Title: The age of remote work: too old to be competent?

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Abstract

Age discrimination in hiring has been widely demonstrated by previous studies. However, no study yet explored whether age discrimination persists in remote work settings. To alleviate this gap, we investigated whether candidates' age influences people's hiring recommendations, and whether this relationship is mediated by competence perceptions and moderated by work setting. We tested our hypotheses with an online experiment (N= 515). Participants were asked to imagine themselves responsible for hiring the best candidate for a 'Project Coordinator' role. We manipulated candidates' age both verbally and visually. Additionally, we manipulated the work setting by informing the participants that the role would be conducted either in the office or remotely. Our results revealed that participants generally preferred hiring younger candidates over older ones. However, work setting did not influence this preference, as participants did not show stronger preference for hiring younger candidates when the job favored remote working. Additionally, the preference for hiring younger candidates was not related to participants' perceived competence of the candidate, and it remained unrelated for both types of work settings. While our study confirmed that age discrimination in hiring exist, it also revealed that the hiring chances of older adults are not impaired by work setting.

Keywords: *age, discrimination, competence, work setting, remote work, office, hiring*

The advancements in information communication technologies (ICT) made it possible for employees to work remotely. The number of organizations allowing its employees to work remotely increased substantially with the COVID-19 pandemic (Hamouche & Parent-Lamarche, 2022) with many organizations continuing to utilize remote working as a working modality (De Vincenzi et al., 2022). Defined as *a working model in which employees can pursue work tasks outside the organization due to the use of technology* (Ferrara et al., 2022), remote working offers many benefits to both organizations and employees. One of which is the potential to facilitate inclusion and healthy participation of older employees in the workplace (Lecours et al., 2023), with older employees reporting that they would keep working longer if they can work remotely (Arvola et al., 2017).

Despite these benefits, older adults may face discrimination during the hiring process, reducing their chances of being hired for remote working jobs. Age discrimination toward older employees has been firmly established by previous studies, with people preferring to hire younger candidates over older ones (e.g., Batinovic et al., 2023; Carlsson & Eriksson, 2019). Currently, it is unknown if age discrimination in hiring persists or is exacerbated in remote working settings. The primary aim of this study is to address this gap by exploring whether work setting influences age discrimination in hiring.

Additionally, we consider the role of perceived competence in this topic. Building on Fousiani et al. (2023), which found that people prefer hiring competent candidates for remote jobs, we predict that competence perceptions might be particularly relevant when hiring older employees in this context. Competence is crucial to succeed in remote working and given that technology is generally not positively associated with older adults (Arvola et al., 2017), older candidates might be perceived as lacking the competence to succeed in remote working.

This research is particularly important for countries with aging populations. As of 2024, approximately 20.5% of the Netherlands' population is aged 65 and above, indicating a strong increase of older residents since 1990. Employing and retaining older employees is essential in alleviating the resulting labor shortage and societal strain. Therefore, understanding age discrimination in remote working contexts is of utmost relevance.

Age and Hiring Decisions

Despite the need to hire and retain older employees in the workplace, and the potential of remote working to postpone retirement of older employees, people seem to subject older employees to ageist attitudes which impair their chances of being hired, regardless of them being feasible candidates for working remotely (Arvola et al., 2017; Patrickson, 2002).

Age discrimination toward older employees is widely documented in literature, indicating that employers do not necessarily prefer employing older employees or retaining them after a certain threshold. For instance, a meta-analysis indicates that there is age discrimination in hiring older employees and suggests that the level of discrimination increases with age (Batinovic et al., 2023). Indeed, a study shows that the chances of job applicants over 40 years to hear back from employers drop substantially and become very low for those close to the retirement age (Carlsson & Eriksson, 2019). Another study found that the hiring chances of candidates aged between 33 to 66 years decrease after the age of 48, with chances being the lowest for those 54 years and older (Richardson et al., 2012).

Interestingly, discrimination against older employees persists even if the older and younger candidates have comparable characteristics (Dormidontova et al., 2020) or are equally qualified (Lössbroek et al., 2020), as people still prefer hiring the latter over the former. Age discrimination is observed even when the age gap between the candidates is small. Despite an

only 14 years of age difference, people seem to prefer hiring a younger candidates over older ones (Büsch et al., 2009).

Furthermore, research indicates that not even partially age-blind hiring procedures prevent age discrimination. Although people do not seem to differentiate between older and younger candidates during CV screening when they do not receive explicit information about age, they do prefer making offers to younger candidates after the candidates' age is revealed in face-to-face interviews (Neumark, 2020). There is also evidence that, even when candidates' ages are not explicitly revealed, subtle cues such as older-sounding names and old-fashioned extracurricular activities lower the likelihood of older candidates being hired (Derous & Decoster, 2017). Following these findings, we made our first prediction as follows:

H1: older candidates will be less likely to be recommended for hiring than younger candidates.

Age and Competence

Previous studies have identified several reasons why employers might prefer hiring younger candidates over older ones. For instance, it was found that older facial features of the candidates may signal low health and fitness, resulting a lower perception of person-job fit and thus lower the chances of hiring older adults (Kaufmann et al., 2016). Other studies have directly investigated the stereotypes people might hold against older employees' work-related competencies. For example, it was found that people may hold negative stereotypes towards older employees regarding their trainability, adaptability, creativity, and interest in new technology (Gringart et al., 2005). Similarly, people may also hold negative beliefs about older employees' sociability (Richardson et al., 2012), ability to learn new tasks, flexibility, and ambition (Carlsson & Eriksson, 2019).

In the workplace, competence is defined as *a description of requirements for work performance at the necessary level of proficiency* and is often regarded as a component that provides organizations with competitive advantage (Ali et al., 2021). Accordingly, it is unsurprising that employers are critical about their future employee's competency during the hiring process. However, it is important to note that previous research have consistently shown that people's stereotypical beliefs about older people's competency are unjustified. Various studies, for instance, indicate that older age does not necessarily compromise employees' work-related outcomes, such as performance (Salthouse, 1994). Yet, as mentioned, previous studies consistently show that people tend to underestimate the competency of older adults, which may lower the hiring chances of older employees. Accordingly, we expect the following:

H2: older candidates will be less likely to be recommended for hiring than younger candidates partly through low perceptions of competence.

Age, Competence, and Remote Working

Competence is an important factor to consider when hiring someone, and it might be even more important for remote working jobs. This is because (digital) competence is perceived as an essential element to thrive in a remote work arrangement, as it informs a person's ability to work and communicate in a digital environment. A study found that employees with sufficient digital competence have higher levels of work efficiency and job satisfaction in teleworking jobs compared to those without this competence (Tsareva & Omelyanenko, 2020). Additionally, it was found that the more digitally skilled employees were, the higher they performed in a remote work environment (Emperatriz & Yudet, 2022). Accordingly, one might expect perceptions of competence to guide people's judgements, particularly when hiring for remote working jobs.

Indeed, a study indicates that people are more inclined to hire candidates whom they perceive to be highly competent over those less competent for a remote working job (Fousiani et al., 2023).

Building on Fousiani et al. (2023), we explored age discrimination in hiring for a remote working job and the role of perceived competence. Technology, which is inherent to remote working, is often associated with youth, and is targeted towards younger generation, as the promotion of neoteric aspects of technological products not interesting older people (Arvola et al., 2017). Considering the general tendency of people refraining from hiring older candidates, viewing them less favorably in terms of work-related competencies, and competence being particularly salient in remote work settings, it is reasonable to expect people to be less inclined to hire older people for remote working jobs.

To our knowledge, however, whether people prefer hiring younger candidates over older ones for remote working jobs and whether this is related to perceived competence has not been explicitly studied before. The closest study we could identify that offers an indirect support on this topic suggest that people prefer hiring younger candidates for young-typed jobs (Perry & Bourhis, 1998). Although these 'young-typed' jobs did not include remote work, based on the literature and anecdotal inferences, it is intuitive to suggest remote working to be considered more young-typed than old-fashioned. Additionally, a study revealed higher rates of age discrimination in hiring for jobs with ads that contain language emphasizing technology (Burn et al., 2022), supporting the notion that younger adults might be preferred over older ones for remote working jobs.

Despite the lack of direct empirical evidence, considering the available findings and conclusions, we made our final two predictions as follows:

H3: older candidates will be less likely to be recommended for hiring for a remote working job than younger candidates.

H4: older candidates will be less likely to be recommended for hiring for a remote working job than younger candidates partly through low perceptions of competence.

Overview of the Current Study

To test our hypotheses, we conducted a survey experiment in which participants were presented with a fictitious candidate for a hypothetical job and were asked to rate their likelihood of hiring this candidate. We manipulated the age of the candidate both verbally and visually and manipulated the work setting of the job by changing the job description. Depending on their condition, participants were presented with either an old or a young candidate, and a job that either favored remote working or a traditional office setup. Participants were then asked to rate their likelihood of recommending the candidate for hiring for the specified job.

Method

Participants

To determine the sample size, we conducted an a-priori Monte Carlo power analysis for mediational models. To be conservative we selected small effect sizes as the benchmark for our analyses. The analysis revealed that around 500 participants would be required to achieve 85% power. Accordingly, we gathered data from a total of 882 participants. 365 of them did not complete the questions regarding our target variables, one of them indicated that they were 15 years old, and one was identified to not have completed the survey truthfully. These participants were therefore excluded from the study. We tested our hypotheses with the data of the remaining 515 participants.

Participants were recruited by crowdsourcing the network of the researchers. Each researcher aimed to recruit at least 100 participants to achieve the required 500 total amount. To this end, each researcher distributed the study survey among their social network by their own means, such as publishing it on social media platforms (e.g., Instagram, LinkedIn). Importantly, only individuals who were fluent in Dutch were eligible to participate in the study. This was because the study was conducted in the Netherlands, and we wanted to obtain a homogenous sample. Further, potential participants were eligible if they were above 18 years old and were able to independently consent to participate in the study. The study took approximately 15 minutes to complete, and participants received no compensation for their participation.

Participants' age ranged from 18 to 82 with a mean of 36 (*SD*= 15.35). Most participants were female (58.1%), and 31.7% were male. 83.1% of participants were Dutch, 1.4% were British, 1% were German, and the rest indicated other nationality (5.4%). Additionally, 41.2% of the participants indicated to have permanent employment contract, 26.8% indicated to be a student, 7.4% indicated to be self-employed, and 6.8% indicated to work part-time. Most of the participants worked in the education sector (10.1%), followed by business & finance (5.8%), government (5.8%), and human services (4.7%). On average participants worked for 36 hours a week with an average tenure of 9 years.

Design

We conducted an online experiment via the survey platform Qualtrics, with a 2 (candidate age: young vs old) × 2 (work setting: office vs remote working) × 2 (gender: male vs female) between-subjects design, and randomly assigned participants to one of eight conditions. Gender manipulation was part of a bigger project and will not be mentioned again in the following sections since it is not in the scope of this paper.

Ethical considerations

This study was approved by the Scientific and Ethical Review Board (VCWE) of the Faculty of Behavioral and Movement Sciences, VU University Amsterdam (VCWE-2023-003R1-Determinants in Hiring Decisions).

Procedure

The study consisted of three parts. After reading an introduction to the study and providing an informed consent form, participants were first presented with a brief workplace scenario (based on Fernandez-Lozano et al., 2020), followed by questions pertaining to that scenario and demographic questions. In the scenario, participants were asked to imagine themselves as the HR manager of a big company in Amsterdam and that there is an open vacancy for which they are responsible for selecting the most suitable candidate. They then read the description of the vacancy, explaining that participants will be looking for a "*Project Coordinator*" to join their team who will be responsible for coordinating project activities, managing timelines, and facilitating communication and interaction among team members. To prompt participants to focus on the candidate's competence and warmth, we informed them that the role would require a combination of organizational competence and effective interpersonal skills.

Following the job description, we provided participants with information about the work setting of the vacancy. Specifically, depending on their condition, participants read that the Project Coordinator would either work entirely remotely or from the office. They were then informed that they will receive information about one of four shortlisted candidates chosen randomly, and that other participants might read about a different candidate. This approach was intended to elicit honest evaluations of the candidates; all participants were presented with the

same information about the candidate that only differed in age and gender. Depending on their condition, participants were presented with either a 28-year-old or a 60-year-old candidate. The candidate's age was provided both in writing and via a picture. The rest of the candidate information indicated that the candidate met the job requirements but would need extra time and money for training to perform as expected if hired. Following both work setting and age manipulations, we presented participants with manipulation check questions.

After the candidate information, we asked participants questions about the candidate based on the information they read and the picture they saw. Specifically, we asked participants to rate the candidate on various traits related to competence and to indicate the extent to which they would recommend the candidate for hiring. We also asked participants demographic questions, such as age and gender. After answering all the questions, participants were debriefed and dismissed from the study.

Materials

Candidate age. We manipulated the candidate's age by informing participants that the candidate was born in either 1996 and is 28 years old or in 1964 and is 60 years old, depending on their condition. Additionally, we presented the participants with a picture of the candidate representing either a young or an old face. Manipulating candidate's age both verbally and visually solidifies our study and distinguishes it from others, which mostly used either verbal or visual age manipulation (e.g., Kaufmann et al., 2016). We obtained the candidate pictures from the FACES database and selected them based on their perceived mean age and attractiveness as rated by a total of 154 study participants (Ebner, Riediger, & Lindenberger, 2010). This approach was intended to ensure our participants would perceive the age of the candidates as intended and

would not be biased in their judgements based on the candidates' perceived attractiveness. Please check the *Appendix* for the candidate faces and full vignettes describing the candidates.

Work setting. We manipulated the setting of the job vacancy by informing participants that the job would be performed either entirely from the office or remotely. Participants assigned to the office-setting condition read that the physical presence of the candidate in the office is mandatory because all meetings and interactions need to be carried-out face-to-face, and that remote working is not an option. Those assigned to the remote working condition, on the other hand, read that the physical presence of the candidate is not necessary because all meetings and interactions will be completely online and that working from the office is not an option. Please check the *Appendix* for the vignettes describing the work setting of the vacancy.

Perceived competence. To measure participants' perceived competence of the candidate, we created a self-report scale based on Abele & Wojciszke (2007) (see also Fousiani, Armenta & Sypes, 2023). We asked participants to rate the candidate on different characteristics using a 7-point Likert scale (*1= not at all*, *7= a lot*). The characteristics that comprised competence were *efficient*, *active*, *capable*, *energetic*, *competent*, *skillful*, and *intelligent*. Please note that, because we did not manipulate candidates' competence levels, it is not possible to establish causality with our mediation hypotheses. We also measured characteristics corresponding to the trait of warmth as part of the larger project; however, they are beyond the scope of this paper. Reliability analysis between the items corresponding to competence indicated good internal consistency (α= .89).

Hiring recommendation. To measure the extent to which people would recommend the candidate for hiring for the job, we created a self-report scale based on Cable & Judge (1997); García, Posthuma, & Colella (2008); and Fousiani, Sypes & Armenta, (2023). Example items were: "*Would you recommend Ms. de Vries for the job?*" and "A*re you willing to invite Mr. de*

Vries to the next interview round?''. Items of the scale were rated on a 7-point Likert scale ranging from 1 (e.g., *I would not consider hiring*) to 7 (e.g., *I would strongly consider hiring*). Reliability analysis between the items of the scale indicated an excellent internal consistency (α= .96).

Manipulation checks. To check if the work setting manipulation was successful, we asked participants to indicate the extent to which the candidate would work from home or from the office, with answer options ranging from 1 (*not at all true*) to 7 (*absolutely true*). To check if the candidate age manipulation was successful, we asked participants to indicate if the person they read about was 28 or 60 years old.

Demographics and other variables. We also inquired about the demographics of the participants. We asked about their *age*, *gender*, *nationality*, *level of Dutch fluency*, *employment status*, and *educational background*. The complete survey comprised of additional scales that measured different variables (e.g., shortened version of the Work-Home Interference Scale of De Simone et al., 2014; De Simone et al., 2018). However, because they are beyond the scope of this paper, we will not report them here.

Statistical Analyses

We used descriptive statistics to analyze participants' demographics. To test if the items our scales belonged together, we conducted reliability analyses first between the items of the perceived competence scale and then between the items of the scale for hiring recommendation.

To test if our manipulation for work setting was successful, we performed a univariate ANOVA with participants' work setting conditions as the input and their answers to the work-setting manipulation check question as the output variables. To test if our candidate age manipulation was successful, we conducted a univariate ANOVA as well with participants' age

conditions as the input and their answers to the age manipulation check question as the output variables.

To check if we needed to control for participant demographics when testing for our hypothesis, we conducted a bivariate correlation analysis with our main variables (i.e., candidate age, perceived competence, work setting, and recommendations for hiring) and participant demographics (i.e., age, gender, nationality, level of Dutch fluency, work-status, and educational background).

To test our first and third hypotheses, we conducted a univariate ANOVA with candidate age and work setting as the independent variables and hiring recommendation as the dependent variable. To test our second hypothesis, we conducted a simple mediation analysis using Hayes PROCESS Macro Model 4, with candidate age as the independent variable, perceived competence as the mediator and hiring recommendation as the dependent variables. To test our final hypothesis, we conducted a moderated mediation analysis using Hayes PROCESS Macro Model 59 with candidate age as the independent, perceived competence as the mediator, work setting as the moderator, and hiring recommendation as the dependent variables (Hayes, 2022). We selected Model 59 to not miss significant effects on any of the pathways of the mediation.

All statistical analyses were conducted using IBM's SPSS Statistics version 29.0.2.0 (20).

Results

Manipulation Checks

Before we tested our hypotheses, we first tested whether our experimental manipulations were successful. To test if our manipulation for work setting was successful, we submitted participants' work setting conditions and their answers to the work setting manipulation check question to a univariate ANOVA. There was a statistically significant relationship between

participants' work setting conditions and their answers to the manipulation question, $F(1, 513)= 914$, $p< .001$, partial $\eta^2= .640$. Participants in the remote work condition ($M= 11.99$, $SD= 2.99$) indicated that the work will be conducted from home to a greater extent than participants in the office condition ($M= 4.01$, $SD= 3.00$). This confirms that our manipulation for work setting was successful.

To test if our manipulation for candidates' age was successful, we submitted participants' candidate age conditions and their answers to the age manipulation check question to a univariate ANOVA as well. There was a statistically significant relationship between participants' candidate age conditions and their answers to the manipulation question, $F(1, 513)= 4706$, $p< .001$, partial $\eta^2= .902$. Participants who were presented with the older candidate successfully indicated that they were presented with a candidate aged 60 years old, and those who were presented with the younger candidate successfully indicated that they were presented with a candidate aged 28 years old. This confirms that our manipulation for candidates' age was also successful.

Intercorrelations Between Variables

Additionally, prior to testing hypotheses, we also generated a correlation matrix between our main variables and participants' demographics (see *Table 1*). We only found significant correlations between participants age and their perceived competence scores $r(512)= -.104$, $p< .05$; their employment status and perceived competence scores $r(512)= .131$, $p< .05$; and their employment status and scores for hiring recommendation $r(512)= .106$, $p< .05$. However, these were very weak correlations and thus did not imply that participants' age and employment status need to be controlled for our hypotheses. To ensure our findings are not biased by potential confounders, we still checked if controlling for them would influence our results and confirmed that this was not the case.

Table 1

Correlations Between Main Variables and Demographics

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Candidate Age	—												
2.Perceived Competence	-.010	—											
3.Work Setting	.045	-.006	—										
4.Hiring Recommendation	-.128**	.700**	-.050	—									
5.Age	.037	-.104*	-.009	-.080	—								
6.Gender	.059	-.039	.008	-.002	-.055	—							
7.Nationality	.027	.005	.043	.040	.008	.016	—						
8.Dutch Proficiency	.056	.075	.058	.027	-.124**	-.098*	-.197**	—					
9.Emplotment Status	.014	.131**	.043	.106*	-.199**	.014	-.026	.179**	—				
10.Tenure	.026	.057	-.032	-.029	.624**	-.039	-.067	.061	-.267**	—			
11.Work Hours	.020	.109	-.024	.092	.138*	.033	.090	-.083	-.390**	.022	—		
12.Work Sector	-.052	-.004	-.036	-.102	-.047	-.038	.030	.190**	.112	.076	-.125	—	
13.Education	-.046	-.034	-.017	-.051	.277**	-.001	-.079	.021	-.158**	.049	-.016	.025	—

*Note. * indicates $p < .05$. ** indicates $p < .01$*

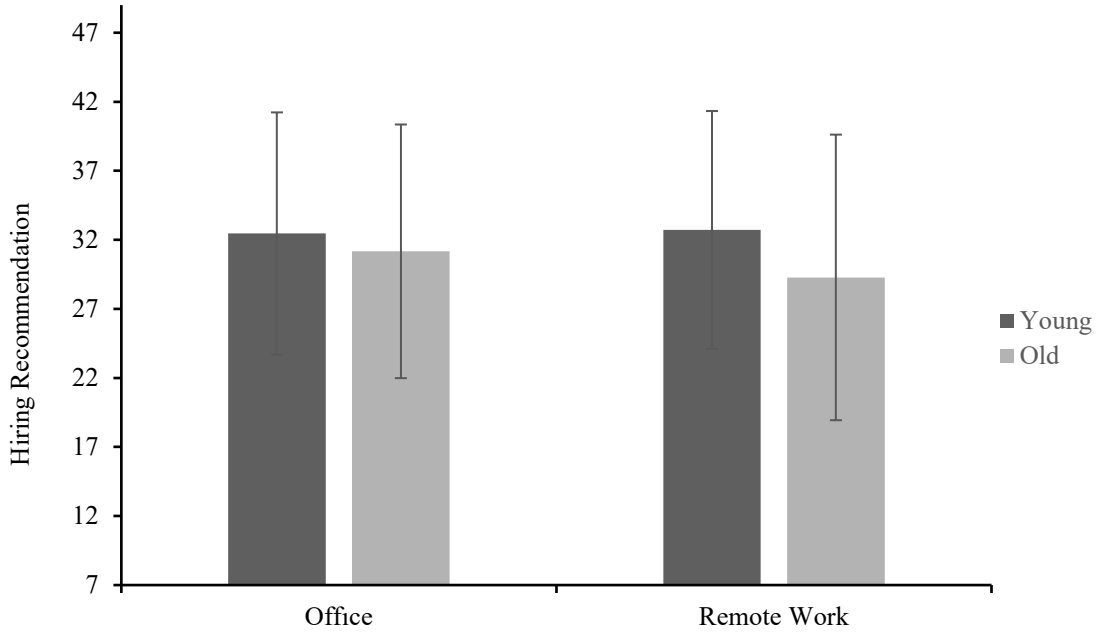
Testing Hypotheses

We tested our first and third hypotheses by conducting a univariate ANOVA with candidate age and work setting as independent variables and hiring recommendation as the dependent variable. Our overall model containing both the main effects of candidate age and work setting and their interaction explained only 1.6% of variance in hiring recommendation.

We hypothesized that older candidates would be less likely to be recommended for hiring than younger candidates (*Hypothesis 1*). Results revealed a significant effect of candidate age on hiring recommendation, $F(1,511)= 8.407$, $p= .004$, partial $\eta^2= .016$. Participants recommended younger candidates ($M= 32.59$, $SD= 8.67$) for hiring to a greater extent than they did older candidates ($M= 30.20$, $SD= 9.82$). We also hypothesized that older candidates would be less likely to be recommended for hiring for a remote working job than younger candidates (*Hypothesis 3*). The interaction effect between candidate age and work setting was not statistically significant, $F(1,511)= 1.716$, $p= .191$, partial $\eta^2= .003$. Meaning that participants did not differentiate their hiring recommendation for older ($M= 29.28$, 10.34) and younger candidates ($M= 32.72$, $SD= 8.61$) as a function of work setting and recommended them both similarly (see *Figure 1* for a visualization of the results for Hypothesis 3).

Figure 1

The Relationship Between Candidate Age and Hiring Recommendation as Moderated by Work Setting.



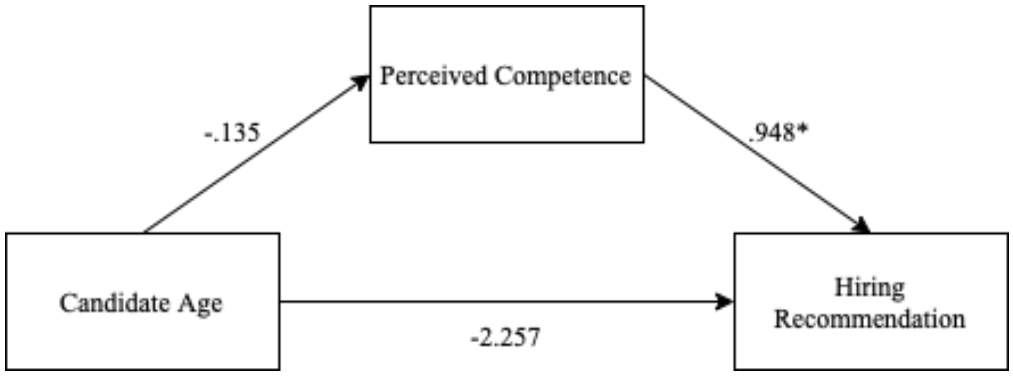
Note. Error Bars indicate standard deviations of the mean.

Additionally, we hypothesized that older candidates would be less likely to be recommended for hiring than younger candidates through low perceptions of competence (*Hypothesis 2*). To test this, we conducted a simple mediation analysis using Hayes PROCESS Macro Model 4. Results revealed a non-significant indirect effect of candidate age on hiring recommendation through perceived competence, b= -.135, 95% CI [-1.313, .968]. Additionally, the effect of candidate age on perceived competence was not significant, b= -.143, t= -.235, p= .814. However, the effect of perceived competence on hiring recommendation was significant, b= .948, t= 22.489, p< .001. The direct effect of candidate age on hiring recommendation in presence of perceived competence was also significant, b= -2.257, t= -3.889, p< .001. These

findings suggest that the effect of candidate age on hiring recommendation is not related to perceived competence. Participants also did not perceive older candidates as less competent than younger ones, $F(1,513)= .055$, $p= .814$, partial $\eta^2= .000$. Hence, our mediation hypothesis was not supported (see *Figure 2* for a visualization of the results for Hypothesis 2)

Figure 2

Standardized Regression Coefficients for the Relationship Between Candidate Age and Hiring Recommendation as Mediated by Perceived Competence.



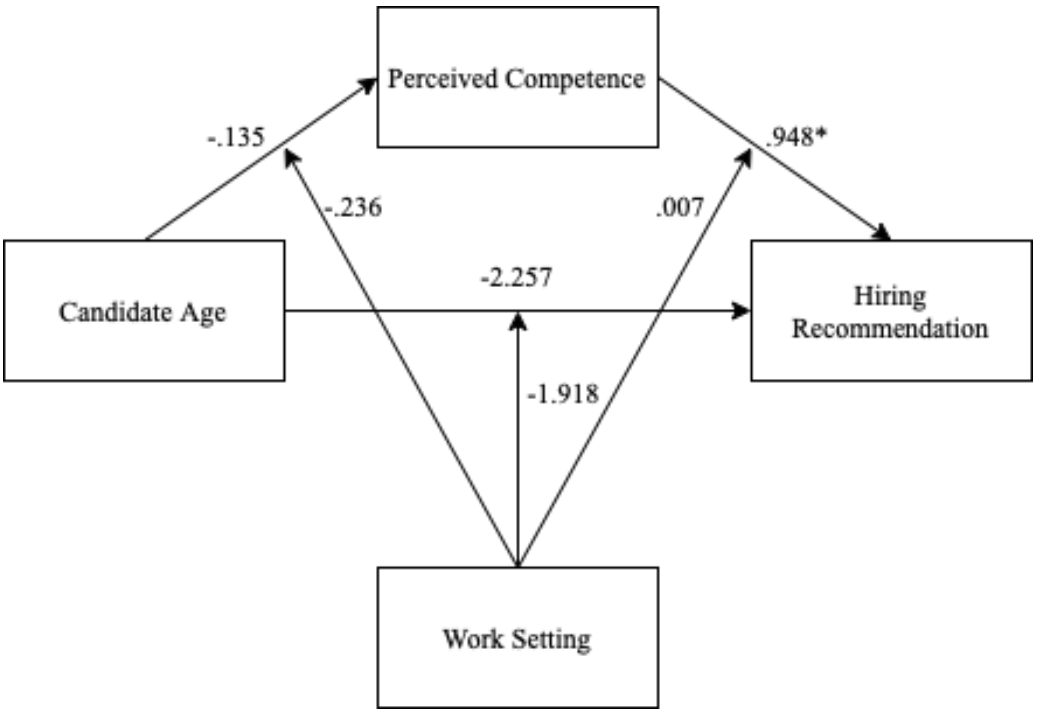
*$p < .05$

Finally, we hypothesized that older candidates will be less likely to be recommended for hiring for a remote job than younger candidates partly through low perceptions of competence (*Hypothesis 4*). To test this, we conducted a moderated mediation analysis using Hayes PROCESS Macro Model 59. Results revealed that the moderating effect of work setting on the relationship between candidate age and perceived competence was not significant, R^2 change= .000, $b= -.236$, $t= -.193$, $p= .847$. Moderating effect of work setting on the direct relationship between candidate age and hiring recommendation was also not significant, R^2 change= .003, $b=$

-1.918, *t*= -1.653, *p*= .099. And the moderating effect of work setting on the relationship between perceived competence and hiring recommendation was not significant as well, R^2 change= .000, *b*= .007, *t*= .089, *p*= .929. Bootstrap confidence intervals also confirm these findings. Additionally, pairwise contrasts between conditional indirect effects also suggest that the indirect effect of candidate age on hiring recommendation through perceived competence does not differ between the two work settings, *b*= -.224, 95% CI [-2.496, 2.026]. In other words, our moderated mediation hypothesis was not supported (see *Figure 3* for a visualization of the results for Hypothesis 4).

Figure 3

Standardized Regression Coefficients for the Relationship Between Candidate Age and Hiring Recommendation as Mediated by Perceived Competence and Moderated by Work Setting.



*$p < .05$

Discussion

Age discrimination in hiring processes is well-documented in the literature. However, age discrimination in the context of remote work lacked empirical attention. Technological advancements made remote work possible and an attractive form of work modality even before the COVID-19 pandemic (Yang et al., 2022). During the pandemic, the number organizations adapting to remote work grew substantially (Hamouche & Parent-Lamarche, 2022), and this expansion is expected to continue in the future (De Vincenzi et al., 2022). This makes investigating age discrimination in remote work more relevant than ever. To address this topic, we made several predictions about age discrimination in relation to remote work based on existing literature.

We hypothesized that older candidates would be less likely to be recommended for hiring than younger candidates. Our findings revealed that participants indeed preferred hiring younger candidates over older ones. This is consistent with literature suggesting that older candidates are more likely to experience age discrimination from employers, and that this discrimination increases with candidates' age (Batinovic et al., 2023; Carlsson & Eriksson, 2019; Richardson et al., 2012).

Additionally, previous studies suggest that people hold negative stereotypes regarding several work-related competencies of older employees, making them less desirable for hiring (Carlsson & Eriksson, 2019; Gringart et al., 2005; Kaufmann et al., 2016). Accordingly, we hypothesized that older candidates would be less likely to be recommended for hiring than younger candidates, partly through perceptions of lower competence. However, we found no evidence supporting this hypothesis. Older candidates were not perceived as less competent than

younger ones, and participants' preference for hiring younger candidates was not related to perceived competence.

Previous studies also suggest that competence may especially be relevant for hiring in remote working arrangements, which require a certain level of (digital) competence to be carried out (Tsareva & Omelyanenko, 2020). Indeed, Fousiani et al., (2023) found that people prefer hiring candidates whom they perceive to be more competent for a remote working job. However, no study has yet tested whether people prefer hiring younger candidates over older ones for remote working jobs and how competence may play a role in this relationship. Accordingly, we first tested the hypothesis that older candidates would be less likely to be recommended for hiring for a remote working job than younger candidates. Our findings reveal that this was not the case. Participants did not differentiate their preferences for hiring between older and younger candidates as a function of different work settings.

Finally, we hypothesized that older candidates would be less likely to be recommended for hiring for a remote job compared to younger candidates, partly through perceptions of lower competence. We also found no evidence supporting this hypothesis. The reasons for not observing our expected results may be related to our methodology, which we will discuss in the *Limitations and future directions section* of this paper.

Alternatively, the increased widespread use of technology and the adoption of remote work over the years may have alleviated people's negative assumptions about older employees' competence in remote working, as they became more accustomed to seeing older employees perform in this work setting. Arvola et al. (2017) emphasized that technology is more strongly associated with youth than older adults; however, this notion could have transformed over the years, especially with the emergence of the COVID-19 pandemic.

Remote work was already being used before the pandemic (Yang et al., 2022) and became the default work setting for many jobs during the pandemic to accommodate strict governmental lockdowns and restrictions (Nemteanu & Dabija, 2021; De Vincenzi et al., 2022). During this period, everyone had to adjust to this rather new work modality, not just the young but also the old, making remote work not exclusive to the younger generation (König & Seifert, 2022). Even after the governmental restrictions were over, remote work remained its popularity, with many organizations continuing to utilize it more than they did before the pandemic, and with older employees still currently performing under remote working job settings (De Vincenzi et al., 2022).

The increased popularity of remote work and the number of older adults now working remotely may have prevented discrimination toward older employees based on competence perceptions, which could explain why we did not observe some of the results we were expecting. Regardless of the reason, the lack of support for most of our predictions suggest a more optimistic picture for age discrimination than what we anticipated based on previous studies.

Theoretical and practical implications

Our research has several implications for both theory and practice. First, it confirms the abundance of findings in favor of ageism in hiring. Consistent with previous inquiries, our research found that people generally prefer hiring younger candidates over older ones.

Second, it addresses the gap in information regarding the role of perceived competence in age discrimination in hiring. Our literature review yielded only a few studies that investigated the role of perceived competence in hiring, with only one examining its interaction with age. Importantly, that study focused exclusively on specific work-related competencies (Gringart et al., 2005). Our research adds new insights to the existing literature as it is the first to investigate

the mediating role of competence as a global impression on the age and hiring relationship. Despite prior findings suggesting otherwise, we did not observe perceived competence mediating the relationship between age and hiring recommendation, nor did we find evidence that older candidates are perceived as less competent than younger ones.

Importantly, our research is the first to study age discrimination in hiring within the context of remote work. The global rise of remote work as a working modality makes it crucial to investigate ageism in remote working jobs. Previous research only indirectly addressed this topic by investigating age discrimination in hiring for two young-typed jobs (Perry & Bourhis, 1998). Given that technology is generally associated with youth and less connected with older adults (Arvola et al., 2017; Burn et al., 2022) remote working might also be considered a young-typed job due to its technological nature. However, this reasoning alone is not enough to draw conclusions about ageism in hiring in remote working settings. Our research directly addresses this gap and suggests that work setting does not influence hiring preferences for younger or older candidates.

Additionally, our research contributes to age discrimination literature by uniquely considering the role of perceived competence in the context of remote work. Literature suggests that competence is crucial for success in remote working environments as digital competence has been associated with better performance for jobs that favor remote working (Emperatriz & Yudet, 2022; Tsareva & Omelyanenko, 2020). Given that competence has already been demonstrated as an important element for evaluating candidates (Fousiani et al., 2022; Fousiani et al., 2023), it is likely for people to be especially vigilant to candidates' competence when making hiring decisions for remote working jobs. Considering perceived competence as a potential mediator in the candidate age and hiring relationship in the context of remote work is

thus a strong step toward understanding ageism in hiring for remote working jobs. Our findings indicate that people do not differentiate hiring decisions based on age as a function of work setting and that perceived competence does not play a role in this relationship. Overall, the lack of support for our predictions presents a more optimistic view of hiring decisions than what was suggested by the previous literature.

Our findings also have practical implications for organizations. As did many others, our research demonstrated the existence of age discrimination in hiring processes. However, as shown by the literature, ageism in the workplace is unfounded, as many studies indicate that age is not necessarily negatively related to desirable organizational outcomes. In fact, the potential negative influence of age on desirable work outcomes seems to be dependent on various factors such as experience (Salthouse, 1994), job control, and successful aging strategies (Weigl et al., 2013).

Moreover, other research has in fact found positive links between age and desirable organizational outcomes, such as safety behaviors and organizational citizenship behaviors, and negative links with undesirable outcomes such as workplace aggression and on-the-job substance use (Ng & Feldman, 2008). Additionally, older adults are found to display more positive job attitudes (Ng & Feldman, 2010), better interpersonal management behaviors through higher emotional competence (Beitler et al., 2018) and better coping against role ambiguity and workplace conflict than younger adults (Shirom et al., 2008).

Recruiters and hiring managers should be aware of the existence of age discrimination in hiring processes and understand the factors that might stimulate this discrimination. They should recognize that this discrimination is unjustified and damages their chances of hiring qualified candidates, and they should be encouraged to actively combat it. This is especially important for

countries with aging populations which suffer from labor shortages. Age discrimination may prevent older adults to gain employment (Burn et al., 2022) and exacerbate existing labor shortages. Organizations should therefore implement interventions designed to reduce age discrimination in hiring to stimulate fair treatment of older employees and alleviate labor shortages (Gringart et al., 2005).

Limitations and future directions

Our research has some limitations, which might explain why we did not observe our expected effects. We utilized a between-subjects experimental design to test our hypotheses. This approach is robust against potential carry over effects and participant demand characteristics. It is relatively straightforward and does not heavily tax participants' cognitive resources. Given the novelty of our hypotheses, it was ideal to keep things simple, and our between-subjects design allowed us to do so. However, a within-subjects design also has its benefits, as it can eliminate individual level differences, reduce error variance, and thus increase the likelihood of detecting an effect if one exists. Future research should attempt to replicate our findings using different research designs, such as within-subjects or mixed factorial designs.

Additionally, we used a survey experiment to test our hypotheses, which might not fully stimulate a real-life hiring situation. Intuitively, hiring a hypothetical candidate is not the same as hiring a real person. Future research could benefit from a laboratory or a field experiment where participants make real-life hiring decisions with real candidates to enhance ecological validity.

Moreover, although we selected faces of young and old candidates with comparable mean attractiveness scores from the FACES database, our findings might still have been confounded by candidates' perceived attractiveness since our participants were presented with young and old

faces that belonged to different people. A stronger manipulation would be to show participants a younger face and its digitally aged version to avoid this potential confounding effect.

Finally, a potential avenue for future research would be to focus specifically on digital competence rather than global perceptions of competence. Although we found that general competence perceptions did not mediate the relationship between candidate age and hiring recommendations for a remote working job, digital competence perceptions may still play an important role in this relationship. This suggestion aligns well with the findings of Tsareva & Omelyanenko (2020) and Emperatriz & Yudet (2022), which emphasize the importance of digital competence specifically, rather than general competence, to thrive in a remote working environment.

We encourage scholars to replicate our findings while considering the remarks mentioned in this section. This is especially important given that we did not observe most of our expected effects. Remote work is here to stay and has been found to be highly beneficial to organizations, as it is associated with increased job satisfaction, productivity, performance, and a healthy work-life balance (Ferrara et al., 2022; Martin & MacDonnell, 2012; Vega et al., 2014). The novelty of investigating ageism in hiring within the context of remote work emphasizes the need for further research in this area. Understanding if and how age discrimination in hiring occurs in remote work settings presents an important challenge for future research.

Concluding Remarks

Age discrimination has long been observed in hiring processes but understanding it in the context of remote work has been lacking in the existing literature. To address this shortcoming, we conducted a study to investigate the relationship between candidates' age and hiring decisions, the mediating role of perceived competence, and whether this relationship is

moderated by work setting. Accordingly, we formulated four hypotheses and found support for only one. Specifically, consistent with previous findings, we found a general preference for hiring younger candidates over older ones. However, this preference was not related to candidates' perceived competence nor was it influenced by the work setting. Preference for hiring younger candidates also remained unrelated to applicants' perceived competence across the two types of work settings. Although these results confirm the existence of age discrimination in hiring, they also suggest that the hiring chances of older adults are not necessarily impaired by the work setting. Nonetheless, we encourage researchers to replicate and extend our findings because such efforts could help organizations with coming up with best practices to overcome age discrimination in hiring and potentially alleviate labor shortages in aging countries like the Netherlands.

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Appendix

Please note that this section contains both the English and Dutch versions of our materials. However, our study was conducted in Dutch to accommodate our participants, so they were only presented with the Dutch materials.

Additionally, for brevity, the scales included in this section address only Ms. De Vries. Participants in the male-gender condition saw questions referring to Mr. De Vries.

Scenario

Imagine that you work as HR manager in a big company in Amsterdam. In your company a job vacancy is open and you are responsible for selecting the most suitable candidate. Please take a few seconds to put yourself in the shoes of the job recruiter and to immerse yourself into this role.

Stelt u zich voor dat u werkt als HR-manager in een groot bedrijf in Amsterdam. In uw bedrijf is een vacature open en u bent verantwoordelijk voor het selecteren van de meest geschikte kandidaat. Neem een paar seconden de tijd om u in de rol van de recruiter te plaatsen en volledig op te gaan in deze rol.

Job description

You are currently looking for a "Project Coordinator" to join your team. He/she will be responsible for coordinating project activities, managing timelines, and facilitating communication and interaction among team members. His/her role will require a combination of organizational competence to ensure projects stay on track and effective interpersonal skills to foster collaboration and teamwork.

Je bent op dit moment op zoek naar een "Project Coordinator" die uw team zal komen versterken. Hij/zij zal verantwoordelijk zijn voor het coördineren van project activiteiten, het beheren van tijdlijnen en het faciliteren van communicatie en interactie tussen groepsgenoten. Zijn/haar rol vereist een combinatie van organisatorische competentie om te garanderen dat projecten op schema blijven lopen en effectieve interpersoonlijke vaardigheden om samenwerking en teamwork te bevorderen.

Work Setting Manipulations

Teleworking.

It is important to mention that the successful candidate will work 35-40 hours per week from the company office. Physical presence of the candidate in the office is mandatory. All kinds of formal or informal meetings, business discussions, and social interactions with team members and customers will be face-to-face. This means that the successful candidate will only meet other people face-to-face while no online interactions will take place. In other words, the successful candidate will be working with people that he or she will be able to meet in real life. Teleworking is not an option in the company.

Het is belangrijk om te vermelden dat de geschikte kandidaat 35-40 uur per week op kantoor zal werken. Aanwezigheid op kantoor is verplicht. Alle soorten formele of informele vergaderingen, zakelijke discussies en sociale interacties met teamleden en klanten zullen face-to-face zijn. Dit betekent dat de geschikte kandidaat alleen andere mensen face-to-face zal ontmoeten terwijl er geen online interacties zullen plaatsvinden. Met andere woorden, de geschikte kandidaat zal

werken met mensen die hij of zij in het echt kan ontmoeten. Werken op afstand is geen optie in het bedrijf.

Office.

It is important to mention that the successful candidate will work 35-40 hours per week *remotely (e.g., from home)*. *Physical presence of the candidate in the company is not necessary.* All kinds of formal or informal meetings, business discussions, and social interactions with team members and customers will be *completely online*. This means that the successful candidate will *only meet other people virtually while no face-to-face-interactions will take place*. In other words, the successful candidate will be working with people that he or she might never be able to meet in real life. Working from a company office is not an option in the company.

Het is belangrijk om te vermelden dat de geschikte kandidaat 35-40 uur per week op afstand zal werken (bijvoorbeeld vanuit huis). Aanwezigheid op kantoor is niet nodig. Alle soorten formele of informele vergaderingen, zakelijke discussies en sociale interacties met teamleden en klanten zullen volledig online plaatsvinden. Dit betekent dat de geschikte kandidaat alleen andere mensen virtueel zal ontmoeten terwijl er geen face-to-face interacties plaatsvinden. Met andere woorden, de geschikte kandidaat zal werken met mensen die hij of zij misschien nooit in het echt kan ontmoeten. Werken vanuit een bedrijfskantoor is geen optie in het bedrijf.

Work Setting Manipulation Check

Based on what you just read, the successful candidate will work…

a. Completely remotely from home
b. Always from the company office

Op basis van wat u net heeft gelezen, zal de geschikte kandidaat …

a. Volledig op afstand werken
b. Altijd vanuit het kantoor werken

Age Manipulation Vignettes

Old-male.

Mr Jan de Vries was born in 1964 and he, therefore, is 60 years old. This is the candidate, Mr Jan de Vries.

Mr de Vries has considerable experience in Project Management. Based on his CV, Mr de Vries fulfils the job requirements. However, the company would need to invest time and money in order to provide Mr de Vries the necessary training to enable him to perform as expected. Although training newcomers is always necessary, it seems that some extra time and money investment is needed in case that Mr de Vries gets hired.

De heer Jan de Vries is in 1964 geboren en is zodoende 60 jaar oud. Dit is de kandidaat, de heer Jan de Vries.

De heer De Vries heeft aanzienlijke ervaring in projectmanagement. Op basis van zijn CV voldoet de heer De Vries aan de functie-eisen. Desondanks zou het bedrijf tijd en geld moeten investeren om de heer De Vries de noodzakelijke training te verstrekken om hem in staat te stellen zoals verwacht te presteren. Hoewel training van nieuwkomers altijd noodzakelijk is, lijkt het erop dat er bij de heer De Vries wat extra tijd en geld nodig is als hij wordt aangenomen.

Young-male.

Mr Jan de Vries was born in 1996 and he, therefore, is 28 years old. This is the candidate, Mr Jan de Vries.

Mr de Vries has considerable experience in Project Management. Based on his CV, Mr de Vries fulfils the job requirements. However, the company would need to invest time and money in order to provide Mr de Vries the necessary training to enable him to perform as expected. Although training newcomers is always necessary, it seems that some extra time and money investment is needed in case that Mr de Vries gets hired.

De heer Jan de Vries is in 1996 geboren en is zodoende 28 jaar oud. Dit is de kandidaat, de heer Jan de Vries.

De heer De Vries heeft aanzienlijke ervaring in projectmanagement. Op basis van zijn CV voldoet de heer De Vries aan de functie-eisen. Desondanks zou het bedrijf tijd en geld moeten investeren om de heer De Vries de noodzakelijke training te verstrekken om hem in staat te stellen zoals verwacht te presteren. Hoewel training van nieuwkomers altijd noodzakelijk is, lijkt het erop dat er bij de heer De Vries wat extra tijd en geld nodig is als hij wordt aangenomen.

Old-female.

Ms Johanna de Vries was born in 1964 and she, therefore, is 60 years old. This is the candidate, Ms Johanna de Vries.

Ms de Vries has considerable experience in Project Management. Based on her CV, Ms de Vries fulfils the job requirements. However, the company would need to invest time and money in order to provide Ms de Vries the necessary training to enable her to perform as expected. Although training newcomers is always necessary, it seems that some extra time and money investment is needed in case that Ms de Vries gets hired.

Mevrouw Johanna de Vries is in 1964 geboren en is zodoende 60 jaar oud. Dit is de kandidaat, mevrouw Johanna de Vries.

Mevrouw De Vries heeft aanzienlijke ervaring in projectmanagement. Op basis van haar CV voldoet mevrouw De Vries aan de functie-eisen. Desondanks zou het bedrijf tijd en geld moeten investeren om mevrouw De Vries de noodzakelijke training te verstrekken om haar in staat te stellen zoals verwacht te presteren. Hoewel training van nieuwkomers altijd noodzakelijk is, lijkt het erop dat er bij mevrouw De Vries wat extra tijd en geld nodig is als zij wordt aangenomen.

Young-female.

Ms Johanna de Vries was born in 1996 and she, therefore, is 28 years old. This is the candidate, Ms Johanna de Vries.

Ms de Vries has considerable experience in Project Management. Based on her CV, Ms de Vries fulfils the job requirements. However, the company would need to invest time and money in order to provide Ms de Vries the necessary training to enable her to perform as expected. Although training newcomers is always necessary, it seems that some extra time and money investment is needed in case that Ms de Vries gets hired.

Mevrouw Johanna de Vries is in 1996 geboren en is zodoende 28 jaar oud. Dit is de kandidaat, mevrouw Johanna de Vries.

Mevrouw De Vries heeft aanzienlijke ervaring in projectmanagement. Op basis van haar CV voldoet mevrouw De Vries aan de functie-eisen. Desondanks zou het bedrijf tijd en geld moeten investeren om mevrouw De Vries de noodzakelijke training te verstrekken om haar in staat te stellen zoals verwacht te presteren. Hoewel training van nieuwkomers altijd noodzakelijk is, lijkt het erop dat er bij mevrouw De Vries wat extra tijd en geld nodig is als zij wordt aangenomen.

Age Manipulation Check

The candidate that you just read about is…

a. 30 years old

b. 55 years old

De kandidaat waar u net over heeft gelezen is...

a. 28 jaar oud

b. 60 jaar oud

Competence Scale

Based on the short description I read about the candidate and the picture of the candidate that I saw, I would say that Ms De Vries strikes me as a person who is...

1. Efficient
2. Active
3. Capable
4. Energetic
5. Competent
6. Skillful
7. Intelligent

Op basis van de korte beschrijving die ik over de kandidaat heb gelezen en de foto van de kandidaat die ik heb gezien, zou ik zeggen dat mevrouw De Vries op mij overkomt als een persoon die...

1. Efficiënt

2. Actief
3. Bekwaam
4. Energiek
5. Competent
6. Vaardig
7. Intelligent

Hiring Recommendation Scale

Based on what you read about Ms de Vries...

1. Would you recommend Ms de Vries for the job?
2. Would you recommend Ms de Vries for this position?
3. Would you recommend that Ms de Vries be hired?
4. What is the likelihood that you would recommend Ms De Vries for hiring by your company?
5. Please give your overall evaluation of Ms de Vries
6. Please rate Ms De Vries according to the following scale
7. Are you willing to invite Ms De Vries to the next interview round?

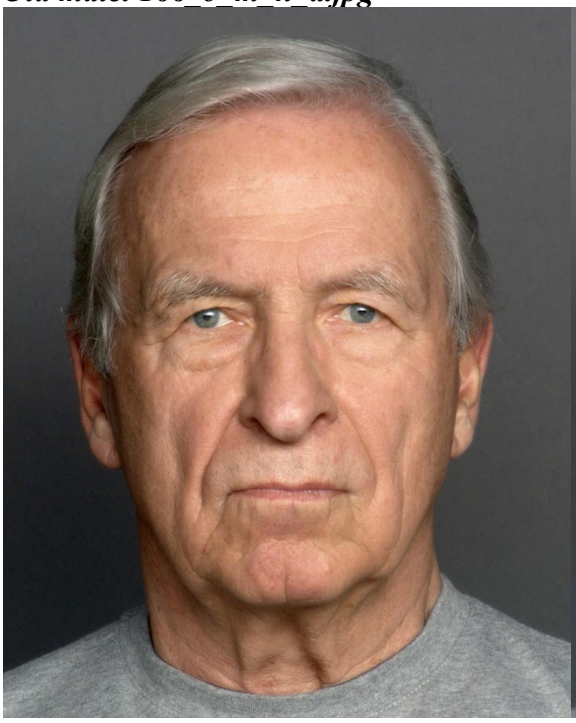
Gebaseerd op wat u over de mevrouw de Vries heeft gelezen...

1. Zou u mevrouw De Vries aanbevelen voor de baan?
2. Zou u mevrouw De Vries aanbevelen voor deze functie?
3. Zou u aanbevelen om mevrouw De Vries in dienst te nemen?
4. Hoe groot is de kans dat u mevrouw De Vries zou aanbevelen om in dienst te treden bij uw bedrijf?

5. Wat is uw algehele evaluatie van mevrouw De Vries?
6. Beoordeel mevrouw De Vries volgens de volgende schaal
7. Bent u bereid om mevrouw De Vries uit te nodigen voor de volgende sollicitatieronde?

Participant Faces (with their FACES Database identifiers)

Old male. 166_o_m_n_a.jpg



Young male. 167_y_m_n_a.jpg

Old female. 158_o_f_n_a.jpg

Young female. 132_y_f_n_b.jpg

Syntax

```
DATASET ACTIVATE DataSet1.
RECODE setting_DO_Teleworking (1=2) INTO Telework.
VARIABLE LABELS  Telework 'Telework Recoded'.
EXECUTE.


COMPUTE Setting=SUM(setting_DO_Office,Telework).
VARIABLE LABELS  Setting 'Work Setting 1= Office, 2= Telework'.
EXECUTE.

RECODE age_gender_DO_Old_male (1=2) INTO Old_1.
VARIABLE LABELS  Old_1 'Old_1'.
EXECUTE.

RECODE age_gender_DO_Old_female (1=2) INTO Old_2.
VARIABLE LABELS  Old_2 'Old_2'.
EXECUTE.

COMPUTE
Age_DV=SUM(age_gender_DO_Young_male,Old_1,age_gender_DO_Young_female,Old_2).
EXECUTE.

COMPUTE Recommendation_1=SUM(Recommendation_1_1,Recommendation_1_1.0).
EXECUTE.

COMPUTE Recommendation_2=SUM(Recommendation_1_2,Recommendation_1_2.0).
EXECUTE.

COMPUTE Recommendation_3=SUM(Recommendation_1_3,Recommendation_1_3.0).
EXECUTE.

COMPUTE Recommendation_4=SUM(Recommendation_2_1,Recommendation_2_1.0).
EXECUTE.

COMPUTE Recommendation_5=SUM(Recommendation_3_1,Recommendation_3_1.0).
EXECUTE.

COMPUTE Recommendation_6=SUM(Recommendation_4_1,Recommendation_4_1.0).
EXECUTE.

COMPUTE Recommendation_7=SUM(Recommendation_5_1,Recommendation_5_1.0).
EXECUTE.

COMPUTE Competence_1=SUM(Traits_female_1,Traits_male_1).
```

```
EXECUTE.

COMPUTE Competence_2=SUM(Traits_female_2,Traits_male_2).
EXECUTE.

COMPUTE Competence_3=SUM(Traits_female_3,Traits_male_3).
EXECUTE.

COMPUTE Competence_4=SUM(Traits_female_4,Traits_male_4).
EXECUTE.

COMPUTE Competence_5=SUM(Traits_female_5,Traits_male_5).
EXECUTE.

COMPUTE Competence_6=SUM(Traits_female_6,Traits_male_6).
EXECUTE.

COMPUTE Competence_7=SUM(Traits_female_7,Traits_male_7).
EXECUTE.

FREQUENCIES VARIABLES=Recommendation_1 Recommendation_2 Recommendation_3
Recommendation_4
   Recommendation_5 Recommendation_6 Recommendation_7 Competence_1 Competence_2
Competence_3
   Competence_4 Competence_5 Competence_6 Competence_7 MCsetting_1 MCsetting_2
MCage
  /STATISTICS=MINIMUM MAXIMUM
  /ORDER=ANALYSIS.

RECODE Recommendation_6 (9=7).
EXECUTE.

RECODE Recommendation_6 (9=7) (8=7).
EXECUTE.

RECODE MCage (4=2).
EXECUTE.

FILTER OFF.
USE ALL.
SELECT IF
(NMISS(Recommendation_1,Recommendation_2,Recommendation_3,Recommendation_4,

Recommendation_5,Recommendation_6,Recommendation_7,Competence_1,Competence_2,Co
mpetence_3,
   Competence_4,Competence_5,Competence_6,Competence_7) < 1).
```

```
EXECUTE.

FREQUENCIES VARIABLES=Age Gender ethnicity employment_status sector Education
  /STATISTICS=STDDEV MINIMUM MAXIMUM MEAN SKEWNESS SESKEW
KURTOSIS SEKURT
  /HISTOGRAM NORMAL
  /ORDER=ANALYSIS.

RELIABILITY
  /VARIABLES=Recommendation_1 Recommendation_2 Recommendation_3
Recommendation_4 Recommendation_5
    Recommendation_6 Recommendation_7
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /STATISTICS=DESCRIPTIVE SCALE CORR
  /SUMMARY=TOTAL CORR.

RELIABILITY
  /VARIABLES=Competence_1 Competence_2 Competence_3 Competence_4 Competence_5
Competence_6
    Competence_7
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /STATISTICS=DESCRIPTIVE SCALE CORR
  /SUMMARY=TOTAL CORR.

RECODE MCsetting_2 (7=1) (6=2) (5=3) (4=4) (3=5) (2=6) (1=7) INTO MCsetting2_recoded.
VARIABLE LABELS  MCsetting2_recoded 'MCsetting2_recoded'.
EXECUTE.

RELIABILITY
  /VARIABLES=MCsetting_1 MCsetting2_recoded
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /STATISTICS=DESCRIPTIVE SCALE CORR
  /SUMMARY=TOTAL MEANS CORR.

COMPUTE MCSetting=SUM(MCsetting_1,MCsetting2_recoded).
EXECUTE.

COMPUTE
CompetenceAgg=SUM(Competence_1,Competence_2,Competence_3,Competence_4,Competen
ce_5,
    Competence_6,Competence_7).
EXECUTE.
```

```
COMPUTE
RecommendationAgg=SUM(Recommendation_1,Recommendation_2,Recommendation_3,Reco
mmendation_4,
    Recommendation_5,Recommendation_6,Recommendation_7).
EXECUTE.

FREQUENCIES VARIABLES=Gender ethnicity Dutch_proficiency employment_status sector
Education
  /STATISTICS=STDDEV MINIMUM MAXIMUM MEAN SKEWNESS SESKEW
KURTOSIS SEKURT
  /ORDER=ANALYSIS.

DESCRIPTIVES VARIABLES=Age Tenure Hours_work
  /STATISTICS=MEAN STDDEV MIN MAX.

UNIANOVA MCSetting BY Setting
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /PRINT ETASQ DESCRIPTIVE
  /CRITERIA=ALPHA(.05)
  /DESIGN=Setting.

UNIANOVA MCage BY Age_DV
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /PRINT ETASQ DESCRIPTIVE
  /CRITERIA=ALPHA(.05)
  /DESIGN=Age_DV.

DATASET ACTIVATE DataSet1.
CORRELATIONS
  /VARIABLES=MED DV IV MOD Age Gender ethnicity Dutch_proficiency empstat Tenure
Hours_work sector
    Education
  /PRINT=TWOTAIL NOSIG FULL
  /MISSING=PAIRWISE.

UNIANOVA DV BY IV
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /POSTHOC=IV(LSD)
  /PRINT ETASQ DESCRIPTIVE
  /CRITERIA=ALPHA(.05)
  /DESIGN=IV.

UNIANOVA MED BY IV
```

```
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /PRINT ETASQ DESCRIPTIVE PARAMETER
  /CRITERIA=ALPHA(.05)
  /DESIGN=IV.

UNIANOVA DV BY IV MOD
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /PRINT ETASQ DESCRIPTIVE PARAMETER
  /CRITERIA=ALPHA(.05)
  /DESIGN=IV MOD IV*MOD.
```