rater age as a control variable in our analysis.

Measures

Rater conscientiousness ($\alpha = .76$), ratee conscientiousness ($\alpha = .90$), ratee task performance ($\alpha = .93$), ratee OCBI ($\alpha = .93$), and ratee OCBO ($\alpha = .72$) were measured with the same scales as in Study 1.

Control variables. In addition to the previously considered variable of rater age, gender, and job type, we also included several characteristics of the ratee. Ratee gender can be related to appropriateness of some roles (e.g., Shore & Goldberg, 2005) and may affect evaluations due to the ingroup bias (e.g., Celejewski & Dion, 1998). Moreover, job role of ratee relative to the rater (subordinate, peer or superior), and if the ratee was a past or a present coworker might affect the information available to the rater. Raters who evaluated coworker at the same level as they were, compared with those who evaluated their superiors or subordinates, might have better knowledge about actual work, standards and restrictions of the performance within it and had more occasions to observe the rateses' behavior (Borman, White, & Dorsey, 1995). Moreover, raters who evaluate past coworker needed to rely on the information retrieved from long-term memory, which might be more influenced by the categorization processes than in the case of evaluation of a current coworker. Therefore, we used ratee gender, ratee level, and whether the ratee was a past or present colleague as control variables. Finally we included age bias towards the age group of

rated worker as a control variable. General positive age bias was measured with the same scale as in Study 1 ($\alpha = .89$).

Results

Means, standard deviations and correlations for the variables in Study 2 are presented in Table 3. Regarding correlations among the primary study variables, we found that for the “younger coworker” condition, rater conscientiousness was not correlated with any of the outcome variables. For the “older coworker” condition, rater conscientiousness was correlated positively with ratee task performance ($r = .28, p < .01$), ratee OCBI ($r = .26, p < .01$), ratee OCBO ($r = .21, p < .05$) and ratee conscientiousness ($r = .24, p < .01$) providing initial support for both Hypotheses 1 and 2.

We used moderated hierarchical regression to test our Hypotheses. To facilitate the interpretation of coefficients, we mean-centered independent variables. In the first step, the control variables (i.e., rater age, gender, job type, and age bias towards rated age group; ratee gender, rate level, and if the ratee was a past or present colleague) were entered². In the second step, the main effects for rater conscientiousness and ratee age were entered. In the third step, the interaction between rater conscientiousness and ratee age was entered. Table 4 shows the results of the regression analyses.

According to Hypothesis 1, ratee age would moderate the relationship between rater conscientiousness and perceptions of ratee conscientiousness. The interaction between ratee age and rater conscientiousness was significantly related to the ratings of ratee conscientiousness ($\beta = .22, p = .01$) accounting for additional variance ($\Delta R^2 = .02, \Delta F = 8.09, p = .01$). As shown in Figure 3, high-conscientiousness raters evaluated older workers more positively than younger workers in terms of conscientiousness. This result supports Hypothesis 1.

According to Hypothesis 2, ratee age would moderate the relationship between rater conscientiousness and perceptions of ratee task performance (H2a), ratee OCBI (H2b), and OCBO (H2c). Specifically, high conscientiousness raters were expected to evaluate the task performance, OCBI, and OCBO of older coworkers as higher than that of younger coworkers, while low conscientiousness raters were expected to show no differences in ratings of older and younger coworkers. The interaction between ratee age and rater conscientiousness was significantly related to the ratings of ratee task performance ($\beta = .17, p = .02$) accounting for additional variance ($\Delta R^2 = .01, \Delta F = 5.50, p = .02$). As shown in Figure 4, there was a positive relationship between rater conscientiousness and rating task performance of older workers but not younger workers. Thus, H2a was supported. The interaction between ratee age and rater conscientiousness was significantly related to the ratings of OCBI ($\beta = .16, p = .04$) accounting for additional variance ($\Delta R^2 = .01, \Delta F = 4.37, p = .04$). As shown in Figure 5, there was a positive relationship between rater conscientiousness and ratings of OCBI of older workers but not younger workers. Thus, H2b was supported. Similarly, the interaction term between ratee age and rater conscientiousness was significantly related to the ratings of OCBO ($\beta = .17, p = .03$) accounting for additional variance ($\Delta R^2 = .01, \Delta F = 4.73, p = .03$). As shown in Figure 6, there was a positive relationship between rater conscientiousness and ratings of OCBO of older workers but not younger workers. Thus, H2c was supported. Overall, these results fully support Hypothesis 2.

General Discussion

The present studies investigated whether rater-ratee personality similarity in term of conscientiousness, inferred from ratees' age, influences performance ratings. Although personality similarity has been indicated as an area promising for performance rating research

(Bauer & Green, 1996; Landy & Farr, 1980), it is still understudied. In two separate studies we found that when the rater was high in conscientiousness, higher evaluations were given to older than to younger workers. Moreover, this was found for both hypothetical “typical” workers and “actual” coworkers. Specifically high-conscientiousness raters evaluated older workers higher than younger coworkers in terms of a) task performance (Study 1 and Study 2), b) OCBI (Study 2), and c) OCBO (Study 1 and Study 2). Furthermore in Study 2 we found a significant effect for rater conscientiousness on ratings of older coworkers’ conscientiousness compared with younger coworkers. Taken together across both studies, our findings suggest that age of the ratee moderates the performance evaluations made by high-conscientiousness raters, even when effects of raters’ age and general positive age bias have been included as control variables. This was found in two different samples from two countries. Therefore, despite of the existing body of research confirming a bias against older workers (e.g., Finkelstein & Farrell, 2007), results of the present studies show that high-conscientiousness raters might evaluate older workers more favorably than they rate younger coworkers. These results suggest on the one hand that high-conscientiousness raters might be less prone to negative bias resulting from old age stereotypes, but may engage in bias against younger workers. This suggests that evaluations made by high-conscientiousness raters might be affected by positive bias resulting from “similar-to-me” effect.

These two studies contribute to the literature on performance appraisal and age bias in the workplace in several ways. First, we have examined whether conscientious raters might display a bias towards certain age groups. As the age diversity of the workforce increases, accuracy in evaluations of the youngest and the oldest members of the organization becomes more important. Moreover since in the modern performance appraisal systems not only evaluations from supervisors but also those from coworkers can influence organizational decisions (Hedge,

Borman & Birkeland, 2001), in Study 2 we included evaluations from raters who were at different organizational levels (subordinates, peers, superiors). In particular, the improved sample characteristics and design in Study 2 (wider age range, longer and more stable working experience) permitted us to confirm results found in Study 1.

Further, we examined the effects of rater conscientiousness within the context of perceived personality similarity. While the majority of the studies focused on demographic similarity effects (e.g., Judge & Ferris, 1993), we investigated the understudied personality similarity effects (e.g., Bauer & Green, 1996), and investigated it with attention to the personality dimension that can be inferred from an universal characteristic of a ratee, his/her age. Finally, the design of this research permitted us to examine and compare the results of our hypothesis between situations in which a hypothetical worker is evaluated (Study 1) and when an actual coworker is evaluated (Study 2).

We found that high-conscientiousness raters evaluated the task and contextual performance of older coworkers higher than that of younger coworkers. Low conscientiousness raters showed no differences in ratings of older and younger coworkers. In previous research OCBs have actually been found to increase with age (Ng & Feldman, 2008). Therefore higher evaluations of older ratees' OCBI and OCBO might to some degree reflect real differences between workers in different age. Differences in the effects between studies (i.e., Study 1 only OCBO is significant and Study 2 both OCBO and OCBI are significant) may reside in the larger sample in Study 2 (242 vs.149), improving the statistical power of the study. On the other hand, task performance has been repeatedly found to have minimal or no relationship with age (e.g., Ng & Feldman, 2008). Therefore, positive evaluations of older workers in terms of task performance – found in both of these studies – might not reflect real differences between

younger and older workers, but a positive bias towards older coworkers displayed by the high-conscientiousness raters.

One possible explanation of these findings is the “similar-to-me” effect (Byrne, 1971) due to perceived personality similarity. In fact, high-conscientiousness raters have been found to evaluate those whom they perceived as conscientious more favorably in situations of selection where raters had limited information about the candidates (Sears & Rowe, 2003), and also in situations where actual coworkers were evaluated (Strauss, Barrick, & Connerley, 2001). Moreover older workers were found to be seen as more conscientious (Bertolino et al., 2013; Truxillo, McCune, et al., 2012), and in Study 2 we found that high-conscientiousness raters evaluated older coworkers as more conscientious than younger coworkers. Furthermore, we also found in Study 1 a significant positive correlation between rater conscientiousness and perception of ratee conscientiousness when older worker was evaluated, but not younger worker. The insignificant regression result might be partly due to the small sample size. Nevertheless, joint findings suggest that, in the case of high-conscientiousness raters, information about ratee age might influence positively evaluations of the ratees. In particular, ratee age might influence impression formation in terms of ratees’ conscientiousness among high-conscientiousness raters. Subsequently when high-conscientiousness raters perceive older coworkers as more similar to them than younger coworkers, they might evaluate them higher on all performance dimensions.

Finally, for the research on age bias, an interesting observation arises when comparing findings from Study 1 and Study 2. Findings revealed stronger effect sizes in Study 1 than in Study 2 (from .04 and .03 in Study 1 to .01 in Study 2). This confirms a previous conclusion from a meta-analysis by Gordon and Arvey (2004), that weaker age effects are found in field studies compared with laboratory studies. However, it also suggests that when individuating

information is provided, the likelihood of bias decreases (Fiske & Neuberg, 1990; Finkelstein et al., 1995). Smaller effects in Study 2 could indicate that category-based and stereotype-based information influenced evaluations less, when participants actually knew the person and had occasion to observe this person at work. In the other words, in order to accomplish the evaluation task, participants in Study 2, compared with those in Study 1, might have relied less on information associated with the category of older or younger worker. However, the effect of ratees' age was significant both in Study 1 and in Study 2 suggesting that age bias might occur even in situations where additional, contextual information are available. Therefore, the current set of studies suggests that age bias might affect decisions not only in laboratory, but also in real-life working settings. We could expect that decisions not only about unknown applicants during the selection process, but also decisions about employees' who are already employed might be affected by age bias.

Limitations and Future Research

Although this research puts additional light on the role which ratee age and rater personality might play in the performance evaluations, there are several points that could be improved and examined in future research. First, we did not include a measure of affect, which is sometimes indicated as the variable mediating the "similar-to-me effect" (e.g., Strauss et al., 2001). The primary aim of this research was to examine whether the salience of age may affect performance evaluations among conscientious raters. Future research could investigate the underlying mechanism of our findings in greater detail. Moreover, it would be useful to have the possibility to compare the subjective ratings with the objective data on performance, in order to examine whether higher evaluations were due to the positive bias, or were reflecting real differences captured by more diligent high-conscientiousness raters. Finally, our research

focused on performance evaluations, because these evaluations are the basis for organizational decisions (Heidemeier & Moser, 2009). However, it would be important to examine how systematic differences in perceiving older and younger workers influence also other, more subtle decisions about them, such as daily interactions at work, team-assignment or knowledge-sharing.

Practical Implications

Our findings suggest the need for raising awareness among raters of the spontaneous attribution of certain characteristics to coworkers in different age groups might result in biased evaluations about them. Moreover, managers might incorrectly distribute tasks, goals, or resources among coworkers, based on their own biased evaluations. Training activities focused on reducing age bias could be important in organizations (e.g., Brewer & Miller, 1984).

Conclusion

In conclusion, this research provides a beginning for further investigations of the effects of the rater personality on performance evaluations of older and younger workers. Whether due to real differences in performance or “similar-to-me” effect, it seems that high-conscientiousness workers compared with other raters give more positive performance evaluations to both hypothetical “typical” and “actual” older workers than to younger coworkers. This was found across two samples from different countries. Further research is needed to examine how best to implement these findings within organizations to improve the quality of the appraisal systems and to assure the full utilization of experience and competencies of both older and younger workers.

Footnotes

¹ We are aware that there is no clear consensus among researchers regarding what is meant by an “older worker” or “younger worker” (Finkelstein & Farrell, 2007). Therefore, as suggested in the previous work of Bertolino et al. (2013) and Truxillo, McCune, et al. (2012), we chose to operationalize the older worker and younger worker concepts in the way that “younger worker” age range would represent a person who is at the beginning of his or her career, while the “older worker” age range would represent a person who is approaching the retirement age in American and Italian context. Especially older age group was based on average effective age of retirement, which in the last ten years (2002-2012) was 60.6 in Italy and 64.5 in United States (OECD, 2012).

² To re-test the statistically significant effects of the interactions term, the analyses were also performed with no control variables, and the interaction remained significant.

Table 1.

Means, standard deviations and intercorrelations for all variables in Study 1, US Sample (values for the younger worker condition are below the diagonal and for the older worker above the diagonal)

	<i>M/SD</i> <i>younger condition</i>		<i>M/SD</i> <i>older condition</i>		1	2	3	4	5	6
1. Rater age	24.64 /	6.34	24.79 /	6.61	—	.09	.04	-.11	-.08	.02
2. Rater female	4.10 /	.95	3.05 /	1.15	.03	—	.34 **	-.20	.00	.21
3. Rater laborer	.03 /	.16	.07 /	.25	-.06	.26 *	—	-.18	-.11	-.07
4. Rater service worker	.36 /	.48	.32 /	.47	.02	.03	-.12	—	-.29 **	-.18
5. Rater administration worker	.05 /	.23	.16 /	.37	.00	-.15	-.04	-.18	—	-.11
6. Rater other job type	.11 /	.31	.07 /	.25	.03	-.03	-.06	-.26 *	-.08	—
7. Rater currently unemployed	.45 /	.50	.39 /	.49	-.02	-.03	-.15	-.68 ***	-.22	-.32 **
8. Rater familiarity with younger (older) workers	4.10 /	.95	3.05 /	1.15	.01	.13	.07	.14	-.09	.24 *
9. Rater positive age bias	.03 /	.16	.07 /	.25	-.10	-.14	.05	.03	.15	.06
10. Rater conscientiousness	3.76 /	.58	3.77 /	.62	.28 *	-.22	-.14	.07	.16	.13
11. Ratee task performance	5.38 /	.77	5.41 /	.98	-.21 *	-.04	.08	-.02	.12	.02
12. Ratee OCBI	4.62 /	.84	4.63 /	1.14	-.15	-.01	.00	-.07	.05	.08
13. Ratee OCBo	4.16 /	.84	5.09 /	1.01	-.10	-.01	-.03	.01	-.01	-.03
14. Ratee conscientiousness	3.16 /	.60	3.75 /	.60	-.20	.19	-.10	-.01	.20	-.25 *

*Note: n = 73 (pairwise) for younger worker condition and n = 76 (pairwise) for older worker condition. Rater female = 1 and male = 0. Rater laborer = 1 and not laborer = 0, Rater service worker = 1 and not service worker = 0, Rater administration worker = 1 and not administration worker = 0, Rater other job type = 1 and not other job = 0, Rater unemployed = 1 and not unemployed = 0. * $p < .05$; ** $p < .01$; *** $p < .001$.*

	7	8	9	10	11	12	13	14
1. Rater age	.13	.09	.04	-.00	.08	.18	.13	-.09
2. Rater female	-.09	.16	-.05	.02	-.01	-.15	-.03	-.03
3. Rater laborer	-.21	.13	-.23 *	.05	-.27 *	-.14	-.12	-.15
4. Rater service worker	-.55 ***	-.11	.07	.04	.06	.05	.07	.18
5. Rater administration worker	-.35 **	.01	.05	-.15	-.01	-.05	-.05	-.03
6. Rater other job type	-.21	.22	.02	.08	.18	.15	.04	.03
7. Rater currently unemployed	—	-.08	.00	.01	-.01	-.01	.00	-.09
8. Rater familiarity with younger (older) workers	-.27 *	—	-.02	.20	.02	.10	.16	.16
9. Rater positive age bias	-.16	.18	—	.21	.43 ***	.48 ***	.38 **	.42 ***
10. Rater conscientiousness	-.18	.18	.07	—	.38 **	.23 *	.32 **	.35 **
11. Ratee task performance	-.08	.16	.52 ***	-.05	—	.58 ***	.61 ***	.56 ***
12. Ratee OCBI	-.01	.16	.33 **	-.02	.59 ***	—	.51 ***	.37 **
13. Ratee OCBo	.02	-.08	.11	-.09	.49 ***	.43 ***	—	.49 ***
14. Ratee conscientiousness	.10	-.12	.27 *	.13	.33 **	.39 **	.34 **	—

Note: $n = 73$ (*pairwise*) for younger worker condition and $n = 76$ (*pairwise*) for older worker condition. Rater female = 1 and male = 0, Rater laborer = 1 and not laborer = 0, Rater service worker = 1 and not service worker = 0, Rater administration worker = 1 and not administration worker = 0, Rater other job type = 1 and not other job = 0, Rater unemployed = 1 and not unemployed = 0. * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 2.

Regression analyses for Ratee Conscientiousness, Task performance, OCBI and OCBO in Study 1, US Sample

Step/variable	Ratee Conscientiousness/Task performance/OCBI/OCBO																		
	B				SE				β										
Step 1																			
Rater age	-.01	/	-.00	/	.01	/	.01	.01	/	.01	/	.01	-.14 *	/	-.03	/	.07	/	.05
Rater female	-.02	/	-.07	/	.19	/	-.00	.11	/	.15	/	.18	-.01	/	-.03	/	.08	/	-.00
Rater laborer	-.29	/	-.48	/	-.20	/	-.35	.23	/	.32	/	.39	-.09	/	-.12	/	-.04	/	-.07
Rater service worker	.01	/	.02	/	-.05	/	.02	.10	/	.15	/	.18	.01	/	.01	/	-.02	/	.01
Rater administration worker	.04	/	.10	/	-.12	/	-.07	.16	/	.22	/	.27	.02	/	.03	/	-.04	/	-.02
Rater other job type	-.33	/	.21	/	.25	/	-.06	.17	/	.24	/	.29	-.14	/	.07	/	.07	/	-.02
Rater familiarity with younger (older) workers	.01	/	.01	/	.08	/	.03	.05	/	.06	/	.08	.02	/	.01	/	.10	/	.04
Rater positive age bias	.17	/	.34	/	.37	/	.19	.04	/	.06	/	.07	.30 ***	/	.47 ***	/	.45	/	.23 **
Step 2																			
Rater conscientiousness	.17	/	-.13	/	-.18	/	-.19	.12	/	.17	/	.20	.15	/	-.09	/	-.11	/	-.11
Ratee age	.78	/	.45	/	.54	/	1.20	.11	/	.16	/	.19	.59 ***	/	.26 **	/	.27	/	.58 ***
Step 3																			
Rater conscientiousness x Ratee Age	.13	/	.61	/	.42	/	.62	.16	/	.22	/	.27	.08	/	.31 **	/	.19	/	.26 *
F					2.23 *** / 5.17 *** / 3.51 *** / 5.35 ***														
R2					.38 / .29 ** / .22 / .30 *														
Change in R2					.00 / .04 ** / .01 / .03 *														

*Note: N = 149(pairwise). Results are given from the final regression model with all variables included. Rater female = 1 and male = 0. Rater laborer = 1 and not laborer = 0, Rater service worker = 1 and not service worker = 0, Rater administration worker = 1 and not administration worker = 0, Rater other job type = 1 and not other job = 0. Ratee age for younger worker =0 and older worker =1. Rater unemployed variable was not entered in the regression (categorical variable with k levels was transformed into k-1 variables each with two levels). *p ≤ .05; **p < .01; ***p < .001*

Table 3.

Means, standard deviations and intercorrelations for all variables in Study 2, Italian Sample (values for the younger worker condition are below the diagonal and for the older worker above the diagonal)

	<i>M/SD</i> <i>younger condition</i>		<i>M/SD</i> <i>older condition</i>		1	2	3	4	5	6	7
1. Rater age	35.04 / 9.40		39.70 / 12.06		—	-.14	.06	-.19 *	-.08	.22 *	.10
2. Rater female	.48 / .50		.45 / .50		.17	—	-.05	.23 **	.04	-.22 *	.07
3. Rater laborer	.23 / .42		.20 / .40		.07	-.11	—	-.17	-.56 **	-.19 *	-.12
4. Rater service worker	.11 / .32		.11 / .31		-.21 *	.15	-.20 *	—	-.40 ***	-.14	-.06
5. Rater administration worker	.61 / .49		.56 / .50		-.00	.04	-.69 **	-.45 **	—	-.44 ***	.08
6. Rater manager	.04 / .21		.13 / .34		.18	-.12	-.12	-.08	-.27 **	—	.07
7. Rater positive age bias towards older (younger) workers	6.41 / 1.64		6.30 / 1.67		.03	-.09	-.16	-.04	.11	.12	—
8. Ratee female	.45 / .50		.34 / .47		-.21 *	.47 **	.02	.12	-.05	-.11	.14
9. Ratee subordinate	.11 / .31		.08 / .27		.09	-.05	-.12	-.12	.04	.35 **	-.02
10. Ratee peer	.74 / .44		.50 / .50		-.12	.02	-.01	-.10	.18	-.26 **	-.06
11. Ratee superior	.16 / .37		.42 / .50		.07	.02	.11	.22 *	-.25 **	.02	.08
12. Ratee present colleague	.69 / .46		.53 / .50		-.02	.07	.04	.06	-.06	-.04	.11
13. Rater conscientiousness	3.88 / .52		3.95 / .52		.07	.01	-.13	.00	.09	.06	.09
14. Ratee task performance	5.09 / 1.09		5.16 / 1.25		-.10	.02	.15	.01	-.14	.01	.60 ***
15. Ratee OCBI	4.50 / 1.33		4.86 / 1.37		-.09	-.03	.04	.03	-.09	.09	.44 ***
16. Ratee OCBO	4.96 / 1.15		5.35 / 1.20		-.09	.07	-.01	.10	-.03	-.07	.49 ***
17. Ratee conscientiousness	3.56 / .77		3.76 / .83		-.07	.05	-.04	-.01	.00	.09	.43 ***

Note: n = 114 (*pairwise*) younger worker condition and n = 128 (*pairwise*) for older worker condition. Rater female = 1 and male = 0. Rater laborer = 1 and not laborer = 0, Rater service worker = 1 and not service worker = 0, Rater administration worker = 1 and not administration worker = 0, Rater manager = 1 and not manager = 0. Ratee female = 1 and male = 0. Ratee subordinate = 1 and not subordinate = 0, Ratee peer = and not peer = 0, Ratee superior = 1 and not superior = 0. Ratee present colleague = 1 and past colleague = 0. **p* < .05; ***p* < .01; ****p* < .001.

	8	9	10	11	12	13	14	15	16	17
1. Rater age	-.07	.19 *	.10	-.20 *	-.12	-.05	.04	.11	.10	-.07
2. Rater female	.52 ***	-.21 *	.22 *	-.11	-.06	-.02	.03	.02	-.01	.14
3. Rater laborer	-.02	-.14	.30 **	-.22 *	.15	-.08	-.17	.01	.01	-.16
4. Rater service worker	.28 **	-.10	.15	-.10	-.12	-.08	-.09	-.05	-.07	.01
5. Rater administration worker	-.04	-.10	-.19 *	.24 **	-.04	.12	.11	-.16	-.12	.08
6. Rater manager	-.18 *	.40 ***	-.21 *	-.01	-.00	.00	.13	.27 **	.24 **	.06
7. Rater positive age bias towards older (younger) workers	.01	-.02	-.11	.12	-.04	.13	.66 ***	.58 ***	.53 ***	.69 ***
8. Ratee female	—	-.08	.28 **	-.24 **	.10	.04	.11	.13	.05	.16
9. Ratee subordinate	-.02	—	-.29 **	-.25 **	.10	.11	.02	.06	.08	-.01
10. Ratee peer	-.06	-.57 **	—	-.85 **	.03	-.12	-.01	.05	.02	-.05
11. Ratee superior	.09	-.15	-.73 **	—	-.09	.06	-.00	-.08	-.07	.06
12. Ratee present colleague	-.01	-.14	.25 **	-.18	—	.01	.15	.11	.08	.02
13. Rater conscientiousness	.00	-.03	.02	.00	-.01	—	.28 **	.26 **	.21 *	.24 **
14. Ratee task performance	.21 *	-.02	-.07	.11	.06	.03	—	.72 ***	.61 ***	.78 ***
15. Ratee OCBI	.23 *	.03	-.12	.11	.02	.02	.69 ***	—	.61 ***	.59 ***
16. Ratee OCBO	.20 *	-.04	-.02	.06	.17	-.05	.74 ***	.53 ***	—	.55 **
17. Ratee conscientiousness	.19 *	-.03	-.07	.11	.23*	-.08	.57 ***	.40 ***	.62 ***	—

Note: n = 114 (pairwise) younger worker condition and n = 128 (pairwise) for older worker condition. Rater female = 1 and male = 0. Rater laborer = 1 and not laborer = 0, Rater service worker = 1 and not service worker = 0, Rater administration worker = 1 and not administration worker = 0, Rater manager = 1 and not manager = 0. Ratee female = 1 and male = 0. Ratee subordinate = 1 and not subordinate = 0, Ratee peer = and not peer = 0, Ratee superior = 1 and not superior = 0. Ratee present colleague = 1 and past colleague = 0. * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 4.

Regression analyses for Ratee Conscientiousness, Task performance, OCBI and OCBO in Study 2, Italian Sample

Step/variable	Ratee Conscientiousness/Task performance/OCBI/OCBO																				
	B				SE				β												
Step1																					
Rater age	-.01	/	-.01	/	-.00	/	-.00	.00	/	.01	/	.01	/	.01	-.08	/	-.06	/	-.03	/	-.01
Rater female	.08	/	-.03	/	-.15	/	.01	.10	/	.14	/	.17	/	.15	.05	/	-.01	/	-.05	/	.00
Rater service worker	.03	/	-.24	/	-.25	/	-.04	.16	/	.22	/	.28	/	.25	.01	/	-.07	/	-.06	/	-.01
Rater administration worker	.04	/	-.20	/	-.42	/	-.25	.11	/	.15	/	.19	/	.17	.02	/	-.09	/	-.15 *	/	-.10
Rater manager	.23	/	.12	/	.57	/	.27	.18	/	.25	/	.32	/	.28	.08	/	.03	/	.12	/	.06
Rater positive age bias	.27	/	.44	/	.40	/	.36	.03	/	.04	/	.04	/	.04	.55 ***	/	.62 ***	/	.49 ***	/	.50 ***
Ratee female	.17	/	.28	/	.48	/	.17	.10	/	.14	/	.17	/	.16	.10	/	.11 *	/	.17 **	/	.07
Ratee subordinate	-.04	/	-.04	/	-.06	/	-.03	.16	/	.22	/	.28	/	.25	-.02	/	-.01	/	-.01	/	-.01
Ratee superior	.04	/	-.05	/	-.14	/	-.16	.10	/	.14	/	.17	/	.16	.03	/	-.02	/	-.05	/	-.06
Ratee present colleague	.14	/	.17	/	.07	/	.21	.09	/	.12	/	.15	/	.14	.09	/	.07	/	.03	/	.09
Step 2																					
Rater conscientiousness	.27	/	.19	/	.43	/	.49	.09	/	.13	/	.16	/	.14	.17	/	.08	/	.16 **	/	.21 **
Ratee age	-.20	/	-.04	/	-.04	/	-.19	.12	/	.16	/	.20	/	.18	-.13 *	/	-.02	/	-.01	/	-.08
Step 3																					
Rater conscientiousness x Ratee Age	.46	/	.52	/	.58	/	.54	.16	/	.22	/	.28	/	.25	.22 *	/	.17 *	/	.16 *	/	.17 *
F					11.74 *** / 11.80 *** / 10.31 *** / 8.79 ***																
R2					.40 ** / .46 * / .37 * / .33 *																
Change in R2					.02 ** / .01 * / .01 * / .01 *																

Note. N = 242 (pairwise). Results are given from the final regression model with all variables included. Rater female = 1 and male = 0. Rater laborer = 1 and not laborer = 0, Rater service worker = 1 and not service worker = 0, Rater administration worker = 1 and not administration worker = 0, Rater manager = 1 and not manager = 0. Ratee female = 1 and male = 0. Ratee subordinate = 1 and not subordinate = 0, Ratee superior = 1 and not superior = 0. Ratee present colleague = 1 and past colleague = 0. Ratee age for younger coworker = 0 and older coworker = 1. Rater laborer and Ratee peer variables were not entered in the regression (categorical variable with k levels was transformed into k-1 variables each with two levels). *p < .05; **p < .01; ***p < .001.

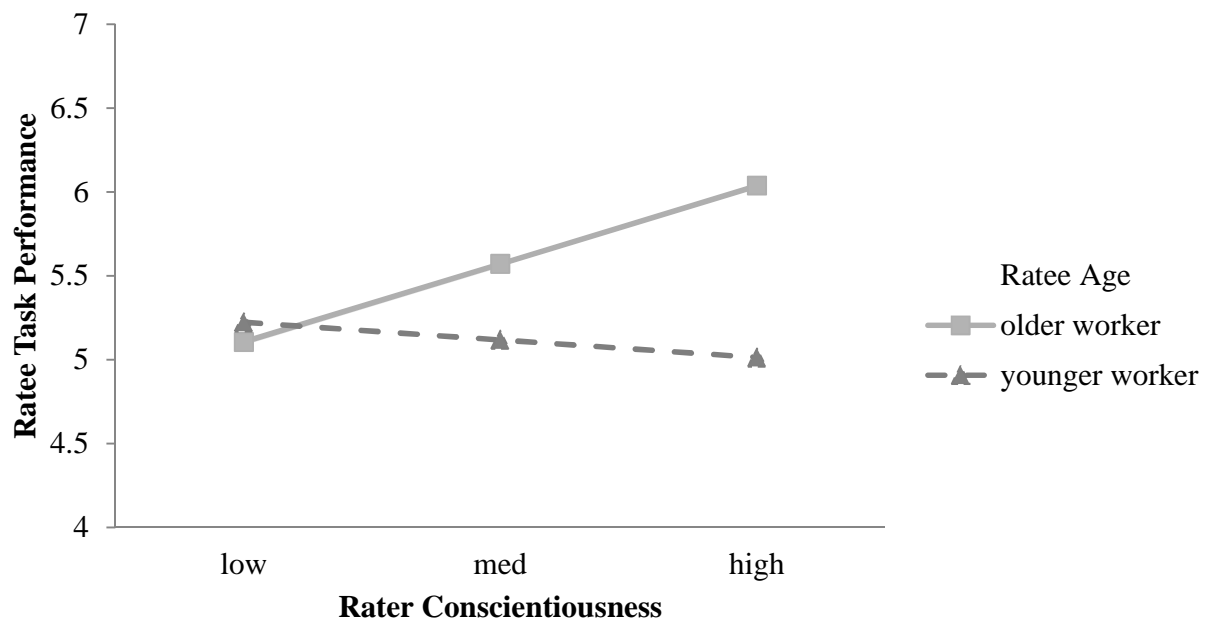


Figure 1. Interaction of rater conscientiousness and ratee age influencing evaluation of ratee task performance, Study 1, US Sample.

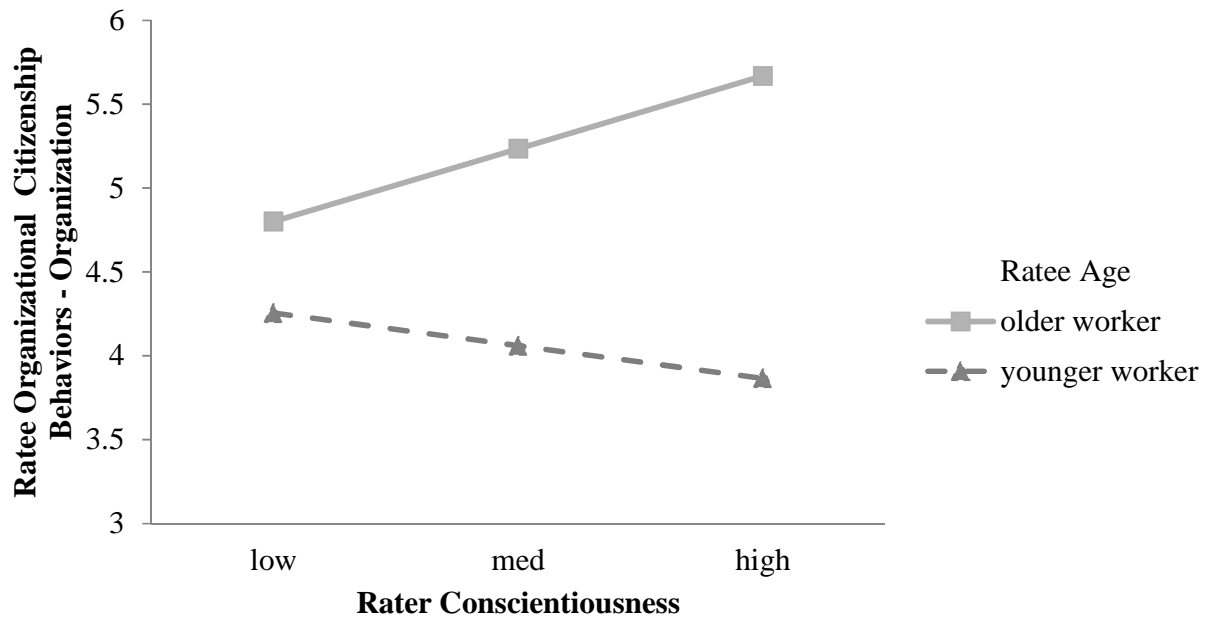


Figure 2. Interaction of rater conscientiousness and ratee age influencing evaluation of ratee organizational citizenship behaviors supporting the organization, Study 1, US Sample.

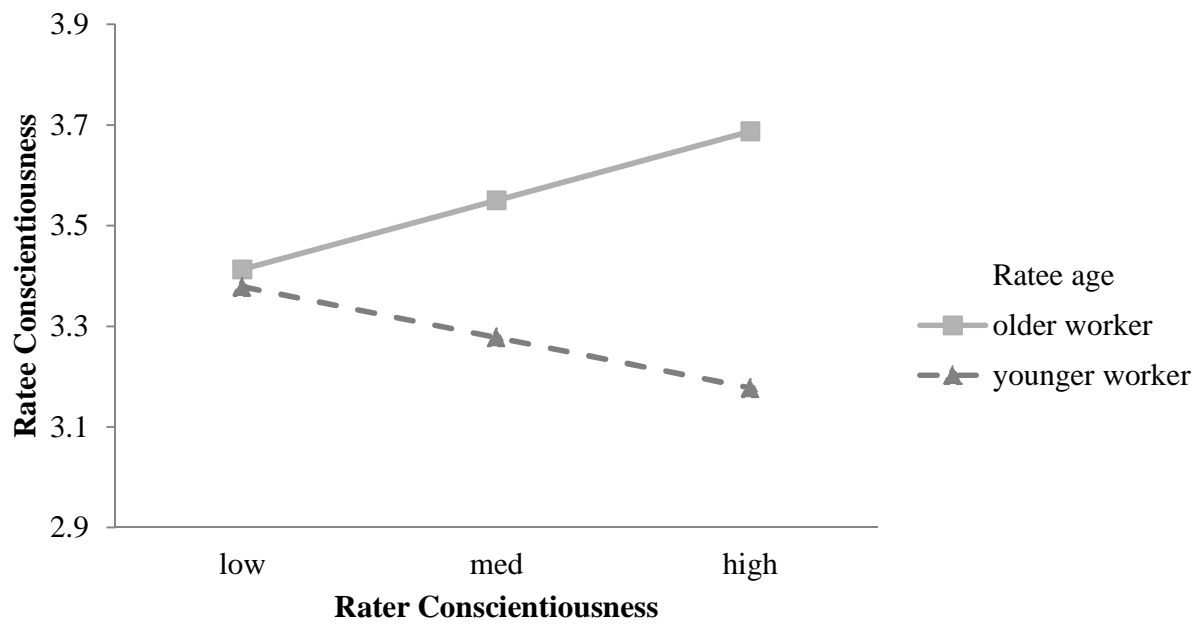


Figure 3. Interaction of rater conscientiousness and ratee age influencing evaluation of ratee conscientiousness, Study 2, Italian Sample.

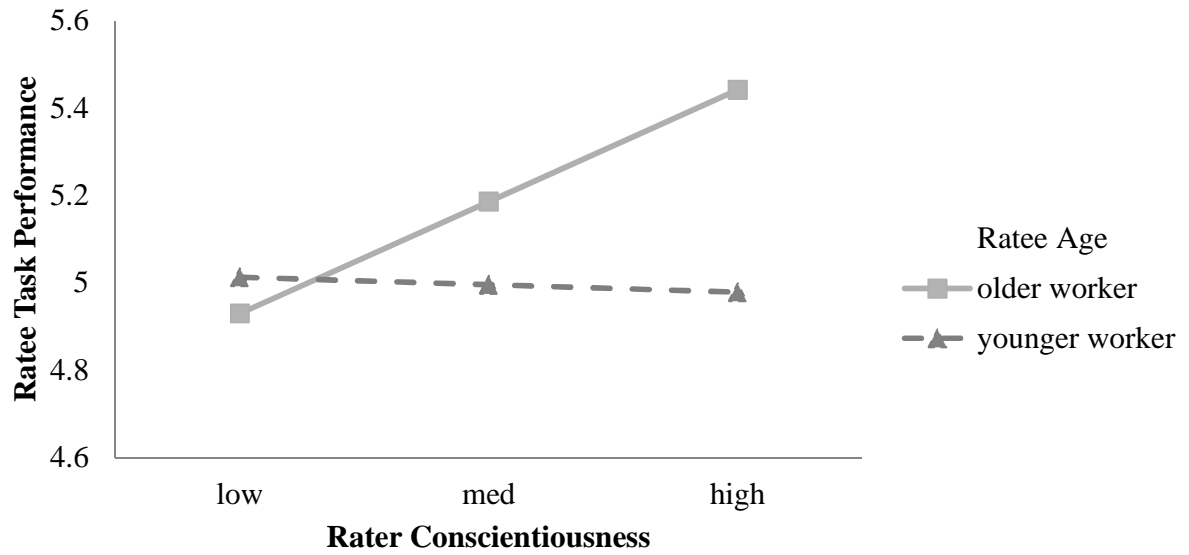


Figure 4. Interaction of rater conscientiousness and ratee age influencing evaluation of ratee task performance, Study 2, Italian Sample.

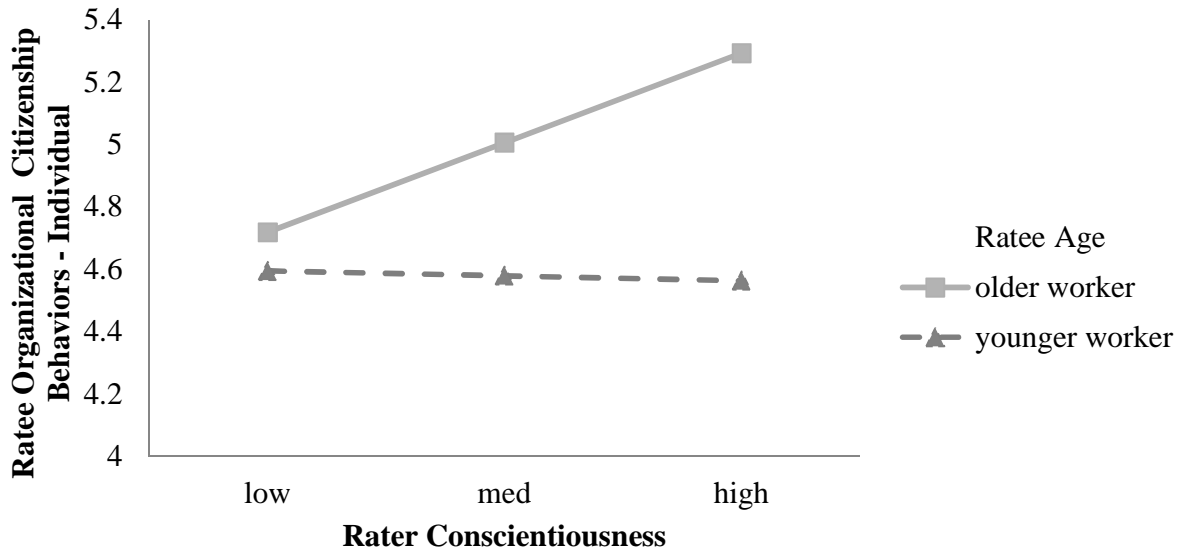


Figure 5. Interaction of rater conscientiousness and ratee age influencing evaluation of ratee organizational citizenship behaviors supporting individuals, Study 2, Italian Sample.

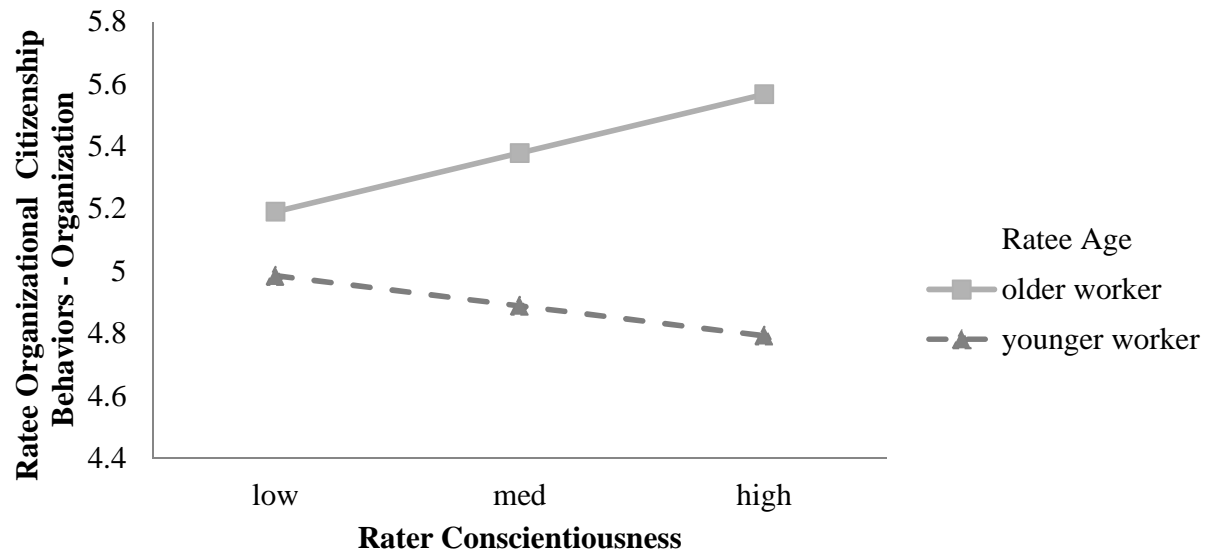


Figure 6. Interaction of rater conscientiousness and ratee age influencing evaluation of ratee organizational citizenship behaviors supporting the organization, Study 2, Italian Sample.

Paper 3

Does It Fit Me? Effect of Age on Relation between Person-Environment Fit and Work Engagement

Abstract

Given that older workers in most industrialized countries are encouraged to stay employed, it is important to understand how to retain them engaged. Past research has shown that Person-Environment fit is important for maintaining an engaged workforce. However, little is known about the effects of age on the relation between fit and work engagement. We based our study on Selective Optimization with Compensation theory (SOC) and Socioemotional Selectivity Theory (SST). We expected that high fit with ones' values, needs and skills might especially lead to engagement among older workers. In our study on 116 workers we found that for older not younger workers person-organization fit and need-supplies fit were related to increase in work engagement. This study confirms usefulness of integrating findings on aging and person-environment fit. It also suggests companies to invest in better understanding of their older workers' needs and integrating their value system with those of the companies.

Keywords: Age, work engagement, person-organization fit, need-supplies fit, demands-abilities
fit

This manuscript has been in preparation as: Kmicinska, M. & Zaniboni, S. Does It Fit Me? Effect of Age on Relation between Person-Environment Fit and Work Engagement.

Nowadays work market is characterized by aging workforce whose mandatory retirement age is gradually post-pond (National Institute on Aging, 2007). At the same time companies are at risk of the skills shortage (Hertel, van der Heijden, de Lange, & Deller, 2013). Therefore companies are facing the need, and sometimes a necessity of keeping the older workers employed in a healthy and productive way (Zaniboni, Sarchielli, & Fraccaroli, 2010). One way to address this challenge is through a better understanding of how work environment is related to work engagement within a life-span (Truxillo, Cadiz, Rineer, Zaniboni, & Fraccaroli, 2012). Here, specifically we will address how person-environment fit is related to work engagement among workers in different age.

Past research has shown that work engagement is important for employees' work-related well-being (e.g., Rothmann, 2008; Sonnentag, 2003) and performance (e.g., Bakker, Schaufeli, Leiter, & Taris, 2008; Salanova, Agut, and Peiro', 2005). On the one side, over three decades of research has well established the positive link between person-environment fit and maintaining an engaged workforce (Cable & Parsons, 2001; Edwards, Cable, Williamson, Lambert, & Shipp, 2006; Edwards & Shipp, 2007). On the other side, recent conceptual works proposed that age may moderate the relation between person-environment fit and various work outcomes, for example stress, job satisfaction and intention to quit (e.g., Feldman, 2012; Feldman & Vogel, 2009; Zacher, Feldman, & Schulz, 2014).

However, the empirical works testing the effects of age on relations between person-environment fit and work outcomes are scarce (e.g., Krumm, Grube, & Hertel, 2013). The current study is the first one, to the knowledge of the authors, that investigates the effect of age on relation between person-environment fit and work engagement. Based on lifespan ageing theories of Selection, Optimization and Compensation (SOC, Baltes & Baltes, 1990) and

Socioemotional Selectivity Theory (SST, Carstensen, 1991) our research proposes that although fit in terms of values, needs and skills may benefit workers of all ages, these fit may be especially benefiting for work engagement of older workers. Especially as, older workers were found to be more concerned with using their time meaningfully (Carstensen et al., 2011), with striving for positive and avoiding negative experience (e.g., Carstensen, 2006; Freund, 2008), as well as with optimizing use of their resources (Baltes & Dickson, 2001) and with maximizing use of their skills (Zaniboni, Truxillo, Fraccaroli, 2013; Zaniboni, Truxillo, Fraccaroli, McCune, & Bertolino, 2014).

Work Engagement and age

We focused our attention on work engagement, because it is an important positive dimension of work-related well-being (Rothmann, 2008). Moreover, due to its positive impact on performance it is of a high interest for many organizations (e.g., Lockwood, 2007). In this study, consistent with the previous literature, we define work engagement as ‘‘a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption’’ (Schaufeli, Salanova, Gonzalez-Romá, & Bakker, 2002, p. 74). It refers to persistent and pervasive physical, emotional, and cognitive aspects of involvement with the job rather than any particular task, event, person, or behavior (Christian, Garza, & Slaughter, 2011). It includes willingness to invest effort in one’s work (vigor), experiencing a sense of significance and pride (dedication), and joyful concentration within work (absorption). That is, engaged employees are highly energetic, enthusiastic about their work, and fully immersed in their job (Macey & Schneider, 2008; May, Gilson, & Harter, 2004; Bakker & Schaufeli, 2008).

Highly engaged workers were found to be more healthy and with a more positive work affect (Sonnentag, 2003). Moreover, they receive higher task and contextual performance

evaluations (Bakker, Demerouti, & Verbeke, 2004; Bakker et al., 2008). Furthermore, Salanova, Agut, and Peiro´ (2005) found that work engagement predicted service climate, which in turn predicted employee performance and then customer loyalty. Similarly, Xanthopoulou, Bakker, Demerouti, and Schaufeli (2009) in their diary study found that daily levels of work engagement were predictive of objective daily financial returns. Finally, Schaufeli and Bakker (2004) found that engagement was negatively related to turnover intention and mediated the relationship between job resources and turnover intention. In summary, Bakker (2008) proposes that engaged workers experience more positively their work, have better psychological and physical health, but also transfer their engagement to others.

Therefore, understanding factors related to work engagement is of a great interest for employees themselves and organizational practitioners. On one side, it has been suggested that older workers might be less engaged than younger workers, on the other side that they might be more (Kooij, De Lange, Jansen, Kanfer, & Dikkers, 2011). Older workers, especially those in close to conventional retirement ages, might feel that they have fulfilled their end of the bargain by the time they reach their later years. However, today's older workers might also embrace job security and regular pay increases in exchange for loyalty (D'Amato & Herzfeldt, 2008). Past research has found age to be sometimes weakly, positively related to work engagement (.15 or less, Schaufeli, Bakker, & Salanova, 2006), employee commitment (.20 when corrected for attenuation, Mathieu & Zajac, 1990) and job involvement (.22 after controlling for organizational tenure, Ng & Feldman, 2010b). However, also reported that engagement generally decreases with age (Robinson, Perryman, & Hayday, 2004). Moreover, practical significance and stability of these findings is questionable, suggesting that assuming relation between age and work engagement could be too simplified. Finally, as noticed by Heggstad and Andrew (2012)

perhaps even more important than examining whether younger or older workers are more engaged, is how to maintain their engagement.

Organizations could benefit especially from understanding how to maintain high motivation and commitment among their older workers. On the one side, in times of skill shortage, older workers are a precious resource, that companies wish to retain (Hertel et al., 2013). On the other side, post-pond retirement obligatory age implies that companies will need to retain older workers longer. Therefore, social policy makers and organizations will need to develop new engaging human resource practices that will include highly valuable for older workers incentives.

In the next section we will discuss important predictor of work engagement, the congruence between one's values, needs and skills on the one side and organizational values, job supplies and job demands on the other. Finally, we will turn back to age considered as a moderator of the relations between different types of person-environment fit and work engagement.

Person – Environment Fit and Work Engagement

Person-Environment fit is broadly defined as the degree of compatibility, congruence or match between employees' characteristics and characteristics of his/her working environment (Kristof, 1996; Kristof-Brown, Zimmerman, & Johnson, 2005). An impressive body of nearly a century of research, used Person-Environment fit framework to understand the way people approach and deal with their working environment (Kristof, 1996). It has been concluded that Person-Environment fit is multidimensional and contributes to positive individual and organizational outcomes, among which work engagement (e.g. Verquer, Beehr, & Wagner, 2003; Hoffman & Woehr, 2006; Edwards, 2008).

There has been identified different areas and levels on which employees can experience subjective and objective fit depending on type of fit object (e.g., skills, needs, values) and whether it is self-reported or inferred from other sources (e.g., supervisor). In this study we will refer to the subjective fit, because previous studies support the assumption that perception of congruence predicts better employees' reactions than an actual congruence (Cable & DeRue, 2002; Kristof-Brown et al., 2005; Major, Kozlowski, Chao, & Gardner, 1995). Finally, we will refer to the common distinction between person-organization fit and person-job fit, further divided into demands-abilities fit and needs-supplies fit (Edwards, 1991) as these three types of fit are conceptually and statistically separate (Cable & DeRue, 2002).

Person-organization fit is the degree of congruence between the person and his/her organization in terms of values (Lauver & Kristof-Brown, 2001). When employees perceive that their organizations hold similar values as they do, they are more likely to exert effort in accomplishing their job tasks and are also more likely to be energetic and persistent in their work (Cable & DeRue, 2002). Needs-supplies fit is a match between needs and desires of a person and what is provided by the job (Kristof-Brown et al., 2005). Employees were found to be more likely to invest effort and be willing to remain on their jobs when they feel their needs are fulfilled by the job (Cable & DeRue, 2002). Finally, demands-abilities fit is a match between abilities, knowledge and experience of a person and demands of a job (Edwards, 1996). High levels of perceived demands-abilities fit might lead to more intrinsic work motivation and feelings of maximizing use of ones' knowledge, skills and abilities (Cable & DeRue, 2002).

In general, whereas experiencing person-environment fit improves workers' willingness to invest effort in conducting work tasks and reinforce workers' values and desires, low fit decreases it. Therefore, all types of fit, might be important for engagement of workers across the

age continuum. However, the subjective importance of experiencing congruence and prioritize opportunities that optimize fit might be more important for older workers (e.g., Beier & Kanfer, 2013; Beier, Kanfer, & Ackerman 2013). As recently suggested (e.g., Feldman, 2012; Feldman & Vogel, 2009; Zacher et al., 2014) older workers may react to decline in person-environment fit more often than younger workers with decrease of motivation at work, disengagement or early retirement rather than changing the employer.

Age Effects on Relation between Person – Environment Fit and Work Engagement

Recent conceptual works (Feldman, 2012; Feldman & Beehr, 2007; Feldman & Vogel, 2009; Zacher et al., 2014) proposed that relation between Person-Environment fit and work outcomes (e.g., performance, turnover intention, well-being) will be different among younger and older workers due to life-span with-in person changes in goal orientation (Baltes & Baltes, 1990) and socio-emotional experiences (Carstensen, 1991).

One of the most influential and promising form the workplace life-span theory is the Socioemotional Selectivity Theory (SST; Carstensen, 1991). It proposes that people prioritize positive experiences and goals as they perceive their future time to be limited (Carstensen, Isaacowitz, & Charles, 1999). That is, older workers might prioritize workplace context allowing present-oriented intrinsic gratification. Therefore, older workers might be particularly concerned about timing satisfaction of their needs.

Moreover, older adults might be more concerned with using their time for meaningful activities (Carstensen, 2006). Therefore, older workers might be more attracted to activities allowing fulfilling their values rather than obtaining a pay rise or promotion (Feldman, 2012). Supporting these assumption is the study of Krumm, Grube and Hertel (2013) reporting that

congruence between variety of values, needs and desires, and job characteristics positively affected job satisfaction of especially older workers.

Another life-span theory is the Selection, Optimization with Compensation (SOC) theory of Baltes and Baltes (1990, see also Freund & Baltes, 1998). Depending on the available resources people prioritize goals (selection) according to their importance for increasing gains (optimization) and avoiding losses (compensation) (Freund, 2008). As people age they shift focus from goals related to increasing gains, towards goals related to avoiding losses (Freund & Ebner, 2005; Staudinger, Marsiske, & Baltes, 1995). Therefore, once more especially older workers might be engaged with work in which they experience fit.

Moreover, older workers might prefer jobs that allow them to use their accumulated experience and to match their resources and abilities to work demands (Truxillo, Cadiz, et al., 2012). In recent studies (Zaniboni, et al., 2013; Zaniboni et al., 2014) older workers were more attracted than younger ones by the possibility of using the already accumulated knowledge and skills in the new context. These findings suggest that especially older workers could be engaged with work characterize by good congruence between their abilities and work demands.

Given presented theoretical and empirical findings we hypothesize that:

Hypothesis 1: There will be an interaction between perceived person-environment fit and age in predicting work engagement, such that the positive fit in terms of a) person-organization fit; b) needs-supplies fit and c) abilities-demands fit would be more positively related to work engagement of older than younger workers.

Method

Participants and Procedure

Respondents were 116 Italian workers employed in social cooperative, 43.1% males ($n=50$) with mean age of 37.42 ($SD = 8.36$, range = 23 - 58 years). In 48.3% had secondary-level education, and in 51.7% ($n = 60$) hold an university degree. They had work experience on average of 13.55 years ($SD = 8.07$) and organizational tenure was on average of 8.31 years ($SD = 7.24$). They were working on average 32.91 hours a week ($SD = 7.62$). 81% ($n = 94$) were social workers and 22% ($n = 22$) were administration and maintains workers.

Data were collected at two time points. At Time 1 participants provided information about socio-demographic information, and their person-organization fit, needs-supplies fit, and demands-abilities fit. At Time 2, three weeks later, they filled in a measure of their work engagement. As suggested by Podsakoff, MacKenzie, Lee, and Podsakoff (2003) we used different procedural remedies to reduce the common method variance. Firstly, we have created a temporal separation introducing a time lag between the measurement of the three fit dimensions and work engagement. Secondly, to reduce evaluation apprehension we protected responded anonymity (i.e., time 1 and time 2 surveys were matched via a code chosen by participants) and we have assured that there are no right or wrong answers, and they were urged to answer questions as honestly as possible.

Measures

Age. We used chronological age because it is the most widely used index of age in research (Settersten & Mayer, 1997), easily measurable and objective. Moreover, human resources policies related to age diversity principally use chronological age as an indicator.

Perceived person-organization fit. Three items developed by Cable and DeRue (2002) were used to assess the extent to which the employee's values match with the organization's values. A sample item is "My personal values match my organization's values and culture." Items are on a 7-point Likert scale ranging from 1 (*completely disagree*) to 7 (*completely agree*). ($\alpha = .91$).

Perceived needs-supplies fit. Three items developed by Cable and DeRue (2002) were used to assess the extent that employees perceive a high degree of match between their needs and the rewards that a particular job supplies in return for their service. A sample item is "There is a good fit between what my job offers me and what I am looking for in a job." Items are on a 7-point Likert scale ranging from 1 (*completely disagree*) to 7 (*completely agree*). ($\alpha = .90$).

Perceived demands-abilities fit. Three items developed by Cable and DeRue (2002) were used to assess the congruence between the demands of a job and a person's abilities. A sample item is "The match is very good between the demands of my job and my personal skills." Items are on a 7-point Likert scale ranging from 1 (*completely disagree*) to 7 (*completely agree*). ($\alpha = .77$).

Control variables. We controlled for participants' educational level, as it may directly affect the fit, especially in terms of abilities-demands (Edwards & Shipp, 2007). Moreover, job type was used as a control variable given the relation of job design and experience of work (Morgeson & Humphrey, 2006). We created dummy variables, which were used as control variables in the regression analyses. Organizational tenure was also used as a control, as previous research shown that is strongly correlated to employees' age: .70 (Ng & Feldman, 2010a). Accordingly, Ng and Feldman (2010b) controlled for tenure in their meta-analysis of the effects of age on job attitudes.

Results

Means, standard deviations and correlations for the variables are presented in Table 1. Regarding correlations among the primary study variables, we found that work engagement was negatively correlated with age ($r = -.26, p < .01$), and positively correlated with person-organization fit ($r = .38, p < .001$), need-supplies fit ($r = .43, p < .001$), and demands-abilities fit ($r = .20, p < .01$). Thus all types of fit were positively correlated with work engagement supporting our assumptions.

We used moderated hierarchical regression to test our Hypothesis. To facilitate the interpretation of coefficients, we standardized independent variables. In the first step, the control variables (i.e., employee's education level, organizational tenure and job type) were entered¹. In the second step, the main effects for employee's age, person-organization fit, need-supplies fit and demands-abilities fit were entered. In the third step, the interaction between employee's age and person-organization fit, employee's age and need-supplies fit, and employee's age and demands-abilities fit were entered. Table 2 shows the results of the regression analyses.

According to the Hypothesis 1a-c, employee's age would moderate the relationship between different types of fit and work engagement. The interactions between employee's age and person-organization fit, and between employee's age and need-supplies fit were significantly related to the work engagement (respectively $\beta = .23, p = .02$; $\beta = .20, p = .05$) and accounting for additional variance ($\Delta R^2 = .12, \Delta F = 6.85, p = .001$). As shown in Figure 1, for older, but not younger workers, there was a positive relationship between increase of person-organization fit and work engagement (slope significance $p < .05$). Similarly, as shown in Figure 2, for older, but not younger workers, there was a positive relationship between increase of need-supplies fit and work engagement (slope significance $p < .01$). The interaction between employee's age and

demands-abilities fit was not significant. Thus, Hypothesis 1a and 1b were supported and Hypothesis 1c was not supported.

Discussion

This study has investigated the relation between person-environment fit and work engagement among workers in different age. As stated at the beginning, the relation between work engagement and person-environment fit has been well established (e.g., Verquer et al., 2003; Hoffman & Woehr, 2006; Edwards, 2008), but only recently took into consideration age-related changes (Feldman, 2012; Feldman & Vogel, 2009; Zacher et al., 2014).

In this study, in line especially with presumptions derived from Socioemotional Selectivity Theory (SST, Carstensen, 1991, 2006), age acted as a significant moderator of the relationship between person-environment fit and work engagement. Specifically, for older workers there was found a positive relationship between experiencing of person-organization fit and needs-supplies fit and work engagement, but not for younger workers. These findings suggest that complementing of workers' values and needs with respective organizational values and work supplies is especially important for older workers. That is, our findings seems to confirm that older workers might be focused more on the present and emotional gratifications (Carstensen, 2006) and on optimizing their needs fulfillment (Freund, 2008). At the same time, our findings confirm that older workers prefer to work for the companies that follow similar to them values (Feldman, 2012). Finally, these findings seems to support previous propositions that experience of low person-environment fit among older workers might lead to psychological disengagement from their work (Feldman, 2012; Feldman & Beehr, 2007).

Instead for younger workers the increase of fit did not seemed to increase their work engagement. Perhaps, it is because younger adults are rather oriented on striving for gains, long-

term goals, and in general tolerate better negative working experience (Ebner, Freund, & Baltes, 2006; Feldman & Vogel, 2009). Therefore, temporary fit or mis-fit, which was captured by our design, might not be as influential for the engagement of younger workers, as for older workers. Moreover, for younger workers, who are more oriented on knowledge acquisition goals (Carstensen et al., 1999), sharing common values with their organization might not be less relevant for their engagement. Further, older workers might have remained in the given company as the result of an attraction, selection and attrition process, that usually occur at the beginning of the working life (e.g., Schneider, Goldstein, & Smith, 1995). Younger workers, instead, might be still in the process of understanding which working environment suits them the best.

Furthermore, finding no age effect for relation between abilities-demands fit and work engagement might suggest that this dimension of fit is equally important for both groups. As feeling prepared, able and competent in ones work might be equally crucial within a life-span.

Finally, as proposed by the recent conceptual works of Feldman (2012), Feldman and Vogel (2009) or Zacher and colleagues (2014) empirical findings from our study confirm that person-environment framework is useful in understanding the work experience of workers in different age.

Limitations and Future Research

Several limitations need to be mentioned. First, we used a time-lagged design, which do not allows us firm conclusions about the process of building work engagement. Second, in order to drive firm conclusions on age-person-organization fit-work engagement relation, we would need to collect data from different types of industries. Therefore, future research investigating work engagement, especially in context of age, would benefit from considering designs that include measurements across several time points and multi-level approach.

Practical Implications

Our findings suggest that human resources practices and interventions aimed to enhance and maintain work engagement could benefit from focusing on integrating the knowledge about age-related changes and person-environment fit. Specifically, organizations might need to invest in clear communication of their values and better integration of these with the system of values of especially their older employees. Moreover, attention should be given to acknowledging the relation between the effort invested from the older workers side and the quality and timing of satisfying their needs.

Conclusion

Building engagement is a process that continues throughout one's working life. Our study suggests that with age especially person-organization fit and needs-supplies fit become important for maintaining work engagement. We encourage future research to test our findings in additional working contexts.

Footnote

¹To re-test the statistically significant effects of the interactions term, the analyses were also performed with no control variables, and the interaction remained significant.

Table 1.

Means, standard deviations and intercorrelations for all variables in Study

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1. University degree	.52	.50	—						
2. Organizational tenure	8.31	7.24	-.28 **	—					
3. Social worker	.81	.39	.15	-.12	—				
4. Age	37.42	8.36	-.33 ***	.73 ***	-.27 **	—			
5. Person-organization fit	5.23	.98	-.01	-.13	.10	-.12	—		
6. Needs- supplies fit	5.19	1.01	.03	.07	.08	-.01	.56 ***	—	
7. Demands- abilities fit	5.68	.72	.01	.03	-.08	-.02	.16	.22 *	—
8. Work Engagement	5.99	.80	.10	-.19	.26 **	-.26 **	.38 ***	.43 ***	.20 *

Note: $n = 116$ (pairwise). University degree = 1 and no university degree = 0. Social worker = 1 and administration and maintains worker = 0. * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 2.

Regression analyses for Work Engagement

Step/variable	Work Engagement								
	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β
Step1									
University degree	-.12	.08	-.15	-.05	.10	-.07	-.13	.09	-.16
Organizational tenure	.05	.15	.03	.00	.14	.00	-.00	.13	-.00
Social worker	.46	.19	.23 *	.34	.17	.17	.37	.16	.18
Step 2									
Age				-.11	.10	-.14	-.08	.09	-.09 *
Person-organization fit				.14	.08	.17	.04	.08	.05
Needs- supplies fit				.25	.08	.31 **	.20	.08	.25 *
Demands- abilities fit				.09	.07	.11	.11	.06	.13
Step 3									
Age x Person-organization fit							.17	.07	.23 *
Age x Needs-supplies fit							.14	.07	.20 *
Age x Demands-abilities fit							-.03	.07	-.03
<i>F</i>		3.46 *			8.52 ***			6.85 ***	
<i>R</i> ²		.09 *			.27 ***			.37 ***	
<i>Change in R</i> ²		.09 *			.23 ***			.12 ***	

Note: $n = 116$ (pairwise). University degree = 1 and no university degree = 0. Social worker = 1 and administration and maintains worker = 0.

* $p < .05$; ** $p < .01$; *** $p < .001$.

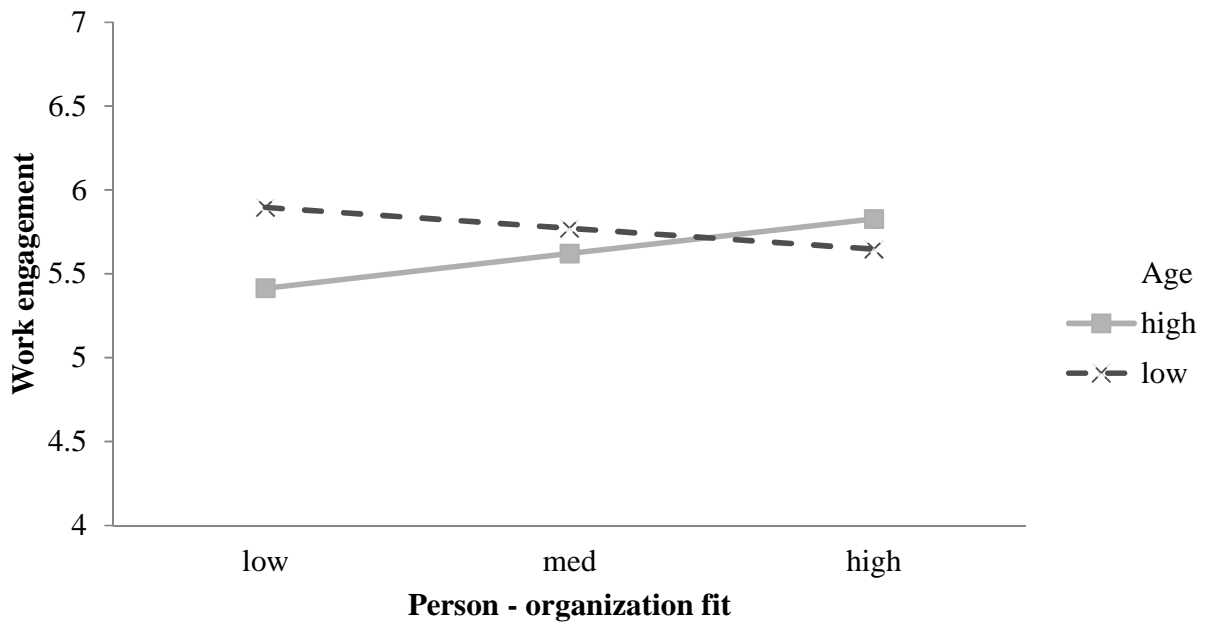


Figure 1. Interaction of employee age and person-organization fit influencing work engagement.

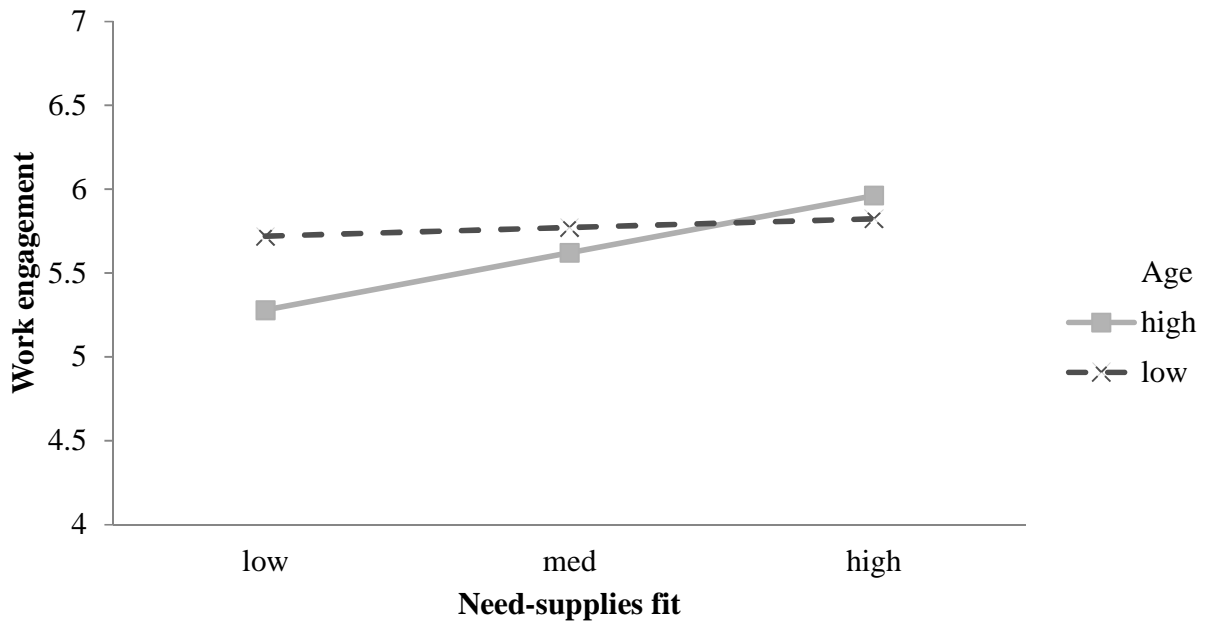


Figure 2. Interaction of employee age and need-supplies fit influencing work engagement.

GENERAL DISCUSSION

We have opened this dissertation comparing working life to a journey during which people age and change, as well as changes the way they are perceived and treated. We have acknowledged that nowadays growing age-diversity calls for building more age-friendly, open and welcoming workplace. On the one hand, we need to understand better the factors contributing to subtle or even unintentional age discrimination, which is illegal (e.g., Age Discrimination in Employment Act, 1967; Employment Equality Framework Directive 2000/78/EC). This calls for more age-neutral human resources practices in selection and recruitment, and performance appraisal. On the other hand, high diversity in organizations involves greater attention to age-diverse human resources practices which acknowledge and accommodate age-related differences in workers' expectations and general values (e.g. Hertel et al., 2013).

Therefore, the research presented in this dissertation was divided into three papers that address from different angles questions about factors that put at risk versus facilitate age inclusion at the workplace. We examined how workers' age on the one hand may affect organizational decisions about them. On the other hand how workers' age affects the way they experience their work. Specifically, we proposed and tested, first, the negative effects of raters' explicit and implicit attitudes (age bias) on hiring decisions of older compared to younger applicants (paper 1). Second, the positive effects of raters' conscientiousness on performance evaluations of older compared to younger coworkers (paper 2). Third, the positive effects of employees age on relations between person-environment fit and work engagement (paper 3). We focused especially on older workers, as they may be at risk of employment discrimination (e.g.,

Finkelstein & Farell, 2007; Posthuma & Campion, 2009) and at the same time are encouraged to remain in the workforce past normative retirement age (National Institute on Aging, 2007).

Past research in social psychology repeatedly suggests that people's age dominates categorization of others (Feldman, 1981; Fiske, 1998) and leads to arising of age specific attitudes, age bias (Finkelstein & Farell, 2007). That is, raters may associate a given worker with particular characteristics (e.g., desirability, or conscientiousness) and behave towards them (e.g., rating performance or invitation for an interview) as members of this given age group (e.g., younger vs. older worker). This may lead to unequal treatment (e.g., omission in hiring process) and suboptimal organizational decisions (e.g., misallocation of resources and tasks).

Studies concerned with age in the workplace mostly used self-reported, explicit measures, and did not account for comparisons between workers of different ages. Therefore, presented in the first paper the research, entitled: *"Will you still hire me when I am over 50? Implicit and explicit age bias in resume evaluations"* addressed these issues by investigating when and how explicit and implicit age bias may affect decisions about older compared to younger applicants. Moreover, we explored whether explicit and implicit age bias affect these decisions in a different manner.

Furthermore, factors that may favour older workers are understudied as past research has focused mostly on demographic similarity (Bertolino, et al., 2013; Finkelstein et al., 1995; Judge & Ferris, 1993). For example, other types of similarity (i.e., in terms of conscientiousness), which can be inferred from the ratees' age, such as similarity in conscientiousness has not been examined. Since personality similarity has been suggested as an important characteristic in studying similarity effects (Bauer & Green, 1996; Landy & Farr, 1980) the research presented in the second paper, entitled: *"Effects of rater conscientiousness on evaluations of task and*

contextual performance of older and younger co-workers” addressed this issue. We have examined whether conscientious raters might show more or less bias towards certain age groups, and especially tested whether this bias may favour older workers.

Finally, age-related changes were suggested to affect the way workers of different ages experience their work (e.g., motivation and work engagement) (Baltes & Baltes, 1990; Carstensen et al., 1999; Kanfer & Ackerman, 2004). At the same time, person-environment fit has been argued to be crucial for a positive experience of one’s work (e.g., work engagement and commitment)(Cable & Parsons, 2001; Edwards et al., 2006; Edwards & Shipp, 2007). However, only recently have researchers started to discuss how together age and person-environment fit may relate to work outcomes (e.g., Zacher et al., 2014). The research presented in the third paper, entitled: “*Does It Fit Me? Effect of Age on Relation between Person-Environment Fit and Work Engagement*” addressed this issue, by testing whether person-environment fit is more important for work engagement of older workers.

Summary of Main Results

As described in the first paper, the study investigated the effects of overt-explicit and covert-implicit age bias on selection decisions about younger versus older applicants. We found that participants of all ages on average displayed implicit (of a medium size, .53) and explicit age bias disfavouring older workers. Participants also gave lower ratings on general impression and performance expectations to older compared with younger applicants of equal qualifications. Both explicit and implicit bias significantly contributed to explaining the variance in these evaluations, but in a different manner. While the explicit age bias had a positive effect on younger applicants’ evaluation and no effect on older applicants’ evaluation, the implicit age bias had a negative effect on the evaluation of older applicants and no effect on the evaluation of

younger applicants. While raters explicitly tended to favour younger rather than disfavour older applicants, implicitly they disfavoured older applicants.

These findings are in line with studies investigating intergroup bias (e.g., Mummendey et al. 1992) reporting that people prefer explicitly, openly expressing favouritism rather than disfavours. However, as people control their implicit reactions less than explicit ones (Fazio & Olson, 2003; Greenwald & Banaji, 1995; Greenwald & Nosek, 2008), they might express politically incorrect disfavours of older applicants, even unintentionally and without being aware of it. Finally, there was no difference in the effects whether evaluations were conducted with a time limit or no time limit, suggesting that manipulation would not have been successful.

In summary, these findings, advance the understanding of repeatedly found associations between advancement in age and difficulties in the selection process (e.g., Bal et al., 2011; Perry, Kulik, & Bourhis, 1996; Posthuma & Campion, 2009). Moreover, they suggest that jointly studying explicit and implicit attitudes can enrich our understanding especially of socially and legally sanctioned issues, such as employment age discrimination.

This study has several strong points, to our knowledge, it is the first study investigating the effect of covert-implicit age bias in the selection processes. Second, past studies measured overt-explicit age bias towards only one group (e.g., older workers in Perry, Kulik & Bohris, 1996). Our measure accounted for the comparison between younger and older workers, which may be more suitable in age-diverse context, where comparison processes become salient (Shore & Goldberg, 2005). Third, we showed the difference in pattern of evaluations related to explicit and to implicit age bias. Finally, this study involved participants of a wide age range (18-65 years) permitting more general conclusions than in case of respondents belonging to one age group.

As described in the second paper, the research investigated the effects of rater conscientiousness on the performance evaluations of a younger or older “typical” worker (Study 1, U.S. sample) or an actual coworker (Study 2, Italian sample). We found that when the rater was high in conscientiousness, higher evaluations were given to older rather than younger workers. This was found for both hypothetical “typical” workers and “actual” coworkers suggesting that age bias might occur even in situations where additional, contextual information is available, also in real-life working settings. Specifically, high-conscientiousness raters evaluated older workers higher than younger co-workers in terms of a) task performance (Study 1 and Study 2), b) OCBI (Study 2), and c) OCBO (Study 1 and Study 2). Furthermore in Study 2 was found a significant effect for rater conscientiousness on ratings of older co-workers’ conscientiousness compared with younger co-workers.

Despite of the existing body of research confirming a bias against older workers (e.g., Finkelstein & Farrell, 2007), results of the present studies show that high-conscientiousness raters might evaluate older workers more favourably than they rate younger coworkers. These results suggest that evaluations made by high-conscientiousness raters might be affected by positive bias resulting from “similar-to-me” effects (Byrne, 1971). The results of the two studies were consistent for samples coming from slightly different cultural back grounds (US vs. Italy). Findings from this set of studies also advance our understanding of personality similarity effects and accuracy in evaluations of the youngest and the oldest members of the organization.

The strong characteristics of this research are investigating an understudied issue, namely, personality similarity (Bauer & Green, 1996; Landy & Farr, 1980) and multidimensional aspects of performance. Examining whether conscientious raters might display a bias towards

certain age groups and comparing the results of our hypothesis between situations in which a hypothetical worker is evaluated (Study 1) and when an actual coworker is evaluated (Study 2).

The third paper investigated the hypothesized moderating role of age in relation to person-environment fit and work engagement. We found that person-organization fit and need-supplies fit were related to an increase in work engagement among older workers. These findings are in line with the expectations that older workers might be more concerned with using their time meaningfully (Carstensen et al., 2011), and with striving for positive and avoiding negative experience (e.g., Carstensen, 2006; Freund, 2008). It also confirms recent suggestions that older workers may react to a decline in person-environment fit more often than younger workers with disengagement (e.g., Feldman, 2012; Feldman & Vogel, 2009). Finally, it supports recent conceptual propositions that age may moderate the relation between person-environment fit and various work outcomes (e.g., Zacher et al., 2014). Findings from this study advance understanding of when older workers may feel fully engaged with their work.

The strong points of this study are that, to our knowledge, it is the first empirical testing of only recently conceptualized integration of findings on person-environment fit and age-related changes and its effects on work engagement. It considers multidimensional aspect of fit and it investigates work engagement, an emerging concept in occupational health psychology (Bakker, et al., 2008). Since work engagement is oriented on the optimization of people's functioning it might be particularly useful in successful managing of aging.

Limitations and Future Research

The most important concern for the studies included in this thesis is that none of them were longitudinal in nature. Although, our results are consistent with the theoretical assumptions, and are based on time-lagged design our data do not permit us to make firm conclusions about

the direction of our findings and do not capture entirely the process of aging. Future research investigating age at the workplace would benefit from considering designs that include measurements across several time points. A second concern is the generalizability of the findings. In the studies presented in the first and second papers the case would be much stronger if the sample was composed of experienced recruiters and managers. The study in the third paper would also benefit from a multilevel design including data collection from the variety of companies.

Third, presented here research has focused on examining relations between age and workplace phenomena. Future research should focus on managing actively these issues. That is , on transferring our findings into active strategies to mitigate the bias and enhance work engagement among workers of different ages. For example, future work are needed on how implicit age bias can be changed and how it will influence behaviour. Recent study of Levy, Pilver, Chung, and Slade (2014) reports that implicit intervention might decrease the negativity of age stereotypes and self-perceptions of aging. Similarly, cognitive bias modification paradigm has produced positive results in facilitating coping with the depression or anxiety (Hallion & Ruscio, 2011). Perhaps these technics could be useful also in changing the bias about the others and in the work context. Another possible way of addressing the age bias might be the awareness training, which proved to be useful in mitigating gender bias (e.g., Brewer & Miller, 1984).

Finally, inclusion and engagement of workers in different age could be addressed by developing interventions aimed to support building positive relation between workers in different age, building more inter-generational teams and two-way mentoring programs. Socioemotional theory (Charles & Carstensen, 2010) suggests that stronger and more positive relations are a priority for older workers. At the same time, given the growing generational split (e.g., Shore,

2008), older workers might suffer from being seen distant, rigid and uninteresting as partners for the social and working interactions especially by their youngest colleagues. Finally, older and younger workers might bring to working together very different skills (e.g., network of connections vs. knowledge of the newest technology). Therefore, working together could be enriching especially for younger and older workers.

Implications for Practice

Research included in this thesis shows that organizations may benefit from educating their recruiters, managers and employees about factors contributing to unequal treatment of younger and older workers and about how age-related, also non-work changes interact with working environment and affects experiencing of one's work. Issues worth committing to, as positive age diversity climate contributes to building strong relationships between employees and their employer, and indirectly contributes to companies' performance and employees' turnover intentions (Boehm et al., 2013; Kunze et al., 2011).

As shown by the results in the first paper, companies should increase awareness of the spontaneous categorization of others based on their age, arising from overt-explicit as well as covert-implicit bias and preferences. Moreover, as shown by the second paper, companies need to acknowledge the possibility of similar-to-me effects in performance appraisal, and increase the knowledge about the difference between stereotype-based and research-based consequences of aging. For example, although on average older workers may be more conscientiousness than younger workers, in both age groups there will be high and low conscientiousness workers (Truxillo, McCune, et al., 2012). Besides, difference in age performance may be greater within age groups than between age groups (Posthuma & Campion, 2009) and workers of different ages may bring different strengths to the team (Hertel et al., 2013). Finally, as shown by the third

paper, companies might also need to increase their knowledge about the way needs and values change throughout a life-span, and to integrate these better with the retribution and value system of the company. The same employee might engage in work for different reasons as they age. For example, with age especially, shared values and timing fulfilment of needs are important.

In summary, the studies included in this dissertation answered the questions stated at the beginning of this work about factors contributing to equal treatment of younger and older workers and enhancing work engagement of older workers. We showed that decisions about workers and their work experience may be different depending on their age.

Firstly, raters' explicit and implicit attitudes, age bias, related negatively, but in different manner, to disfavoured older compared to younger applicants. Second, raters' conscientiousness led to more positive evaluations of older compared to younger co-workers. It seems that subjective appraisal invokes cognitive processes involving subtle bias that may also operate without one's awareness and may disfavour (paper 1) or favour (paper 2) older compared to younger workers. Third, person-organization fit and need-supplies fit related to increase in work engagement among older workers (paper 3). Therefore, it seems that engagement needs to be built continuously and differently throughout one's working life.

Therefore, the next big challenge is transferring findings from this dissertation into active strategies to mitigate the bias and to enhance work engagement in order to build a long-term productive age-diverse workforce. An issue worth committing to, as we all age and we all would like to work in more welcoming and open workplace. Wouldn't we?

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Acknowledgements

This dissertation is a fruit of a long journey full of lessons of Patience, hours of Hard work and Discoveries. It was possible to accomplish only thanks to many great researchers and friends.

I would like to especially thank my advisor Ph.D. Sara Zaniboni, who is for me an example of researcher to follow. I am very grateful, especially for her lessons on methodology, professional approach, elegance and stimulating me in being pro-active.

I would like to also thank: Prof. Donald Truxillo for motivating me to give the best and for all the opportunities to learn from him; Prof. Fraccaroli for his advice and inspiration, especially in revealing the hidden bias; Prof. Mo Wang and Prof. John Kammeyer for encouraging me to advance my knowledge on quantitative methods and analysis; Ph.D. Lorenzo Avanzi who was since the very beginning a great support for me with his knowledge and great sense of humour.

Moreover, very special thanks to Ph.D. Mara Mazurega and Ph.D. Francesca Postiglione for hours spent on discussing the art of experimental design and for even more hours spent on speaking about science in general and sharing experience about the Ph.D. process.

Finally, to all my family and friends, who encouraged me to persist and keep focused. Especially to my mother, my aunts Anna and Iza, and uncles Karol and Hieronim, my “sisters” Chiara, Marilina, Ailbhe, Gaia and my “coaches” Lorenzo and Carolina, and many, many others. Thank you all for sharing with me this experience and for believing in me.