

Precocity Threat: Exposure to Younger, More Successful Colleagues Undermines Career Engagement and Job Performance

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Abstract. As the modern workforce becomes more age diverse and career ascension less contingent upon seniority, workers interact regularly with professionals younger than them who enjoy a higher level of occupational status than them (e.g., younger bosses, department superstars). Researchers have long theorized that these age counter-normative relationships are fraught with unique interpersonal challenges (i.e., communication, bonding, power struggles) that hinder job performance. Despite this theoretical consensus however, evidence supporting this claim has been mixed. Departing from prior relational perspectives, we build on social comparison theories and envy to propose that exposure to younger, higher status workers triggers *precocity threat*: an unfavorable self-reflective process that reduces one's aspiration to reach a similar professional outcome and undercut one's career investment, ultimately denting job performance. Using a host of methods to establish causal inference, we find consistent evidence of precocity threat across a longitudinal, archival U.S. professional sport dataset ($N = 5,093$), a matched quasi-experiment at a Latin American financial institution ($N = 2,573$ and $N = 2,842$), and a pre-registered online experiment with a diverse sample of U.K.-based workers ($N = 1,112$). These findings provide the first robust causal evidence of the negative effects of age counter-normative interactions at the workplace, show the ubiquity of precocity threat in contemporary organizations, and introduce a self-reflective mechanism that helps clarify when the negative relational processes theorized in prior work might take effect. Precocity threat illustrates the subtle ways in which the new age landscape of modern workplaces shapes the everyday productivity of today's workforce.

Keywords: age diversity, social comparison, precocity threat, future of work

“This year, in addition to my 30 Under 30 aversion, [...] I’ve found myself feeling anxious about the squad of [30-year-olds] who’ve just been elected to political office. As much as I believe on principle that these rising political stars will bring an essential new perspective, [...] do they have to be younger than me while they do it?”

— Heather Schwedel, article for Slate (November 16, 2018)

From the proliferation of *30 under 30* lists to the sudden rise of young Millennials in national politics, the last two decades have featured increased celebration of professionally precocious men and women (Alter, 2020; Blum, 2020; Schwedel, 2018). This phenomenon reflects a broader trend in the modern workforce: Professional success has become less contingent upon seniority. Successive tech booms have propelled young professionals into previously unobtainable C-level positions (Bertoni, 2020); organizations are shifting toward flatter hierarchical structures with fewer, more age-diverse corporate echelons (Shore et al., 2009); and arrangements in which younger supervisors oversee older subordinates are on the rise, with 38% of the U.S. workforce now managed by someone younger than them (Kaufman, 2017; Kunze & Menges, 2017). As a result, workers are increasingly exposed to younger professionals who enjoy a higher level of occupational status than them (i.e., age incongruent interactions). Growing academic work on age diversity, older workers, and generational issues has coincided with the belief that management scholars can no longer afford to overlook the central role age plays in shaping the everyday experience of the modern workforce (Boehm & Kunze, 2015; Burmeister et al., 2019; Finkelstein, et al., 2015; Kulik et al., 2014; Joshi et al., 2010; Joshi et al., 2011; Li et al., 2020; North, 2019). In this context, how does increased age

incongruent interactions shape workers' experience at the workplace? And how might it affect their motivation, engagement, and performance?

On the one hand, one might expect the workforce to embrace these changes. A departure from the traditional corporate model tying upward mobility to seniority (Lawrence, 1984, 1988; Perry et al., 1999; Tsui et al., 2002; Vecchio, 1993) in favor of a more merit-based process rewarding competence, independent of a worker's age—or any other demographic attribute—echoes the demand of an increasingly diverse workforce for more social justice at the workplace (Johnson, 2021; Zheng, 2020). A merit-based model also coincides with leaders' desire to build efficient hierarchies in which the best employees are granted the most influence over strategic decisions (Halevy et al., 2011; Lazear & Rosen, 1981; Magee & Galinsky, 2008). Finally, it resonates with the agenda of organizational researchers, who have been highlighting myriad ways in which age-, race-, and gender-based inequalities complicate professional ascension (Amis et al., 2020; Apfelbaum et al., 2019; Blau & Khan, 2017; Manstead, 2018; Stephens et al., 2019; Tomaskovic-Devey, 2018).

On the other hand, efforts to build more equitable organizations sometimes lead to negative unforeseen consequences (Dover et al., 2020; Leslie, 2019). In this regard, parting ways with the traditional age-based ladder might bring about previously unconsidered challenges. Indeed, interacting with professionals younger than us enjoying more influence and power than us goes counter to traditional age norms according to which people younger owe us admiration, respect, and deference (Berger et al., 1972; Elder, 1975). Prior work addressing this question has mainly focused on age incongruence in supervisor-subordinate dyads, converging on the theoretical assertion that workers supervised by managers younger than them likely face unique relational challenges (e.g., bonding, mentoring, communication, trust, power struggle) that

hinder their motivation and performance (Kunze & Menges, 2017; Pearce & Xu, 2012; Tsui & O'Reilly, 1995; Tsui et al., 2002). However, notwithstanding this theoretical consensus, empirical evidence supporting this general claim has been mixed. While some research suggests that workers supervised by a younger manager do feel less supported by their boss, exhibit less adaptive behaviors, underperform on objective measures, and receive lower in-role and extra-role performance ratings, other investigations have found no effect or even positive effects of having a younger boss, including better relations with one's supervisors, lower levels of absenteeism, and higher levels of extra-role behaviors (Collins et al., 2009; Liden et al., 1996; Pearce & Xu, 2012; Perry et al., 1999; Shore & Bleicken, 1991; Tsui et al., 2002; Vecchio, 1993). As a result, while workers are more and more exposed to younger professionals in more prestigious occupational positions than them, it is unclear whether and how this new age landscape impacts the productivity of a rapidly aging workforce.

Our paper moves this conversation forward in three important ways. First, we investigate a previously unstudied mechanism that sheds new light on the effects of age incongruent interactions on workers' engagement and performance. Contrasting with prior focus on relational dynamics, we examine some of the more self-reflective implications of exposure to higher status professionals: upward social comparison and envy. More specifically, we theorize that exposure to an *older*, higher occupational status worker provides opportunities for aspirational social comparisons, while exposure to a *younger*, higher occupational status worker leaves focal workers feeling inadequate to reach a similar outcome, hindering their engagement and performance at work. Using diverse methods, samples, and settings, we consistently find support for the latter—but not the former—prediction. These findings not only inform our understanding of the relationship between performance and age incongruent interactions. They also highlight a

potential antecedent to the negative relational dynamics investigated in prior age incongruence research, thereby helping to clarify when and why these relational dynamics might come into play during age incongruent interactions.

Second, we broaden the scope of research on age incongruence at the workplace by providing consistent evidence that exposure to younger, higher status professionals shapes workers' engagement and performance, even outside the confines of supervisor-subordinate relationships. Supervisory relationships entail a set of unique features (i.e., formal line of authority, recurrent interactions, needs for coordination and cooperation) that does not always apply to the many non-supervisory, higher status professionals with whom workers interact everyday (e.g., colleagues, family members, clients, former classmates, and other members of one's network). Prior focus on the interpersonal intricacies of age incongruent interactions such as bonding, mentoring, and communication implicitly suggests that a meaningful relationship with regular, work-relevant interactions, is necessary for age incongruence to impact workers' productivity. In contrast, our focus on upward social comparison, which can occur automatically even when interactions are minimal and interpersonal dynamics limited (Duffy et al., 2008; Greenberg et al., 2007), suggests that even minor contacts with a younger, higher status professional can trigger self-reflective processes detrimental to workers' productivity, supervisory relationship or not. These findings highlight the ubiquitous nature of age incongruence at the workplace, and further illustrates the subtle ways in which the modern age landscape of organizations can shape workers' productivity.

Third, we propose that prior mixed findings on age incongruence and performance may be partly explained by an often-overlooked methodological issue in age research: causal inferences based on cross-sectional surveys. Diversity researchers often rely on cross-sectional

surveys—correlational in nature—to make causal claims because demographic predictors (e.g., having a male boss) are assumed to be *antecedents* of the outcome variable they correlate with (e.g., performance). Unfortunately, the use of cross-sectional surveys in age research is more problematic because outcome measures can sometimes be antecedents of age-relevant predictors. For instance, poor performance can predict the likelihood that workers end up with a manager younger than them: Poor performers move up the ranks more slowly than their peers and are therefore more likely to get outstripped by younger, more successful colleagues, who may one day become their boss. Hence, poor performance can be an *antecedent* to having a younger boss—and more broadly, of interacting frequently with younger, higher status workers. Causal evidence is therefore needed to determine whether age incongruent interactions are detrimental to workers' job performance, and not the other way around. The present research addresses this methodological issue using three distinct methods (i.e., a longitudinal archival dataset, a matched quasi-experiment, and a preregistered online experiment). Our efforts at establishing causal evidence produced remarkably consistent findings across methods, samples, and settings. In doing so, we not only warn of the risks associated with correlational data in age diversity research, but also provide several concrete methodological approaches to establish causality in this field.

In a context where the age distribution of the workforce is gradually reshuffled across the corporate ladder, reverse supervisor arrangements are on the rise, and exposure to more accomplished younger workers is bound to increase, our work stresses the methodological intricacies inherent to studying age at the workplace and builds new theory to help better understand the emerging challenges that modern organizations face in their efforts to keep workers of all ages and occupational status motivated and productive.

THEORY & HYPOTHESES

Age Incongruence and Upward Social Comparisons

For many workers, occupational life represents a core facet of their identity (Becker & Carper, 1956; Ibarra & Barbulescu, 2010; Kreiner et al. 2006; Pratt et al., 2006; Skorikov & Vondracek, 2011). Their professional accomplishments owe them the prestige, admiration, and respect of others (i.e., occupational status), which serve as a metric for them to evaluate their professional worth relative to that of others in their network (e.g., colleagues, family members, friends).

Workers often engage in comparisons with better-performing or higher-status targets (i.e., upward social comparison) to assess their relative competence, identify new skills for self-improvement, and determine whether higher achievement is within their reach (Collins, 1996; Eddleston, 2009; Greenberg et al., 2007). These comparisons, in turn, provide valuable information to help them decide whether to divest or expand more time, energy, and resources into their jobs and careers (Eddleston, 2009; Greenberg et al., 2007). Like all social comparisons, upward social comparisons can occur automatically, particularly with frequent interaction partners (Duffy et al., 2008; Greenberg et al., 2007). As such, workers' professional environment influences the type of social comparisons they engage in and the type of target they compare with.

Importantly, however, people navigate a multitude of status hierarchies simultaneously (Blau 1977; Bacharach et al., 1993; Han & Pollock, 2020; Jackson, 1962; Lenski, 1954). Prior work has shown that demographic attributes such as gender, race, and social class operate as markers of ascribed status: They are largely out of an individual's control but can nonetheless influence the way people perceive themselves and others (Berger et al., 1972, 1977; Blau, 1977;

Bourdieu, 1979; Glick & Fiske, 1997; Leslie, 2017; Ridgeway & Correll, 2004; Sidanius & Pratto, 1999; Warner et al., 1949).

In this regard, age constitutes a major source of ascribed status. Older age is often assumed to impart wisdom, experience, knowledge, and, more broadly, competence. These attributes all command respect and admiration (Berger et al., 1972; Elder, 1975). Conversely, young adults are often depicted as naïve, unseasoned, and misinformed (Chasteen et al., 2002; Francioli & North, 2021b; Protzko & Schooler, 2019). Reflective of this age-based hierarchy, organizations have historically equated seniority with occupational status (Lawrence, 1984, 1988): Older workers generally enjoy more prestigious roles than their younger counterparts (Perry et al., 1999; Tsui et al., 2002; Vecchio, 1993). In this context, interactions with younger, higher status workers such as a younger boss or a more highly praised junior peer are seen as incongruent.

Social comparison theorists have long argued that people who engage in social comparisons grant more credence to social comparisons involving a target demographically similar to them because these comparisons provide more diagnostic information about one's abilities than do those with dissimilar others (Cruder, 1977; Goethals & Darley, 1977; Wood, 1989). For instance, a female professional athlete may derive more information relevant to the assessment of her athletic skills by comparing herself to other female, rather than male, athletes. Applied to age, this theorizing implies that people favor targets their own age and discount older and younger ones equally.

Departing from this reasoning, we propose that the age difference with one's target provides unique diagnostic information to assess one's performance and the extent to which higher occupational status is within one's reach. As workers' careers progress, time left to

accomplish certain goals vanishes, status-enhancing rewards such as promotions, coveted jobs, and special awards, become less attainable, and the range of career outcomes one can hope to achieve narrows. In this context, status comparisons with younger, higher status workers may cue the focal worker that they might have missed their chance or do not possess the natural abilities to reach a similar level of status. We expect this feeling to hinder the aspirational power of a social comparison. In contrast, status comparisons with an older, higher status worker may make the target's achievement look more attainable. In addition, the focal worker may see the target as a role model whose career trajectory can serve as a blueprint, making a path toward similar success seem more tangible and the opportunity for self-improvement more salient. We therefore hypothesize that:

Hypothesis 1a & 2a. Workers led to compare their professional achievements with those of a *younger* higher status target will see (H1a) their job performance and (H2a) career engagement, *decline* relative to those of workers not engaging in upward comparison.

Hypothesis 1b & 2b. Workers led to compare their professional achievements with those of an *older* higher status target will see (H1b) their job performance and (H2b) career engagement *improve* relative to those of workers not engaging in upward comparison.

Upward Comparisons and the Two Facets of Envy

To better understand the motivational processes underlying age effects in social comparison, we also examine the role of envy. Recent work has stressed the idea that upward social comparisons trigger envy, a painful emotional response marked by strong feelings of inferiority and frustration (Parrott & Smith, 1993; Smith & Kim, 2007). Envious responses serve a motivational function: pushing the envious individuals to narrow the gap between them and their target. Envious responses can take two forms: malicious and benign (Van de Ven et al.,

2009, 2011; 2012; Van de Ven et al., 2015; Sterling et al., 2016). Malicious envy often derives from a feeling that the higher status target is undeserving of their superior outcome (Van de Ven et al., 2012). It is characterized by a hostile attitude toward the target and has been found to predict task disengagement (Lange & Crusius, 2015). With this in mind, we propose that younger higher status targets, less senior and experienced, may be perceived by the focal worker as less deserving of their superior career outcomes than are older higher status targets. This perceived lack of merit of the younger targets might in turn lead the focal worker to experience hostile envy and push them to disengage from the task. As such, we predict that:

Hypothesis 3a. The negative effect of age incongruence on career engagement and job performance will be mediated by malicious envy, such that the *younger* the target is relative to the focal worker, the *stronger* the experience of *malicious* envy toward their target, and the steeper the *decline* in career motivation and job performance.

In contrast with malicious envy, benign envy is characterized by a benevolent attitude toward the superior target and a desire to narrow the gap by improving one's own situation (Van de Ven et al., 2012). Benign envy, therefore, encourages self-improvement, additional effort, and performance enhancement. Consistent with this second facet of envy, researchers have documented the positive effects of benign envy on individual motivation and performance in a wide range of contexts (i.e., academic, sport, and work settings; Lange & Crusius, 2015; Sterling et al., 2016; Van de Ven et al., 2011). With this in mind, we propose that, while upward social comparison can be a fertile ground for benign envy, comparing one's performance with that of a younger, higher status target may limit benign envy's aspirational pull, because the age of the target suggests that the focal worker may have already missed their chance to reach a similar professional outcome. As such, we predict that:

Hypothesis 3b. The negative effect of age incongruence on career engagement and job performance will be mediated by benign envy, such that the *younger* the target is—relative to the focal worker—the *weaker* the experience of *benign envy* toward their target, and the steeper the *decline* in career motivation and job performance.

Study Overview

We test the detrimental effects of exposure to younger, higher status workers using a variety of samples. In Study 1 and 2, we take advantage of exogenous shocks in a professional sport setting (Study 1) and a more traditional corporate environment (Study 2) to examine the effects of prolonged exposure to a younger and older higher status teammate(s) on job performance (hypotheses 1a and 1b). In Study 3, we experimentally manipulate the age incongruence with the target in a large, pre-registered online study to test whether upward social comparison drives the effect of age incongruence on job performance (hypotheses 1a and 1b) and career engagement (hypotheses 2a and 2b) and test the mediating role of benign and malicious envy (hypothesis 3a and 3b).

STUDY 1

The National Basketball Association (NBA), the most prestigious basketball league in the world, constitutes a particularly suitable setting to study the effects of social comparison. In an extremely competitive environment where close to 40% of incumbents are pushed out after only a year or two, engaging in social comparisons with other players help assess one's worth and likelihood to stay in the league. In this regard, comparisons with teammates may be particularly informative. First, such comparisons are more diagnostic, since coaches and managers see and assess their players' performance side-by-side, and constantly refine their team's lineup both within and across seasons. Second, self-comparison with teammates is further facilitated by the

frequency of their interactions, with quasi-daily training, and regular on- and off-season games.

Building on prior work showing that social comparisons can occur automatically (Duffy et al., 2008; Greenberg et al., 2007) and frequency of interactions with a target increases their likelihood, we tested whether the individual performance of a player was affected by the presence of younger or older high-status teammate (H1a and H1b). To test these hypotheses, we used the prestigious All-Star selection as our status-discriminant feature. Each year, a short list of top NBA players is selected to form two super teams that compete in a single, highly publicized All-Star Game, in the middle of the regular NBA season. For each season, we examined the post-All-Star performance of players who were not selected to the prestigious game that season. We predicted that playing alongside an *older* teammate selected to the All-Star roster would boost a player's individual performance, reflective of a rise in aspirational motivation, but playing alongside a *younger* All-Star teammate would hinder a player's performance, reflective of a disengagement from being outperformed by a younger player.

Method

Setting and Sample. Our sample consisted of the individual performance statistics of NBA players at the season level for the 21 consecutive regular seasons 1998-1999 through 2018-19.¹ The data was retrieved from stats.nba.com, a website commonly used in sport analyses (Kubatko et al., 2007).

Independent Variables. We used All-Star selection as our marker of high status (see Koster & Aven, 2018, for a similar approach). Each season, the 24 best NBA players, selected across all NBA teams by coaches' votes, fans' votes, or more recently, by designated All-Star team captains, are divided into two teams that confront each other in a single, highly publicized

¹ Key data points needed to calculate our dependent variable were not available prior to 1998-1999 season.

All-Star Game. The All-Star designation is considered an exceptional achievement in a player's career and represents a widely acknowledged sign of prestige in the basketball community:

According to our dataset, roughly 5.6% of the active NBA players are selected each year and only 9.2% of all players make it at least once to the All-Star game in their career. The All-Star selection represents a clear marker of status and offers a regular redistribution of status among the pool of players (i.e., status reassignment on a yearly basis).

Players selected for the All-Star game in the middle of a given season were considered high-status during the second half of that season. Based on this status operationalization, we created three binary independent variables. The first one distinguished players with no All-Star teammates from players with an All-Star teammate that season (i.e., 0 = no All-Star teammate, 1 = at least one All-Star teammate). This variable allowed us to examine the effect of upward comparison in general, regardless of the target's age. The second variable distinguished players with at least one *younger* All-Star teammate that season from players with no such teammate (i.e., binary variable: 0 = no younger All-Star teammate this season, 1 = at least one younger All-Star teammate this season). The third variable distinguished players with no current *older* teammate selected as an All-Star that season from players with at least one current *older* teammate selected as an All-Star that season (i.e., binary variable: 0 = no older All-Star player this season, and 1 = at least one older All-Star teammate this season). These last two variables were used jointly to create our three conditions of interest: no upward comparison, upward comparison to a younger target, and upward comparison to an older target.²

² An alternative approach to the two dummy upward comparison variables proposed here would be to capture the age difference between focal and target player. This alternative approach would give a continuous variable that captures both the direction and the degree of the age gap between the focal player and the All-Star teammate. However, putting aside methodological concerns with difference scores (Bohmann et al., 2018), this approach is impractical in this specific context because many focal participants had multiple All-Star teammates in a given season. As a result, computing an age gap measure would require arbitrary choices such as the selection of a single target (and dismissal of other targets) or the exclusion of all observations where a focal player has two or more All-Star teammates. We therefore focused on categorical

Dependent Variable. Player Efficiency Ratio (PER) served as our dependent variable. PER is one of the most used comprehensive metrics of player performance (Kubatko et al., 2007) and has been used in prior work investigating status and individual performance in the NBA (Ertug & Castellucci, 2013). It measures a player's overall performance in a given season, accounting for the player's positive actions (e.g., field goals, free throws, 3-pointers, assists, rebounds, blocks, and steals) and negative ones (e.g., missed shots, turnovers, and personal fouls) (Hollinger, 2003). Importantly, PER is a per-minute, team-pace-adjusted statistic. As such, it allows for direct comparisons across players despite variations in the time they spend on the court or the general game speed of their team. In addition, the league-average PER, set at 15.00, remains constant across seasons, facilitating comparisons over time. According to PER standards, sub-par players commonly end a season with a PER below 10 while the best players often reach a PER above 20 (Dowsett, 2015).

To capture players' individual *post*-All-Star performance game specifically, we calculated PER based on the games a player participated in after the prestigious event had taken place—the pre-All-Star PER served as a control variable (see below). Also, because per-minute statistics such as the PER can become unreliable for players who played very little, best practices suggest excluding observations in which a player played for less than 500 minutes over the season (Kubatko et al., 2007; ESPN.com). We adapted this guideline conservatively to fit our half-season metrics, excluding any player-season observation for which a player was on the court for less than 250 minutes in either the first half of the season (i.e., control period in our models) or second half of the season (i.e., focal period in our models).

Control Variables

variables here. Study 3, an online experiment, provides both a categorical and a continuous comparison of the conditions of interest.

We used a series of control variables at the individual- and team-level to test the empirical robustness of our effect. Importantly, we provide analyses with varying degrees of control, to ensure that our findings are not over-relying on the presence of said control variables (Becker, 2005; Carlson & Wu, 2012).

Individual-level Controls. Players were entered as fixed effects to account for time-invariant individual heterogeneity. Treating individual players as dummy variables allowed us to control for any time-invariant individual-level attributes such as personality and physical characteristics that may influence a player's performance (Halaby, 2004; Zhang, 2017). Because fixed effects cannot account for time-varying within-cluster correlations, we also clustered standard errors at the player level.

To ensure that any effect captured by our independent variable explained performance above and beyond past performance (Wright et al., 2005), we included player's pre-All-Star PER as a control variable. We also added players' yearly salary to account for players' market valorization above and beyond past performance (Koster & Aven, 2018); the salary was adjusted for inflation based on information from the U.S. Department of Labor Bureau of Labor Statistic, to allow for appropriate comparison of player valuation over time. We included players' age and position, and whether the player was ever part of the All-Star in the past (Koster & Aven, 2018), factors also likely to influence performance. Finally, we controlled for time on the court, pre- and post-All-Star game, as players may expend more energy when playing longer.

Team-level Controls. A player's performance is also influenced by the rest of the players in his team and their collective performance. We included teams as a fixed effect to account for general team competitiveness. We also included the percentage of games won in both the first and second half of the season, to account for differential in team performance pre-

and post-All-Star game in a given season, and variations in team performance across season.

Results

Results are reported in Table 1. Continuous variables were standardized at their grand mean to ease interpretation (Marquardt, 1980). Using an increasing number of control variables, Model 1-3 tested whether the presence (or absence) of teammates selected in the All-Star game mid-season impacted non-All-Star players' individual performance during the second half of the regular season (i.e., post-All-Star game). Although the presence of an All-Star teammate generally negatively impacted individual performance (Model 1), $B = -0.59$, $SE = 0.14$, $p < .001$, this effect subsided as additional control variables were included (Model 3), $B = -0.18$, $SE = 0.11$, $p = .106$.

To test whether the age difference between focal and All-Star players impacted the focal player's performance (Hypotheses 1a and 1b), we replaced the dummy variable All-Star teammate with the dummy variables signaling the presence of younger and older All-Star teammates (Model 4-6). Supporting Hypothesis 1a, the presence of a younger All-Star teammate was associated with lower performance of the focal players post-All-Star game, an effect found in all models, from the most basic (Model 4a), $B = -0.89$, $SE = .15$, $p < .001$, to the fully specified model (Model 6), $B = -0.32$, $SE = .12$, $p = .010$. On the other hand, the data did not support Hypothesis 1b: The presence of an older All-Star teammate was not associated with a higher performance of the focal player post-All-Star. We found no evidence that the presence of an older All-Star teammate impacts focal players' performance, in any model, from the most basic (Model 4a), $B = -0.11$, $SE = .15$, $p = .459$, to the fully specified model (Model 6), $B = -0.04$, $SE = .12$, $p = .730$.

Ruling out alternative explanations. The selection of a player in the All-Star game may

act as a strong performance signal for the team and their coach. As a result, resources and roles may be redistributed within the team following the All-Star game, such that the collective strategy becomes more closely centered around the All-Star players. This shift in focus may come at the detriment of other players. For example, the coach may dedicate less time and attention to other players during practice, keep them on the bench more often, or push them to take a more support-focused role on the court, thereby hindering these players' statistics.

To rule out this alternative explanation, we conducted two additional analyses. First, we tested whether the presence of All-Star teammates negatively impacted focal players' time on the court (Model 7). Re-centering the strategy around an All-Star player may come at the expense of the playing time of the rest of the team, particularly older players, whose margin for growth may seem thinner and whose general performance may be perceived as declining. We found no evidence supporting this assertion. The presence of neither an older All-Star teammate, $B = -0.87$, $SE = 8.74$, $p = .921$, nor a younger All-Star teammate, $B = 7.87$, $SE = 8.97$, $p = .380$, affected time spent on the court post-All-Star.

It is possible, however, that in the context of a strategic reorganization, non-All-Star players keep playing the same amount of time, only to assume a more supporting role for their All-Star teammate? we tested this alternative explanation by examining players' assists percentage (i.e., AST%). Assists percentage represents an estimate of the percentage of teammate field goals a player assisted while on the court. Assuming that the All-Star teammate takes a more central role in the strategy of the team and the focal player a more support-focused role, we would expect an increase in the number of assists executed by the focal player. We found no evidence supporting this argument (Model 8). If anything, the percentage of assists tended to drop—rather than increase—in the presence of an All-Star teammate, older, $B = -0.19$,

$SE = .144, p = .177$, or younger, $B = -0.21, SE = .155, p = .184$.

Discussion

Consistent with our prediction, in a large longitudinal NBA dataset tracking the performance of more than a thousand professional basketball players over 21 seasons, non-All-Star players underperformed when playing alongside an All-Star teammate younger—but not older—than them. Additional analyses did not support alternative explanations such as a change in team strategy or resource allocation among teammates.

That said, our analyses were also subject to a few limitations. First, because competition among professional basketball players is exceptionally fierce and the future of each incumbent unusually dependent upon their relative performance, the NBA represents a uniquely fertile ground for social comparisons. One may therefore wonder whether these results generalize to more traditional corporate settings where turnover is not as high. Second, although our analyses provide evidence against some alternative explanations (i.e., resource allocations and strategic changes by the coach), individual performance of NBA players remains highly dependent upon that of their teammates (Halevy et al., 2012). As a result, the superior performance of a high-status player may come at the expense of his teammates'. The latter may decide to take a backseat role, not because they feel disengaged from unfavorable social comparisons with their high-status colleague, as we predict, but rather, because they feel that leaving him more space represents the best strategy for the team to secure a collective victory.

STUDY 2

In Study 2, we sought to replicate our findings in a quasi-experiment at a large Latin-American financial institution. This new setting allowed us to test the generalizability of our findings in a more traditional work environment (i.e., commercial banking) and a new

geographic location (i.e., Latin America). In addition, the higher level of autonomy among employees' scope of responsibilities offered an adequate context to alleviate concerns that superior performance of the high-status target directly hampers the focal worker's own performance. Finally, the quasi-experimental nature of the study, combined with a matched-design approach, helped further isolate the effect of exposure to younger versus older higher status colleagues.

In this new setting, we tested whether employees' age and status relative to that of other members of their work team exerted an influence on their individual performance. Paralleling the prediction made in Study 1, we expected employee performance to be negatively impacted by the presence of a younger co-worker at a higher position on the corporate ladder (Hypothesis 1a) but positively affected by the presence of an older teammate at a higher position (Hypothesis 1b).

As mentioned previously, establishing a causal link between age-status and performance in a traditional corporate setting can be particularly challenging. Although employees generally move up the corporate ladder as they gain experience and grow older, underperformers tend to receive fewer promotions than the rest of their age cohort, fall behind the career timetable, and get outstripped by younger, more successful colleagues. As a result, older employees surrounded by higher status colleagues younger than them are statistically more likely to be underperformers in the first place, opening the door to reverse causality.

To control for this alternative causal link, we applied two strategies. First, from a design standpoint, we took advantage of the large size of our dataset to construct a quasi-experiment centered around employee rotation (Cook et al., 2002). Specifically, we focused on employees who executed lateral moves in the organization at the time of our analysis, that is, employees who changed teams without being promoted nor demoted. Employees who laterally change

positions may be part of a rotation plan—generally indicative of par or above par performance— or as part of a personal geographic relocation, independent of employee performance.

Controlling for pre-rotation performance, we then compared post-rotation performance ratings of the general population of employees who changed teams with (i) those who specifically moved from a team *without* a younger higher-status teammate to one *with* a younger higher-status teammate, and (ii) those who moved from a team *without* an older higher-status teammate to one *with* an older higher-status teammate.

Second, from an analytical standpoint, we conducted a matching procedure to eliminate potential covariance between assignments to our two treatment conditions and a host of factors such as age, salary, and past performance. We provide further details on the pool of observations and implementation of the matching method in the following method section. This method allowed us to statistically control for the fact that the pool of teammates younger than the focal employee grows larger as an employee ages, such that older players are statistically more likely to be assigned to a team with younger colleagues, increasing the odds that they are exposed to a younger more successful teammate.

Taken together, these two strategies ensured that any performance difference captured in our models was the result of status and age differences, rather than the other way around.

Method

Setting and Initial Sample. Our sample consisted of employees from a large Latin American financial institution. Employees had at least one year of tenure in the organization and had rotated within the firm between June 2015 and June 2017. The company employs approximately 21,000 employees. Over our two-year window of analysis, the organization witnessed 11,061 employee rotations—roughly 26% of the staff each year. Of this initial pool,

we excluded 805 observations of employees who changed teams as a result of a promotion or demotion, and 476 observations of employees whose team had fewer than three members, in line with prior research suggesting that dyads are not teams (Liden & Graen, 1980). This initial screening left us with a pool of 9,854 observations.³

Dependent Variable. We used supervisors' yearly overall performance rating to evaluate employee performance pre- and post-rotation. In 2015 and 2016, ratings were based on a 6-point scale, with 1 being the lowest and 6 the highest rating. In 2017, however, the company changed its rating system to a 4-point scale. We converted the latter back to the former scale, for consistency. In the rare occurrences in which an employee received multiple evaluations for the same year—from either the same or different supervisors—we used the first rating submitted.⁴ Given that our sample focused on employees changing teams, and because average ratings may differ from one team to the next, we centered every rating based on the employee's team mean rating (see Pike et al., 2018).

Quasi-Experimental Conditions. To isolate observations for our two treatment conditions, we used employees' status based on position-level. The organization distinguishes between three levels of employee positions: operative, professional, and supervisors. Indicative of an ordinal status hierarchy, operatives represented a larger group of employees (M_n per year = 13,264) than professionals (M_n per year = 4,973), themselves a larger group than supervisors (M_n per year = 3,002).⁵ we therefore considered operatives as lower status than professionals, and

³ Some employees rotated more than once over this two-year period, accounting for 2,427 of the remaining 9,854 observations. To maximize power, the results presented here include these employees. However, we treated the two, yearly observations of these employees as independent, to facilitate analyses and ease result interpretation. Additional analyses excluding these 1,390 employees yielded results consistent with those reported here.

⁴ In multiple cases, these double ratings were generated by the same supervisor, suggesting the supervisor may have forgotten that he or she had already submitted one.

⁵ Although we am not authorized to share salary information, the general trend of salary matched that of an ordinal hierarchy, with supervisors paid more than professionals, themselves paid more than operatives.

professionals as lower status than supervisors.

For our first treatment condition, we isolated employees who moved from a team with no younger higher-status colleague to a team with a younger higher-status colleague (891 observations, 9.04% of our pre-match sample of observations). For our second treatment condition, we isolated employees who moved from a team without an older higher-status colleague to a team with an older higher-status colleague (1,214 employees, 12.32% of our pre-match sample). Because our two treatment conditions may overlap—an employee moving from a team without any higher status colleague may move to a team with both younger and older higher status teammates—we kept the analyses of our two treatment conditions separate, using the remaining population of employees changing teams as controls. In this regard, our quasi-experimental set-up constitutes a more conservative test of our hypotheses than would a design in which our two treatment conditions were pitted against one another.

Matching Procedure. One key concern with quasi-experiments lies in their potential lack of randomness in condition assignment (Shadish et al., 2002). Indeed, although the employees selected in our design executed lateral moves, offering a convenient pre- and post-rotation comparison, their assignments to teams with younger or older higher-status teammates may not have been random. For instance, as employees age, the pool of colleagues younger than them increases, increasing the probability of being assigned to a team with a younger colleague holding a more prestigious position than them. To tackle this limitation and further improve causal inference, we conducted a coarsened exact matching procedure (i.e., CEM; Iacus et al., 2012) using the *cem* program in Stata (Blackwell et al., 2009), a widely applied method that matches observations in control and treatment condition to improve causal inferences (Iacus et al., 2012). We used CEM to eliminate covariance between employees' assignment to our

treatment conditions and a host of potentially influential factors extraneous to our hypotheses (e.g., employee age). In addition, to identify factors peripheral to our hypotheses that influence assignments to our two treatment conditions, we ran a series of exploratory regressions with treatment condition assignments as our dependent variables. The analyses revealed five pre-team-rotation factors that significantly increased likelihood that an employee be assigned to one of our two treatment conditions: age, salary, performance rating, position level, and position (i.e., job type) (see Table 2). We therefore based our matching procedure on these five factors.

The pruning of observations resulting from the CEM procedure is summarized in Table 3. The substantial drops of the overall L_1 statistics, from .86 to .71, and .81 to .61 for the younger higher-status and the older higher-status matching respectively confirm the effectiveness of the procedure in reducing imbalances between our control and treatment conditions. The substantial diminution of the unidimensional L_1 statistics for each variable, null mean differentials between treatment and control (i.e., delta), and non-significance of coefficients in the post-matching regressions, all provide further support for this imbalance correction. We used the CEM output (i.e., pruning and matching weights) in our final regression model to determine the effect of our two treatment conditions on employees' performance ratings.

Control Variables. The five variables used for the CEM procedure were also added as controls both to reduce any remaining imbalance not addressed by the CEM on these metrics (Blackwell et al., 2009), and to take advantage of their predictability—independent of our treatment conditions—to improve the overall model fit. We also added gender, a factor unrelated to our treatment but known to affect performance evaluation (Bauer & Baltes, 2002). With the exception of past performance ratings (unit centered), continuous variables were standardized using the variables' general mean and standard deviation.

Results

Moving from a Team without to a Team with a Younger Higher-Status Target. We conducted an OLS linear regression to test whether the rotation from a team without to a team with a younger higher-status teammate negatively impacted employee's performance rating. Using the CEM imbalance corrections, and per results reported in Table 4, employees involved in such a rotation saw their performance significantly decline: $B = -0.09$, $SE = 0.02$, $p < .001$. These findings support Hypothesis 1a.

Moving from a Team without to a Team with an Older Higher-Status Target. We ran a similar model to test whether a rotation from a team without to a team with an older higher-status teammate positively impacted employee's performance rating. Contrary to our prediction, employees involved in such a rotation did not incur a significant boost in performance rating, $B = -0.0001$, $SE = 0.02$, $p = .998$. These findings do not support Hypothesis 1b.

Discussion

Using a matched, quasi-experiment design in a large financial institution, we find further support that age differential between the focal worker and a higher status target moderates the valence of the focal worker's performance outcome. More specifically, consistent with the findings of Study 1, the presence of a younger higher status target (i.e., a younger teammate in a more prestigious position than the focal employee) negatively impacted the focal worker's performance.

STUDY 3

Study 1 and 2 allowed us to capture the effect of exposure to younger and older higher status workers in natural settings. However, they offered limited avenues to study the psychological processes driving our phenomenon. In Study 3, a large pre-registered online

experiment, we aimed to both conceptually replicate our prior findings in a more controlled setting and explore the psychological underpinnings of this phenomenon.

Full-time workers were recruited online and randomly assigned to one of three conditions: a control condition (i.e., no upward comparison) and two treatment conditions in which participants reflected on their professional achievements in light of those of either a younger or an older higher-status target in their own professional network. We then contrasted the effect of our conditions on two performance-relevant attitudinal measures: career engagement and willingness to engage in positive extra-role behaviors in the future. Furthermore, we tested whether benign and malicious envy toward the target mediated these attitudinal outcomes.

As a robustness check for our theorizing, we also included perceived occupational fairness as an alternative mediator. Research on attribution has shown that people tend to attribute their own shortcomings to situational factors independent of their control, rather than to internal characteristics such as competence, agency, or effort, perceived as more controllable (Kunda, 1990; Miller & Ross, 1975). Building on this body of work, it is possible that individuals engaged in an unflattering career comparison with a younger, albeit professionally more accomplished, target might resort to external attributions to explain away any difference in career outcomes. In this regard, the degree of meritocracy of one's industry (i.e., occupational fairness) may reveal a particularly appealing culprit. Occupational unfairness may signal that attaining a career outcome similar to that of the target is out of reach, not because of one's own shortcomings, but rather, because of random attributes of the industry. Perceived unfairness, in turn, may negatively impact motivation and job or career engagement (Adams, 1965; Cohen-Charash & Spector, 2001). To account for this alternative psychological mechanism, we tested

whether a target's younger versus older age pushed participants to attribute differences in career outcomes to systematic injustices in their industry.

Preregistration details including hypotheses, sample size, variables, treatment of outliers, and statistical analyses are available [here](#).

Methods

Participants. Targeting 1,200 participants, we collected 1,218 actual submissions from Prolific Academic respondents paid \$0.73 for the completion of an online Qualtrics survey presented as “a study about your career and the workplace.” Eligible respondents were 25 to 55 years old, UK-based, full-time workers who had previously completed at least 5 studies on Prolific, were in good standing on the platform (i.e., approval rate 80% or higher), and could complete our survey on a laptop or desktop (i.e., no phone or tablet). Per our preregistration guideline, 94 respondents (7.7%) were excluded for failing a manipulation or an attention check (see details in the procedure section), six for disclosing an age outside of the age brackets for which we were recruiting, and six because their response to our key predictor (i.e., focal-target age gap) was a significant outlier (i.e., ± 2.5 SD away from the mean). Our final sample included 1,112 participants: 660 women; 131 non-Caucasian white; Age: $M = 36.1$, $SD = 9.0$, $Min. = 25$, $Max. = 55$.

Of noteworthy mention, the diversity of professions in the participant-target pairs speaks to the wide representativeness of our sample (e.g., paralegal and associate attorney, teacher and headteacher, visual designer and creative lead, payroll administrator and HR advisor, research fellow and professor, paramedic and intensive care doctor, constable and sergeant, cashier and store owner, digital archivist and data architect, Chief Marketing Officer and President, veterinary nurse and surgeon), offering further confidence in the generalizability of our findings.

Procedure. After completing a brief demographic questionnaire, participants were randomly assigned to one of three conditions: upward comparison with a younger target, upward comparison with an older target, or control condition (i.e., no social comparison). Participants in the two upward social comparison conditions were instructed to select a comparison target in the following prompt: “Please take a minute to think of someone you know personally (e.g., family member, work colleague, former classmate, friend) who is [younger/older] than you (ideally at least 5 years [younger/older] but no more than 30 years [younger/older]) and enjoys much more status, respect, prestige and admiration for their career than you do so far.” After identifying a target, participants were invited to write down the first name and first letter of the last name of their target, as well as an estimate of their age, their relation to them (e.g., family member, former classmate, colleague), and their most recent professional position. They then completed a series of three 11-point scale items measuring the relative gap in career status between them and the target: “in his/her professional career, [target name] enjoys... -5 = much less admiration [respect, prestige] than me, +5 = much more admiration [respect, prestige] than me” ($\alpha = .73$). Respondents whose average score on these three items was below or equal to zero were flagged as having failed the manipulation check and were excluded from the study. Similarly, respondents from the younger target condition who provided an estimate of their target’s age similar to or above their own age—and vice versa for participants in the older target condition—were flagged as having failed the manipulation check.

Upward comparison participants wrote a short essay based on the following prompt: “What comes to mind when you think about your career and that of [target name]? How does it make you feel? What does it make you think of?”, which concluded the manipulation. They then shared the extent to which they envied their target, their impression regarding the fairness of

their own field of work, their current level of career engagement, and their intention to enact certain extra-role behaviors in the near future.

Participants in the control condition moved straight from the demographic questionnaire to the occupational justice measure, skipping the manipulation and the envy measures, all target specific.

Measure. *Focal-target workers age gap.* To capture the age difference between the participant and their target, we subtracted the age of the participant from that of their target. A positive value of this age gap measure indicates a target older than the participant (positive age gap: $N = 365$ participants, $M = 11.9$, $SD = 7.0$, $Min = 1$, $Max = 30$); a negative value indicates a target younger than the participant (negative age gap: $N = 370$ participants, $M = -7.0$, $SD = 4.4$, $Min = -26$, $Max = -1$).

Benign and Malicious Envy. To capture participants' benign and malicious envy toward their higher status target, we used the two subscales of the Benign and Malicious Envy Scale (BeMaS; Lange & Crusius, 2015) and adapted the items to fit our need for target specific rather than dispositional measures. Benign envy included five items (e.g., "When we envy [target name], we focus on how we can become equally successful in the future.") measured on a 9-point scale with endpoints 1 = *Disagree Strongly*, and 9 = *Agree Strongly* ($\alpha = .90$), and so was malicious envy (e.g., "I wish that [target name] lose their advantage."; $\alpha = .90$).

Occupational Fairness. To share their impression regarding the level of fairness of their industry, participants completed a 6-item measure of organizational justice taken from Ambrose and Schminke (2009) and adapted to focus on occupational field (e.g., "For the most part, our industry treats its workers fairly."). Each item was measured using a 9-point scale with endpoints 1 = *Disagree Strongly*, and 9 = *Agree Strongly* ($\alpha = .90$).

Career Engagement. We captured participants' level of commitment to their career using nine items from the Job Engagement scale (Rich et al., 2010), adapted to be target-specific and apply to careers rather than jobs (e.g., control condition: "I want to exert our full effort into our career."; treatment conditions: "Thinking about [target's name]'s career makes me... want to exert our full effort into our career.") and reported on a 9-point scale with endpoints 1 = *Not at all True for Me*, and 9 = *Extremely True for Me* ($\alpha = .97$).

Extra Role Behaviors. Workers' overall performance includes not only role-relevant tasks but also extra-role behaviors indispensable to organizations' day-to-day operation and long-term success, such as mentoring new employees, offering emotional support to colleagues, or putting extra-hours during busy periods. To measure participants' intention to improve their performance, we asked them to report the extent to which they intended to perform four of these extra-role behaviors in the coming months. The items were selected from Fox and colleagues (2012), and Heilman and Chen (2005; e.g., "Give up meal and other breaks to complete work.") and responses captured on a 9-point scale with endpoints 1 = *Not at all likely*, and 9 = *Highly likely*.

Results

Descriptive statistics in Table 5. Sample of participant essays for the younger and older target conditions in Table 6.

Conceptual Replication. First, we tested whether the effects of relative age and upward social comparison on performance-relevant outcomes were consistent with those obtained in Studies 1 and 2. To do so, we compared career engagement across the three conditions using a one-way between-subject ANOVA, $F(2, 1,117) = 34.16, p < .001$, followed by Bonferroni-corrected pairwise comparisons (i.e., $ps * 2$). Participants in the *younger higher status target*

condition reported lower career engagement ($M = 5.49$, $SD = 2.12$) than participants in the *older higher status target* condition ($M = 6.29$, $SD = 1.99$), $p < .001$, and the *no comparison* condition ($M = 6.62$, $SD = 1.60$), $p < .001$. Participants in the *older higher status target* condition reported marginally lower career engagement than those in the *no comparison* condition, $p = .056$. As an alternative approach, we focused on the two upward comparison conditions, regressed career engagement—centered at the Grand Mean of the *no comparison* condition—on focal-target workers age gap (standardized), $B = 0.46$, $SE = .08$, $p < .001$, and ran margin analyses to test how estimated career engagement at different levels of focal-target worker's age gap differed from career engagement in the *no comparison* condition (see Table 7; see Leslie et al., 2012 for a similar approach). Consistent with the ANOVA results, upward comparison had a detrimental effect on career engagement, but this effect was stronger for participants who compared against a younger, higher status target than an older higher status target.

We performed similar analyses with extra-role behaviors as the dependent variable. Results were consistent with those obtained with career engagement. The ANOVA was significant, $F(2, 1,117) = 7.34$, $p < .001$. Participants in the *younger higher status target* condition reported lower willingness to engage in extra-role behaviors in the near future ($M = 5.92$, $SD = 1.83$) than did participants in the *no comparison* condition ($M = 6.31$, $SD = 1.65$), $p = .005$, and the *older higher status target* condition ($M = 6.36$, $SD = 1.63$), $p = .002$. The latter two conditions were not significantly different from each other, $p = 1.000$. Regression of extra role behaviors on focal-target age gap showed similar results (see Table 7). Comparisons with a younger higher status worker had a detrimental effect on participants' willingness to engage in extra-role behaviors, but comparisons with an older higher status target had a neutral (or even positive) effect, relative to the *no comparison* condition.

These results suggest that comparing with a higher-status worker 10 years *younger* than oneself reduces career commitment by 18.9% and willingness to engage in extra-role behaviors by 8.0% and comparing oneself with a higher-status worker 10 years *older* reduces one's career commitment by 6.3% and has virtually no impact (+0.4%) on one's willingness to engage in extra-role behaviors. Additional analyses, including controls for participant demographics and interaction of age gap with participant age altered neither the statistical significance nor the magnitude of these effects appreciably.

Overall, these effects were consistent with the findings of Study 1 and 2: In support of Hypothesis 1a, comparison with a younger higher-status target negatively impacted performance as measured by one's willingness to engage in extra-role behaviors; not supporting Hypothesis 1b, comparison with an older higher status target did not boost performance—the larger positive age gap only alleviating the general negative effect of upward comparison. A similar pattern emerged for career engagement. Supporting Hypothesis 2a, comparison with a younger higher status target hindered engagement; Not supporting Hypothesis 2b, comparison with an older higher status target did not boost engagement.

Mediational Analyses. Next, we focused our analyses on the two social comparison conditions only, to examine the psychological underpinnings driving the moderating role of relative age in upward comparison. First, we conducted a series of regression analyses to test whether benign envy, malicious envy, and occupational fairness mediated the effect of relative age on performance-relevant outcomes. Given our sub-sample size ($N = 735$), a power of .90 and an $\alpha = .05$, we were adequately equipped to detect an age gap measure effect of $\eta^2 = .014$ or above. The older the target was relative to the participant, the more the latter experienced benign envy for that target's career, $B = 0.05$, $SE = 0.007$, $p < .001$, $\eta^2 = 0.061$, the less they experienced

malicious envy, $B = -0.02$, $SE = 0.005$, $p < .001$, $\eta^2 = 0.017$, and the more they reported perceiving their own occupation as fair to its workers, $B = 0.01$, $SE = 0.004$, $p = .012$, $\eta^2 = 0.009$. In addition, benign envy, malicious envy, and occupational fairness all predicted career engagement, respectively $B = 0.68$, $SE = 0.028$, $p < .001$, $\eta^2 = 0.454$; $B = -0.16$, $SE = 0.050$, $p < .001$, $\eta^2 = 0.014$; $B = 0.50$, $SE = 0.057$, $p < .001$, $\eta^2 = 0.096$; and extra-role behaviors, respectively, $B = 0.26$, $SE = 0.030$, $p < .001$, $\eta^2 = 0.092$; $B = -0.07$, $SE = 0.042$, $p = 0.091$, $\eta^2 = 0.004$; $B = 0.47$, $SE = 0.039$, $p < .001$, $\eta^2 = 0.113$.

We then tested the indirect effects of these three potential mediators simultaneously using a percentile bootstrap estimation approach with 5,000 samples (Shrout & Bolger, 2002) conducted with the `sureg`, `bootmm`, and `bootstrap` functions of Stata 15.1. The indirect effects of benign envy, $B = 0.34$, $SE = 0.050$, $p < .001$, $CI_{95\%} [0.244, 0.442]$, malicious envy, $B = 0.02$, $SE = 0.010$, $p = .045$, $CI_{95\%} [0.000, 0.038]$, and occupational fairness, $B = 0.04$, $SE = 0.018$, $p = .011$, $CI_{95\%} [0.010, 0.079]$, were all significant for career engagement (see Figure 1a). However, only benign envy explained a substantial portion of the total effect (74.7%). In contrast, malicious envy and occupational fairness offered only modest contributions (4.2% and 9.7%, respectively). The indirect effects of benign envy $B = 0.11$, $SE = 0.024$, $p < .001$, $CI_{95\%} [0.065, 0.160]$, and occupational fairness, $B = 0.05$, $SE = 0.033$, $p = .012$, $CI_{95\%} [0.011, 0.091]$, were also significant for extra-role behaviors, but the indirect effect of malicious envy was not, $B = -0.01$, $SE = 0.009$, $p = .518$, $CI_{95\%} [-0.024, 0.012]$ (see Figure 1b). As with career engagement, only benign envy explained a large portion of the total effect on extra-role behaviors (38.4%) while the explanatory power of occupational fairness remained modest (17.4%).

Discussion

In a large, pre-registered online experiment with a sample of age diverse professionals

from a broad array of occupations and enjoying a wide range of career achievements, we found further evidence corroborating the findings of Study 1 and 2: Although upward comparison had a negative impact on participants' performance-related outcomes, this effect was moderated by the age difference between participant and target, such that comparison with a younger higher-status target was the driving force behind this pattern. Once again, we observed no boost from upward comparison with an older higher-status target. Additional analyses revealed that a large part of this age effect was mediated by benign envy—but not malicious envy nor occupational fairness—implying that comparing oneself to a younger and professionally more successful individual was not only uninspiring but also hindered one's motivation to invest time and energy into one's job and career. We now discuss the importance of this phenomenon within organizational contexts and management scholarship.

GENERAL DISCUSSION

As the workforce becomes more age-diverse and career ascension less contingent upon seniority, workplaces are increasingly filled with younger workers enjoying a higher level of occupational status than some of their older counterparts (Kaufman, 2017; Kunze & Menges, 2017). This changing age landscape echoes growing demands for a more meritocratic model of career ascension, one in which workers are given equal opportunities regardless of their race, gender, or age (Amis et al., 2020; Johnson, 2021; Zheng, 2020). However, efforts to build more equitable organizations sometimes trigger negative unintended consequences (Dover et al., 2020; Leslie, 2019). Our work suggests that increased age heterogeneity across the corporate ladder may also raise new challenges for workers and organizational leaders. Specifically, the presence of younger, higher-status colleagues can undermine a worker's performance and career engagement, creating new obstacles to keeping the entire workforce motivated and productive.

Across three studies using diverse settings, investigative methods, and participant samples, we find consistent evidence that exposure to younger—but not older—higher occupational status workers hinders individual performance (Study 1 & 2), work attitudes, and career engagement (Study 3). We also show that, although people do not necessarily see a younger, more successful worker as undeserving (i.e., occupational justice) nor express ill intent toward him or her (i.e., malicious envy), they fail to relate to his or her higher achievements (i.e., benign envy), which, in turn, negatively impact their attitudes toward their own work and career (study 3). Taken together, these findings highlight the subtle ways in which the age environment of an organization shapes the way workers construe their professional achievements, which, in turn, influences their motivation and productivity at the workplace. We reflect on the implications of these findings for future research on age diversity and discuss how they also cast a new light on the role that age and demographic attributes more broadly might play in social comparison processes.

Implications for Age Diversity Research

As more promising workers outpace some of their older counterparts, our work brings to light new challenges leaders face in their effort to build a more harmonious, age-diverse workplace. Better understanding how status and age interact with one another may help identify effective strategies to harness an increasingly multigenerational workforce.

In this context, our work advances our understanding of age-status dynamics at the workplace in several important ways. First, this set of studies is the first to offer *causal* evidence linking age incongruence to a loss in individual motivation and performance. The effects we uncovered were remarkably consistent across a diverse array of methods, samples, and settings, providing further support to the general contention that interactions with younger, higher-status

others can be detrimental to a worker's productivity (Collins et al., 2009; Shore & Bleicken, 1991; Tsui & O'Reilly, 1995; Tsui et al., 2002). Beyond the empirical value of this finding, we provide solutions to address the concern about reverse causality in prior work. We encourage future researchers to take advantage of exogenous shocks, matched samples, and experimental manipulations to tackle this important methodological challenge.

Second, we broaden the scope of study of age-status dynamics by looking at social interactions outside the confine of supervisor-subordinate relationships. In the modern, age-diverse workplace, people are bound to interact regularly with plethora of other workers who might be younger and enjoy a higher occupational status than them but with whom there is no formal link of subordination. In line with this observation, focal workers in our three studies were seldom supervised by their younger/older higher status target. Perhaps most strikingly, in Study 3, workers asked to ponder their professional achievements in light of those of a younger, more successful target experienced detrimental intrapersonal effects even when their target was not part of their direct professional circle (e.g., a former classmate employed at a competitor or a sibling working in a different industry). In addition, the simple task of thinking about the target was sufficient to elicit these aversive effects, highlighting the subtle and ubiquitous ways in which age can shape attitudes and behaviors at the workplace.

Third, our work demonstrates that age incongruent interactions trigger not only detrimental *interpersonal* processes (Tsui et al., 1992; Tsui & O'Reilly, 1995; Tsui et al., 2002), as theorized in the past, but also *intrapersonal* processes, such as unfavorable social comparisons. Future research looking at the interaction of age and status at the workplace may expand on these findings by exploring the relation linking immediate *intrapersonal* processes to more long-term *interpersonal* mechanisms such as bonding, communication, and mentoring. For

instance, interactions with younger, higher status others might lead workers to engage in unfavorable social comparisons and elicit a general form of disengagement from the relationship, which, in turn, reduces the frequency of interactions, quality of communication, and level of cooperation between the two parties. Better understanding how intra- and interpersonal mechanisms relate to one another and shape social exchanges among age incongruent dyads is crucial to building a more comprehensive picture of the phenomenon and identifying ways to alleviate their detrimental consequences.

Finally, per our findings in Study 3, benign envy mediated the detrimental motivational effects of exposure to younger, higher status workers, but, contrary to our initial prediction, malicious envy did not. These findings advance our understanding of the social perception of younger, highly successful individuals such as younger bosses and department super stars. Our findings suggest that, although workers may not necessarily see highly successful professionals younger than them as unworthy of their superior occupational status—a trigger of malicious envy—they also do not experience the sense of aspiration—from benign envy—that they do toward successful individuals older than them. In other words, workers may have more difficulty seeing younger, high achievers as role models whose success they can easily emulate. Additional work might be needed to determine whether this aspirational difference penalizes young leaders, who may find themselves disadvantaged when it comes to inspiring and influencing their (older) employees and followers. Scant research explores the role of age on leadership outcomes to begin with, and existing studies find inconsistent patterns, overall (e.g., Banks et al., 2017; Barbuto et al., 2007; Bernerth et al., 2018; Groves, 2014; Kearney, 2008; Ng & Sears, 2012;). Our work offers a new lens through which such dynamics can be further clarified.

Implications for Social Comparison Research

Despite the long history of, and sustained interest in, research on social comparison, the modalities that lead people to feel either threatened or inspired by comparisons with a higher status target remain an active topic of academic investigation (Greenberg et al., 2007; Suls et al., 2002). Our findings encourage researchers to reconsider the role of age—and, more broadly, demographic attributes—in social comparisons.

Classic social comparison theories argue that people value comparisons with demographically similar others more than those with dissimilar ones because the former are assumed to be more diagnostic of one's abilities (Cruder, 1977; Festinger, 1954; Goethals & Darley, 1977; Wood, 1989). In sharp contrast, we find evidence that the age difference between a focal worker and their target shapes the focal worker's assessment of their own performance, which, in turn, influences their attitudes toward the task at hand. Age, therefore, may be an important moderator in these comparison processes. It is noteworthy that we find evidence that comparing one's achievements to those of a younger, higher-status worker has detrimental effects on one's motivation and performance but—contrary to our initial prediction—find no evidence that engaging in similar comparisons with an older, higher-status target boosts these same outcomes. These results support the long-standing contention that upward comparisons generally have damaging effects for the person evaluating (Greenberg et al., 2007; Suls et al., 2002), but also amend this common theorizing by highlighting that positive age difference (i.e., comparison to an older target) reduces or even suppresses these negative outcomes.

Beyond the moderating role of age in upward comparisons, these findings also raise the question of whether similar moderating properties apply to other markers of ascribed status (e.g., gender, race, education, nationality). For instance, all things equal, does an Ivy league alum feel more threatened by the superior professional achievements of a community college coworker

than by those of an Ivy league peer? Or does an American worker feel more discouraged when comparing their skills to those of a better performing non-native English speaker than to those of a better performing fellow native? Indirectly supporting this theoretical contention, research has shown that men tend to feel threatened by situations in which women enjoy more status or power than them (e.g., Bosson et al., 2009, 2011; Netchaeva et al., 2015; Vandello et al., 2008). Further work may expand on our age findings and prior research on gender to further clarify the role of ascribed status in upward comparisons specifically.

Implications for Practitioners

Younger workers, whose shot at wealth accumulation has already been curbed by two of the worst financial crises of the last century and the highest level of student debt ever recorded, have expressed growing concerns that the delayed retirement of older staff members will create a bottleneck at the top of the corporate ladder that will infringe upon their own career progression (Francioli & North, 2021a; Groom, 2013; North & Fiske, 2013; Willis Towers Watson, 2018). In this context, a decoupling of corporate ascension and occupational status from age and seniority may offer the promise of both more equity and less intergenerational tensions at the workplace, guaranteeing that older workers' delayed retirement does not come at the expense of younger workers' ability to move up the ranks, and, in turn, alleviating younger workers' stigmatization of older workers' decision to remain in the workforce longer.

However, as a recurrence of younger workers moves up the corporate ranks, a growing portion of long-tenured workers with slower career ascensions may feel increasingly dispirited. How, therefore, can organizational leaders maximize chances of keeping workers of all ages motivated? Balancing the competing needs may require adapting organizations' hierarchical and reward structures. Many organizations have already started developing alternative, vertical career

paths aimed at satisfying seasoned workers' longing for achievement, self-development, and recognition outside of the common career ladder to C-suite positions. Along these lines, formal expert career paths—in which carefully vetted, experienced workers develop unique skills or depth of knowledge in an area and become trusted subject experts for the organization—have gained traction among top employers such as Procter & Gamble, Google, or the military. In a similar vein, some employers have developed special mentoring programs in which talented senior workers serve primarily as mentors for younger ones.

From a social comparison perspective, these alternative career paths reduce the threatening effect of comparing with younger, higher-ranked workers by building complementary status structures that emphasize knowledge and expertise. As such, they allow organizations to retain—and keep motivated—valuable veteran workers who might lack the skills necessary to climb further up the traditional corporate hierarchy but possess valuable experience and know-how from which all organizational members might benefit.

Limitations and Opportunities for Future Work

Studies 1 and 2 provide novel, causal evidence linking frequent exposure to younger higher, status colleagues with a drop in individual performance. However, the data available for both studies limited our ability to isolate the role of social comparison as a driver of these behavioral effects. As a result, we cannot entirely rule out the possibility that interpersonal mechanisms drive some of these behavioral outcomes. That said, although individual performance within sport teams (Study 1) can be contingent upon players' relationship with their teammates, the effects captured in Study 2 are harder to attribute to interpersonal mechanisms such as mentoring quality, level of trust, or frequency of communication between the focal worker and their younger, higher status colleague(s), for work is more individualized and

interdependence more limited among unit members in a financial institution, particularly when no relation of subordination exists between the two parties. Furthermore, *intrapersonal* effects such as social comparisons can also shape relational dynamics with a target (Van de Ven et al., 2012). Hence, while it is possible that part of the performance outcomes captured in Studies 1 and 2 is attributable to impaired *interpersonal* processes, these processes might themselves result from the *intrapersonal* processes brought to light in the present work.

Another limitation worth mentioning here is that, although the use of multiple settings, samples, and investigative methods in our studies offer both consistent and complementary evidence of the detrimental effects of age-status incongruence for workers, our empirical investigation has been limited to micro-level outcomes (i.e., individual performance and engagement). While some work has linked similar micro-level effects to macro-level outcomes (Kunze & Menges, 2017), further work is needed to better understand how these intrapersonal processes impact mezzo- and macro-level outcomes in organizations. In this regard, researchers may take advantage of large longitudinal datasets to assess how progressive changes in age-status dynamics impact macro-organizational outcomes such as firm performance, employee commitment, organizational justice, and perceived fairness of companies' compensation and promotion schemes.

Conclusion

The landscape of the modern workplace is shifting toward more age heterogeneity throughout the corporate ladder. As a result, workers' professional network and work environment are increasingly filled with younger professionals who enjoy more occupational status than them (e.g., having a younger boss). Our work highlights some of the micro-level implications that this major organizational change has on workers' view of their own

professional achievements, their career engagement, and their productivity on the job. We encourage diversity researchers to further investigate how age-status dynamics affect the organizational life of a rapidly aging workforce.

Table 1

Impact of Older and Younger High-Status Teammates on Player's Performance Efficiency Ratio, Time Played, and Assists

	Performance Efficiency Ratio (PER) Post-All Star								Total Time Played Post-All-Star (min)	Assist Percentage Post-All-Star
	Model 1	Model 1b	Model 2	Model 3	Model 4	Model 4b	Model 5	Model 6	Model 7	Model 8
All Star teammate (i)	-0.59 ***	-0.44 ***	-0.32 ***	-0.18						
Older All Star (i)					-0.11	0.08	0.01	-0.04	-0.87	-0.19
Younger All Star (i)					-0.89 ***	-0.84 ***	-0.57 ***	-0.32 *	7.87	-0.21
PER pre-All Star (z)			1.80 ***	1.47 ***			1.78 ***	1.46 ***		
Assist percentage pre-All-Star (z)										5.42 ***
Player (i)		Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Position (i)				Yes				Yes	Yes	Yes
Player age (z)				-0.38 ***				-0.34 ***	-105.20 ***	-0.14
Salary adjusted (z)				0.24 ***				0.25 ***	6.71	0.25 ***
Previously selected in All Star (i)				0.18				0.18	-15.52	0.36
Total time played pre-All Star (z)				-0.03				-0.03	89.62 ***	0.01
Total time played post-All Star (z)				0.74 ***				0.74 ***		0.34 ***
Team (i)		Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Team Win percentage pre-All Star (z)				-0.29 ***				-0.29 ***	-12.54 *	-0.12
Team Win percentage post-All Star (z)				0.43 ***				0.44 ***	4.05	-0.25 ***
Constant	14.32 ***	14.37 ***	14.23 ***	14.17 ***	14.29 ***	14.36 ***	14.22 ***	14.18 ***	693.36 ***	13.98 ***
Clustered SE (Player)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R2	0.01 ***	0.56 ***	0.64 ***	0.67 ***	0.01 ***	0.56 ***	0.64 ***	0.67 ***	0.57 ***	0.91 ***
N Observation	5,093	4,812	4,757	4,757	5,093	4,812	4,757	4,757	4,757	4,757
N Players	1,178	897	885	885	1,178	897	885	885	885	885
Dropped Singleton	0	281	276	276	0	281	276	276	276	276

Note. Sig.: + $p < .10$, * $p < .05$, *** $p < .001$.

Table 2*Regression of Control Variables on Assignments to our Two Treatment Conditions*

	Younger Higher Status Teammate		Older Higher Status Teammate	
	Pre-match	Post-match	Pre-match	Post-match
Constant	0.03	0.27 ***	0.00	0.25 ***
Age (z)	0.06 ***	0.00	0.02 ***	0.00
Gender	0.00	-0.01	0.00	0.01
Salary (USD) (z)	-0.01 +	-0.02	0.00 **	-0.05
Rating Prev. Year (unit centered)	0.01	0.00	0.03 ***	0.00
Position Level				
Professional	0.10 *	0.01	0.13 **	0.02
Supervisor	-0.10 *		-0.10 +	
Position				
Asesor	0.07 +	0.00	0.12 *	0.00
Auxiliar	0.09 *	0.00	0.10 *	0.00
Cajero	0.04	0.00	0.21 ***	-0.01
Cajero Principal	0.03	0.00	0.18 ***	0.00
Coordinator	0.03	0.00	0.10 *	0.00
Executive / Dir Servicio	0.01	0.00	0.07 ***	0.00
Gerente / Director	0.05 +	0.00	0.12 ***	
Gestor Comercial	0.16 ***		0.10 *	0.00
Informador	0.04		0.17 **	-0.01
Jefe	0.04		0.09 *	
Supernumerario	0.08 +		0.12 *	
Trader / Eestratega	0.07		-0.05	
Vice-presidente / Presidente	0.13		0.31 *	
<i>F</i>	27.6 ***	0.05	17.6 ***	0.06
<i>R</i> ²	.05	.00	.04	.00

Note. Binary dependent variable: young/old higher status teammate = 1, control = 0. Sig.: + $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$. None of the factors predicting condition assignment pre-match (i.e., age, salary, position level, and position) were significant post-match, confirming that the coarsened exact match procedure improved random assignment on these variables.

Table 3*Summary Table of the Pools of Observations, Pre- and Post-match*

Strata	Younger Higher Status Teammate				Older Higher Status Teammate			
	<i>Pre-match</i>		<i>Post-match</i>		<i>Pre-match</i>		<i>Post-match</i>	
Number of Strata	-		4,034		-		5,401	
Number of Matched Strata	-		465		-		609	
Sample Size	<i>Pre-match</i>		<i>Post-match</i>		<i>Pre-match</i>		<i>Post-match</i>	
Control Condition	8,963		1,918		8,640		2,047	
Treatment Condition	891		655		1,214		795	
Total Number of Observations	9,854		2,573		9,854		2,842	
\mathcal{L}_1	.8647		.7097		.8076		.6109	
Matched Variables	<i>Pre-match</i>		<i>Post-match</i>		<i>Pre-match</i>		<i>Post-match</i>	
	\mathcal{L}_1	Delta	\mathcal{L}_1	Delta	\mathcal{L}_1	Delta	\mathcal{L}_1	Delta
Age	.280	3.91	.000	0.00	.107	0.23	.000	0.00
Salary (USD)	.133	-101.34	.093	-2.25	.133	-209.88	.069	-2.71
Position	.117	-0.12	.000	0.00	.138	-0.20	.000	0.00
Position Level	.171	-0.54	.000	0.00	.121	-0.29	.000	0.00
Rating Prev. Year (unit centered)	.097	-0.01	.063	0.00	.088	0.01	.041	0.00

Table 4

Regression Models, Pre- and Post-match

	Younger Higher Status Teammate				Older Higher Status Teammate			
	Pre-match		Post-match		Pre-match		Post-match	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
Treatment Condition	-0.08 ***	0.02	-0.09 ***	0.02	0.01	0.01	0.00	0.02
Age (z)	-0.02 ***	0.01	-0.04 **	0.01	-0.03 ***	0.01	-0.02	0.01
Gender	-0.03 **	0.01	-0.02	0.02	-0.03 **	0.01	-0.02	0.02
Salary (USD) (z)	0.02 *	0.01	0.16 **	0.06	0.02 *	0.01	0.19 *	0.08
Rating Prev. Year (unit centered)	0.34 ***	0.01	0.37 ***	0.03	0.34 ***	0.01	0.32 ***	0.03
Position Level								
Professional	-0.05	0.06			-0.06	0.06		
Supervisor	0.26 ***	0.07			0.27 ***	0.07		
Position								
Asesor	-0.11 +	0.06	0.04	0.04	-0.12 +	0.06	0.00	0.05
Auxiliar	-0.09	0.06	0.08 +	0.04	-0.10	0.06	0.01	0.06
Cajero	-0.12 +	0.06	0.04	0.06	-0.12 +	0.07	0.07	0.06
Cajero Principal	-0.01	0.07	0.03	0.09	-0.02	0.07	0.14 *	0.07
Coordinator	0.10	0.06	0.20 *	0.10	0.09	0.06	0.25 *	0.11
Executive / Dir Servicio	-0.03	0.02	-0.01	0.04	-0.03	0.02	-0.01	0.04
Gerente / Director	-0.24 ***	0.04			-0.24 ***	0.04		
Gestor Comercial	-0.08	0.07	0.19 **	0.07	-0.10	0.07	0.12	0.09
Informador	-0.06	0.08	0.09 +	0.05	-0.07	0.08	0.39 **	0.13
Jefe	-0.15 *	0.07			-0.15 *	0.07		
Supernumerario	-0.04	0.07			-0.05	0.07	0.10 +	0.06
Trader / Eestratega	-0.08	0.11			-0.07	0.11		
Vice-presidente / Presidente	-0.44 *	0.19			-0.45 *	0.19		
Constant	0.08	0.06	-0.01	0.02	0.10	0.07	0.01	0.04
<i>F</i>	69.6 ***		14.9 ***		68.4 ***		10.8 ***	
<i>R2</i>	.14		.08		.13		.06	

Note. Statistical significance: + $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 5

Descriptive statistics and correlations

Variables	<i>N</i>	<i>M</i>	<i>SD</i>	<i>min.</i>	<i>max</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Participant Age	1,112	36.1	9.0	25.0	55.0	1.00							
(2) Target Age	735	38.5	12.8	18.0	79.0	.53 ***	1.00						
(3) Delta Participant-Target	735	2.4	11.1	-26.0	30.0	-.20 ***	.72 ***	1.00					
(4) Benign Envy	735	5.4	2.1	1.0	9.0	-.24 ***	.04	.25 ***	1.00				
(5) Malicious Envy	735	2.0	1.5	1.0	9.0	-.03	-.14 ***	-.13 ***	.03	1.00			
(6) Justice	1,112	4.9	1.2	1.0	7.0	-.01	.07 +	.09 *	.10 **	-.28 ***	1.00		
(7) Career Engagement	1,112	6.1	2.0	1.0	9.0	-.18 ***	.06	.21 ***	.67 ***	-.12 **	.31 ***	1.00	
(8) Organizational Citizenship Behaviors	1,112	6.2	1.7	1.0	9.0	-.02	.13 ***	.16 ***	.30 ***	-.06 +	.33 ***	.43 ***	1.00

Note. Statistical Significance: + $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 6

Sample of Participant Essays

Condition <i>Target is</i>	Participant Age	Participant Job	Target Age	Target Job	Relationship	Essay
younger	37	Training Assistant	30	Senior Advisor	1	1. It makes me feel like less accomplished. 2. Although my jobs gives me satisfaction that I am doing something worthwhile, it doesn't pay as well as Monty's and this makes me feel I chose the wrong degree. 3. My ego takes a bit of a beating knowing someone younger than me has achieved more than me.
younger	54	Principal Lecturer	31	Associate Professor	5	It makes me feel that I was not as focussed as him[:] targeted in my career[:] makes me regretful that I didn't have the same sense of career at this age
younger	34	Account Manager	30	Accountant	4	I am happy and proud of Pearl! but on reflection I am disappointed in myself for not working harder and focusing on my career when I was younger.
younger	37	Senior production editor	32	Strategy director	3	It makes me feel that I could have been more ambitious, but also that I respect him for having taken his career seriously and worked hard
younger	54	Retail Store manager	36	Airline Captain	4	Steve is one of those people who doesn't have to try hard to achieve, whereas I always have to work hard at everything I do. Steve doesn't have to put the work in, it comes naturally and he excels at what he does. I am jealous of this
younger	30	Audio Typist	28	Senior Recruitment Consultant	1	It makes me feel like I've fallen behind, and I'm terrified I won't be able to get to a place where I too will have prestige and admiration for the work I do. I compare myself unfavourably against him. I don't envy his actual job, as it wouldn't be my ideal role (I'd rather make half of what he does but get by as say a writer, creative, digital marketer or photographer), but I do feel like a failure in comparison.
younger	29	Administrator	24	Senior Advisor	4	Inadequate. Failure. Could try harder. Lazy. Female. Limited. Self Conscious.
younger	26	Scientist	22	CEO	6	I feel like GB was very lucky to get where they are now, but that they are also capable of working much harder than me. GB shows off the wealth from their success, which makes me jealous. I also have found myself getting quite resentful because of that, and also because of GB's very privileged background. It makes me think of what decisions I could have made when I was younger to make more money than I do now, but I'm also proud of what I do.
older	34	QA Supervisor	47	QA Manager	5	Being younger, I could be on a similar career route to him, and could be in his position when I reach his age. He seems to know a lot more than me so I hope I can gain this knowledge by working with him.
older	38	Engineer	51	Director Client Services	5	Has much more seniority and respect within the organisation that has been earned rightfully. His management style and interactions make him approachable, which is also a reason he is so respected. On top of his knowledge, his personality is what i most admire about him that has still allowed him to succeed in his current role and previous ones too.
older	32	Planning Manager	60	Senior Planning Manager	5	It makes me think that building respect takes time and that over time I will get to a similar level. I believe i am ahead of where AI was at this age and stage of his career
older	26	Housing Officer	30	Buyer	4	I think my position is much less important than the position Ciaran has in his company. He has more of an input in his job due to his role within the company and how long he has worked there. I feel we both have less respect for my job.
older	46	academic director	56	director	5	Richard is very successful and his career trajectory is something to aspire to. He hasn't trod on others to get where he is. His success is due to hard work and commitment.
older	46	Cleaning Supervisor	63	Cleaning Operative	6	Colin has had many different jobs in his life time and has a mountain of knowledge about the job market and how to survive in different economics time we have had in this country over the years. I feel i have a lot to learn from colin and i respect his opinion and advice on many subjects.
older	25	Media Planner	29	Insurance Broker	1	He has had longer to establish himself and I hope to be able to do the same within a few years. He is very good at certain aspects of his job and he makes sure he highlights these well
older	40	Design Engineer	55	Lead design manager	5	It makes me feel how important work experience is. The more experience you have the more people respect you. Experience is as important as your professional and academic qualifications when determining how successful you are in your career.

Table 7

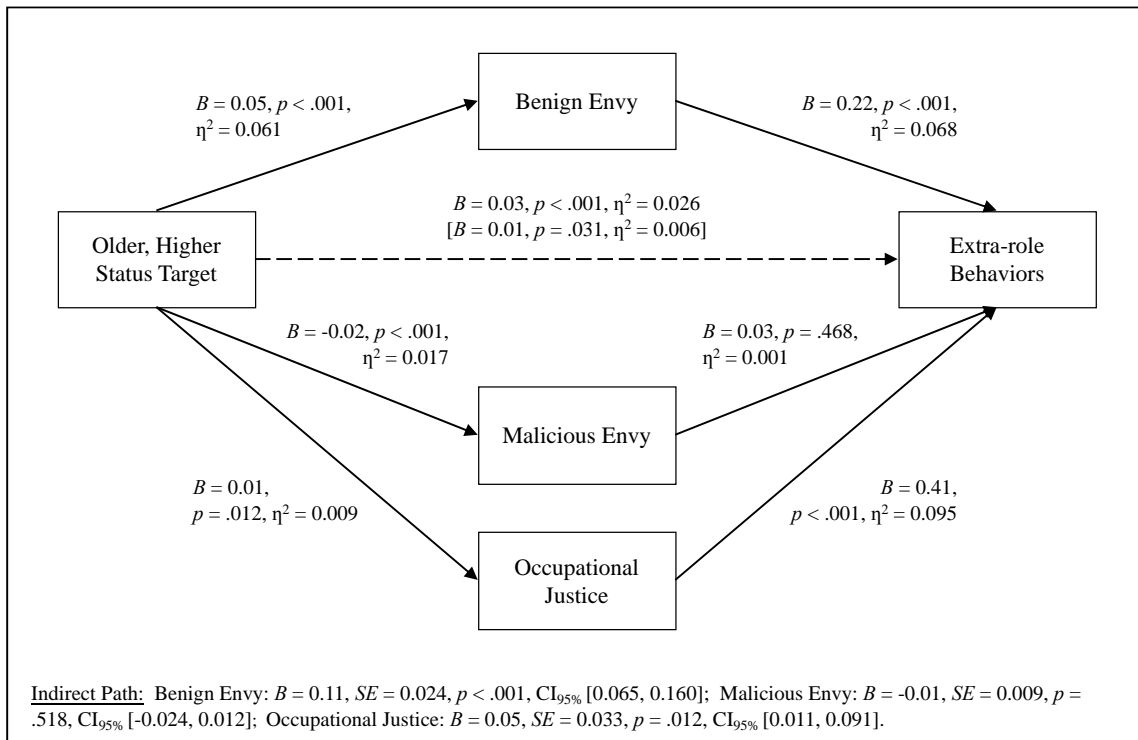
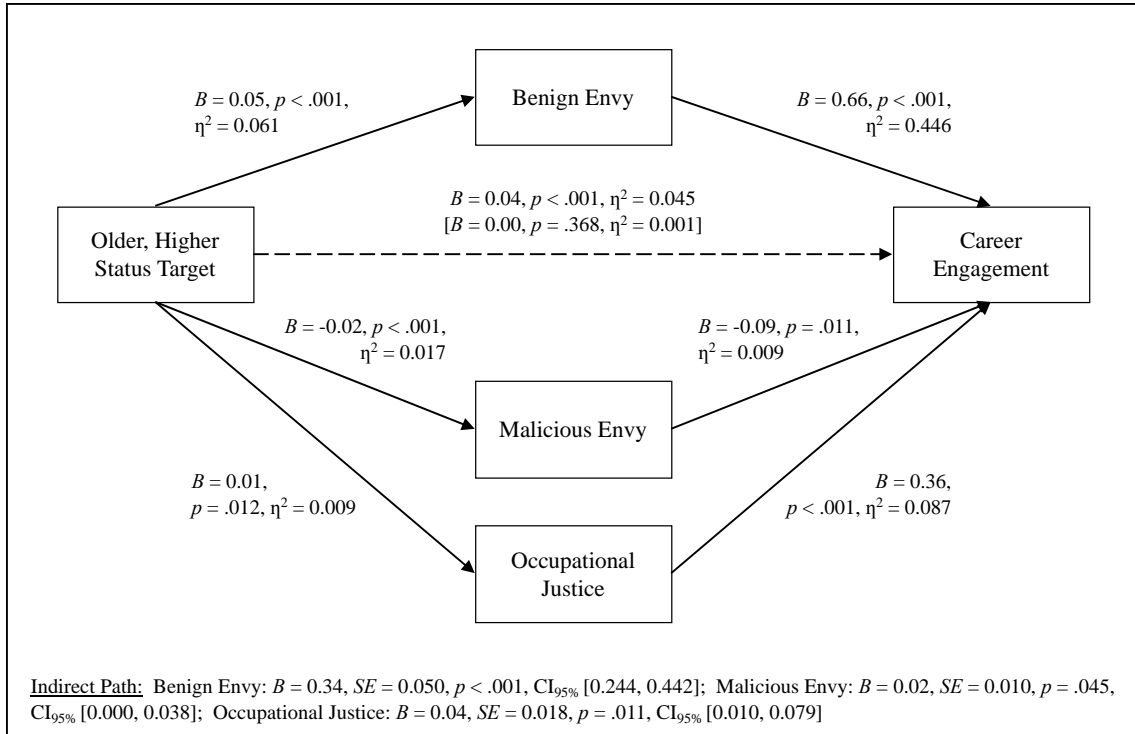
Career Engagement and Extra-Role Behaviors in upward comparison conditions, relative to no comparison condition

<i>SD focal-target workers age gap</i>	Career Engagement					Extra Role Behaviors				
	Margin estimate	SE delta- method	<i>t-test</i>	<i>p-value</i>	CI95%	Margin estimate	SE delta- method	<i>t-test</i>	<i>p-value</i>	CI95%
-2.0	-1.65	0.17	-9.5	$p < .001$	[-1.99 , -1.31]	-0.77	0.15	-5.2	$p < .001$	[-1.05 , -0.48]
-1.5	-1.42	0.14	-10.2	$p < .001$	[-1.70 , -1.15]	-0.62	0.12	-5.3	$p < .001$	[-0.85 , -0.39]
-1.0	-1.19	0.11	-11.0	$p < .001$	[-1.41 , -0.98]	-0.47	0.09	-5.1	$p < .001$	[-0.65 , -0.29]
-0.5	-0.97	0.09	-11.4	$p < .001$	[-1.13 , -0.80]	-0.32	0.07	-4.5	$p < .001$	[-0.47 , -0.18]
0.0	-0.74	0.08	-9.8	$p < .001$	[-0.88 , -0.59]	-0.18	0.06	-2.8	$p = .005$	[-0.30 , -0.05]
0.5	-0.51	0.08	-6.0	$p < .001$	[-0.67 , -0.34]	-0.03	0.07	-0.4	$p = .670$	[-0.17 , 0.11]
1.0	-0.28	0.11	-2.6	$p = .010$	[-0.49 , -0.07]	0.12	0.09	1.3	$p = .198$	[-0.06 , 0.30]
1.5	-0.05	0.14	-0.4	$p = .721$	[-0.32 , 0.22]	0.26	0.12	2.3	$p = .024$	[0.04 , 0.49]
2.0	0.18	0.17	1.0	$p = .298$	[-0.16 , 0.52]	0.41	0.15	2.8	$p = .005$	[0.13 , 0.70]

Note. Estimates of Career Engagement and Extra Role Behaviors based on margin analyses and centered at *no comparison* condition's Grand Mean (i.e., *career engagement: M = 6.62; extra-role behaviors: M = 6.31*). T-tests test the difference in career engagement or extra role behavior between the *no comparison* condition and the *upward comparison* prediction at a given level of focal-target workers age gap (from *SD = -2* to *SD = +2*). Overall, upward comparison had a detrimental effect on career engagement—relative to no comparison—but this effect was stronger for participants who compared against a younger, higher status target than an older higher status target. Career engagement at age difference +1.5 *SD* and +2.0 *SD* was not significantly different from control condition's Grand Mean. Comparison with a younger higher status worker had a detrimental effect on participants' willingness to engage in extra-role behaviors, but comparison with an older higher status target had a neutral (or even positive) effect.

Figures 1a & 1b

Mediational path for career engagement (above) and extra-role behaviors (below).



REFERENCES

- Adams, J. S. (1965). Inequity in social exchange. In *Advances in experimental social psychology* (Vol. 2, pp. 267-299). Academic Press.
- Alter, C. (2020, January 23). How Millennial leaders will change America. *Time.com*. Retrieved from: <https://time.com/5770140/millennials-change-american-politics/>
- Ambrose, M. L., & Schminke, M. (2009). The role of overall justice judgments in organizational justice research: a test of mediation. *Journal of applied psychology*, 94(2), 491.
- Amis, J. M., Mair, J., & Munir, K. A. (2020). The organizational reproduction of inequality. *Academy of Management Annals*, 14(1), 195-230.
- Bacharach, S. B., Bamberger, P., & Mundell, B. (1993). Status inconsistency in organizations: From social hierarchy to stress. *Journal of Organizational Behavior*, 14(1), 21-36.
- Banks, G. C., Engemann, K. N., Williams, C. E., Gooty, J., McCauley, K. D., & Medaugh, M. R. (2017). A meta-analytic review and future research agenda of charismatic leadership. *The Leadership Quarterly*, 28(4), 508-529.
- Barbuto, J. E., Fritz, S. M., Matkin, G. S., & Marx, D. B. (2007). Effects of gender, education, and age upon leaders' use of influence tactics and full range leadership behaviors. *Sex Roles*, 56, 71-83. <https://doi.org/10.1007/s11199-006-9152-6>
- Bauer, C. C., & Baltes, B. B. (2002). Reducing the effects of gender stereotypes on performance evaluations. *Sex Roles*, 47(9), 465-476.
- Becker, H. S., & Carper, J. W. (1956). The development of identification with an occupation. *American journal of Sociology*, 61(4), 289-298.
- Becker, T. E. (2005). Potential problems in the statistical control of variables in organizational research: A qualitative analysis with recommendations. *Organizational research methods*, 8(3), 274-289.
- Berger, M. S. (1977). *Nonlinearity and functional analysis: lectures on nonlinear problems in mathematical analysis* (Vol. 74). Academic press.
- Bernerth, J. B., Cole, M. S., Taylor, E. C., & Walker, H. J. (2018). Control Variables in Leadership Research: A Qualitative and Quantitative Review. *Journal of Management*, 44, 131–160. <https://doi.org/10.1177/0149206317690586>
- Bertoni, S. (2020, January 5). Tech's Golden Age: Meet The Decade's Top Under 30 Founders. *Forbes.com*. Retrieved from: <https://www.forbes.com/sites/stevenbertoni/2020/01/05/techs-golden-age-meet-the-decades-top-under-30-founders/?sh=32e5b09227de>
- Blackwell, M., Iacus, S., King, G., & Porro, G. (2009). cem: Coarsened exact matching in Stata. *The Stata Journal*, 9(4), 524-546.
- Blau, F. D., & Kahn, L. M. (2017). The gender wage gap: Extent, trends, and explanations. *Journal of economic literature*, 55(3), 789-865.
- Blau, P. M. (1977). *Inequality and heterogeneity: A primitive theory of social structure* (Vol. 7). New York: Free Press.

- Blum, S. (2020, December 2). Why You Should Ignore '30 Under 30' Lists. Life Hacker. Retrieved from: <https://lifelifehacker.com/why-you-should-ignore-30-under-30-lists-1845784345>
- Boehm, S. A., & Kunze, F. (2015). Age diversity and age climate in the workplace. In *Aging workers and the employee-employer relationship* (pp. 33-55). Springer, Cham.
- Bosson, J. K., & Vandello, J. A. (2011). Precarious manhood and its links to action and aggression. *Current Directions in Psychological Science*, 20(2), 82-86.
- Bosson, J. K., Vandello, J. A., Burnaford, R. M., Weaver, J. R., & Arzu Wasti, S. (2009). Precarious manhood and displays of physical aggression. *Personality and Social Psychology Bulletin*, 35(5), 623-634.
- Bourdieu, P. (1979). Symbolic power. *Critique of anthropology*, 4(13-14), 77-85.
- Burmeister, A., Wang, M., & Hirschi, A. (2020). Understanding the motivational benefits of knowledge transfer for older and younger workers in age-diverse coworker dyads: An actor-partner interdependence model. *Journal of Applied Psychology*, 105(7), 748.
- Carlson, K. D., & Wu, J. (2012). The illusion of statistical control: Control variable practice in management research. *Organizational research methods*, 15(3), 413-435.
- Chasteen, A. L., Schwarz, N., & Park, D. C. (2002). The activation of aging stereotypes in younger and older adults. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 57(6), P540-P547.
- Cohen-Charash, Y., & Spector, P. E. (2001). The role of justice in organizations: A meta-analysis. *Organizational behavior and human decision processes*, 86(2), 278-321.
- Collins, M. H., Hair, Jr, J. F., & Rocco, T. S. (2009). The older-worker-younger-supervisor dyad: A test of the Reverse Pygmalion effect. *Human resource development quarterly*, 20(1), 21-41
- Cook, T. D., Campbell, D. T., & Shadish, W. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Boston, MA: Houghton Mifflin.
- Dover, T. L., Kaiser, C. R., & Major, B. (2020). Mixed signals: The unintended effects of diversity initiatives. *Social Issues and Policy Review*, 14(1), 152-181.
- Dowsett, B. (2015). Breaking Down the NBA's PER Metric. *Basketball Insiders*. Retrieved from: <https://www.basketballinsiders.com/breaking-down-the-nbas-per-metric/>
- Duffy, M. K., Shaw, J. D., & Schaubroeck, J. M. (2008). Envy in organizational life. *Envy: Theory and research*, 2, 167-189.
- Eddleston, K. A. (2009). The effects of social comparisons on managerial career satisfaction and turnover intentions. *Career Development International*.
- Elder Jr, G. H. (1975). Age differentiation and the life course. *Annual review of sociology*, 1(1), 165-190.
- Ertug, G., & Castellucci, F. (2013). Getting what you need: How reputation and status affect team performance, hiring, and salaries in the NBA. *Academy of Management Journal*, 56(2), 407-431.
- ESPN. (2021). ESPN nba. Retrieved from: <https://www.espn.com/nba/>
- Festinger, L. (1954). A theory of social comparison processes. *Human relations*, 7(2), 117-140.
- Finkelstein, L. M., Truxillo, D. M., Fraccaroli, F., & Kanfer, R. (2015). An introduction to facing the challenges of a multi-age workforce: A use-inspired approach (pp. 39-58). Routledge.

- Fox, S., Spector, P. E., Goh, A., Bruursema, K., & Kessler, S. R. (2012). The deviant citizen: Measuring potential positive relations between counterproductive work behaviour and organizational citizenship behaviour. *Journal of Occupational and Organizational Psychology*, 85(1), 199-220.
- Francioli, S. P., & North, M. S. (2021a). The older worker: gender and age discrimination in the workplace. In *Handbook of the Psychology of Aging* (pp. 215-235). Academic Press.
- Francioli, S. P., & North, M. S. (2021b). Youngism: The content, causes, and consequences of prejudices toward younger adults. *Journal of Experimental Psychology: General*, 150(12), 2591.
- Glick, P., & Fiske, S. T. (1997). Hostile and benevolent sexism: Measuring ambivalent sexist attitudes toward women. *Psychology of women quarterly*, 21(1), 119-135.
- Goethals, G. R., & Darley, J. M. (1977). Social comparison theory: An attributional approach. *Social Comparison Processes: Theoretical and Empirical Perspectives*, 259-278.
- Groom, B. (2013, June 30). Young workers fear later retirement blocks career prospects. FT.com. Retrieved from: <https://www.ft.com/content/89a66206-e002-11e2-bf9d-00144feab7de>
- Groves, K. S. (2014). Examining leader–follower congruence of social responsibility values in transformational leadership. *Journal of Leadership & Organizational Studies*, 21, 227-243. <https://doi.org/10.1177/1548051813498420>
- Halaby, C. N. (2004). Panel models in sociological research: Theory into practice. *Annu. Rev. Sociol.*, 30, 507-544.
- Halevy, N., Y. Chou, E., & D. Galinsky, A. (2011). A functional model of hierarchy: Why, how, and when vertical differentiation enhances group performance. *Organizational Psychology Review*, 1(1), 32-52.
- Han, J. H., & Pollock, T. G. (2021). The two towers (or somewhere in between): The behavioral consequences of positional inconsistency across status hierarchies. *Academy of Management Journal*, 64(1), 86-113.
- Heilman, M. E., & Chen, J. J. (2005). Same behavior, different consequences: reactions to men's and women's altruistic citizenship behavior. *Journal of Applied Psychology*, 90(3), 431.
- Hollinger, J. (2003). *Pro Basketball Prospectus: All-New 2003-04 Edition*. 2003. Brassey's, Washington, DC: Brassey's.
- Iacus, S. M., King, G., & Porro, G. (2012). Causal inference without balance checking: Coarsened exact matching. *Political analysis*, 20(1), 1-24.
- Ibarra, H., & Barbulescu, R. (2010). Identity as narrative: Prevalence, effectiveness, and consequences of narrative identity work in macro work role transitions. *Academy of management review*, 35(1), 135-154.
- Jackson, E. F. (1962). Status consistency and symptoms of stress. *American Sociological Review*, 469-480.
- Johnson, E. (2021, April 29). How Corporate Stances On Social Issues Affect The Workplace Culture. *Forbes*. Retrieved from <https://www.forbes.com/sites/forbeseq/2021/04/29/how-corporate-stances-on-social-issues-affect-the-workplace-culture/?sh=655a96bf7a57>.
- Joshi, A., Dencker, J. C., & Franz, G. (2011). Generations in organizations. *Research in Organizational Behavior*, 31, 177-205.
- Joshi, A., Dencker, J. C., Franz, G., & Martocchio, J. J. (2010). Unpacking generational identities in organizations. *Academy of management review*, 35(3), 392-414.

- Kaufman, J. (2017, March 17). When the Boss Is Half Your Age. *New York Times*. Retrieved from: <https://www.nytimes.com/2017/03/17/your-money/retiring-older-workers-younger-bosses.html>
- Kearney, E. (2008). Age differences between leader and followers as a moderator of the relationship between transformational leadership and team performance. *Journal of Occupational and Organizational Psychology*, 81, 803-811. <https://doi.org/10.1348/096317907X256717>
- Koster, J., & Aven, B. (2018). The effects of individual status and group performance on network ties among teammates in the National Basketball Association. *PloS one*, 13(4), e0196013.
- Kreiner, G. E., Hollensbe, E. C., & Sheep, M. L. (2006). Where is the “me” among the “we”? Identity work and the search for optimal balance. *Academy of Management Journal*, 49(5), 1031-1057.
- Kubatko, J., Oliver, D., Pelton, K., & Rosenbaum, D. T. (2007). A starting point for analyzing basketball statistics. *Journal of Quantitative Analysis in Sports*, 3(3).
- Kunda, Z. (1990). The case for motivated reasoning. *Psychological bulletin*, 108(3), 480.
- Kulik, C. T., Ryan, S., Harper, S., & George, G. (2014). Aging populations and management. *Academy of Management Journal*, 57(4), 929-935.
- Kunze, F., & Menges, J. I. (2017). Younger supervisors, older subordinates: An organizational-level study of age differences, emotions, and performance. *Journal of Organizational Behavior*, 38(4), 461-486.
- Lange, J., & Crusius, J. (2015). Dispositional envy revisited: Unraveling the motivational dynamics of benign and malicious envy. *Personality and social psychology bulletin*, 41(2), 284-294.
- Lawrence, B. S. (1984). Age grading: The implicit organizational timetable. *Journal of Organizational Behavior*, 5(1), 23-35.
- Lawrence, B. S. (1988). New wrinkles in the theory of age: Demography, norms, and performance ratings. *Academy of Management Journal*, 31(2), 309-337.
- Lenski, G. E. (1954). Status crystallization: a non-vertical dimension of social status. *American sociological review*, 19(4), 405-413.
- Leslie, L. M. (2017). A status-based multilevel model of ethnic diversity and work unit performance. *Journal of Management*, 43(2), 426-454.
- Leslie, L. M. (2019). Diversity initiative effectiveness: A typological theory of unintended consequences. *Academy of Management Review*, 44(3), 538-563.
- Leslie, L. M., Manchester, C. F., Park, T. Y., & Mehng, S. A. (2012). Flexible work practices: a source of career premiums or penalties?. *Academy of Management Journal*, 55(6), 1407-1428.
- Li, Y., Gong, Y., Burmeister, A., Wang, M., Alterman, V., Alonso, A., & Robinson, S. (2020). Leveraging age diversity for organizational performance: An intellectual capital perspective. *Journal of Applied Psychology*. Advance online publication. <https://doi.org/10.1037/apl0000497>
- Liden, R. C., & Graen, G. (1980). Generalizability of the vertical dyad linkage model of leadership. *Academy of Management journal*, 23(3), 451-465.
- Marquardt, D. W. (1980). Comment: You should standardize the predictor variables in your regression models. *Journal of the American Statistical Association*, 75(369), 87-91.
- Miller, D. T., & Ross, M. (1975). Self-serving biases in the attribution of causality: Fact or fiction?. *Psychological bulletin*, 82(2), 213.

- Netchaeva, E., Kouchaki, M., & Sheppard, L. D. (2015). A man's (precarious) place: Men's experienced threat and self-assertive reactions to female superiors. *Personality and Social Psychology Bulletin*, 41(9), 1247-1259.
- North, M. S., & Fiske, S. T. (2015). Intergenerational resource tensions in the workplace and beyond: Individual, interpersonal, institutional, international. *Research in Organizational Behavior*, 35, 159-179.
- Parrott, W. G., & Smith, R. H. (1993). Distinguishing the experiences of envy and jealousy. *Journal of personality and social psychology*, 64(6), 906.
- Pearce, J. L., & Xu, Q. J. (2012). Rating performance or contesting status: Evidence against the homophily explanation for supervisor demographic skew in performance ratings. *Organization Science*, 23(2), 373-385.
- Perry, E. L., Kulik, C. T., & Zhou, J. (1999). A closer look at the effects of subordinate-supervisor age differences. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, 20(3), 341-357.
- Pike, B. E., Kilduff, G. J., & Galinsky, A. D. (2018). The long shadow of rivalry: Rivalry motivates performance today and tomorrow. *Psychological science*, 29(5), 804-813.
- Pratt, M. G., Rockmann, K. W., & Kaufmann, J. B. (2006). Constructing professional identity: The role of work and identity learning cycles in the customization of identity among medical residents. *Academy of management journal*, 49(2), 235-262.
- Rich, B. L., Lepine, J. A., & Crawford, E. R. (2010). Job engagement: Antecedents and effects on job performance. *Academy of management journal*, 53(3), 617-635.
- Ridgeway, C. L., & Correll, S. J. (2004). Unpacking the gender system: A theoretical perspective on gender beliefs and social relations. *Gender & society*, 18(4), 510-531.
- Schwedel, H. (2018). Why It's So Hard to Watch People Your Age Do Better Than You. *Slate.com*. Retrieved from: [Why It's So Hard to Watch People Your Age Do Better Than You](#)
- Shore, L. M., Chung-Herrera, B. G., Dean, M. A., Ehrhart, K. H., Jung, D. I., Randel, A. E., & Singh, G. (2009). Diversity in organizations: Where are we now and where are we going?. *Human Resource Management Review*, 19(2), 117-133.
- Shore, L. M., & Bleicken, L. M. (1991). Effects of supervisor age and subordinate age on rating congruence. *Human Relations*, 44(10), 1093-1105.
- Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: new procedures and recommendations. *Psychological methods*, 7(4), 422.
- Sidanius, J., & Pratto, F. (2003). Social dominance theory and the dynamics of inequality: A reply to Schmitt, Branscombe, & Kappen and Wilson & Liu. *The British journal of social psychology*, 42, 207.
- Skorikov, V. B., & Vondracek, F. W. (2011). Occupational identity. In *Handbook of identity theory and research* (pp. 693-714). Springer, New York, NY.
- Smith, R. H., & Kim, S. H. (2007). Comprehending envy. *Psychological bulletin*, 133(1), 46.
- Sterling, C. M., Van De Ven, N., & Smith, R. H. (2016). Studying Benign and Malicious Envy in the Workplace. *Envy at Work and in Organizations*.

- Suls, J., Martin, R., & Wheeler, L. (2002). Social comparison: Why, with whom, and with what effect?. *Current directions in psychological science*, 11(5), 159-163.
- Tsui, A. S., Egan, T. D., & O'Reilly III, C. A. (1992). Being different: Relational demography and organizational attachment. *Administrative science quarterly*, 549-579.
- Tsui, A. S., Porter, L. W., & Egan, T. D. (2002). When both similarities and dissimilarities matter: Extending the concept of relational demography. *Human Relations*, 55(8), 899-929.
- Tsui, A. S., Xin, K. R., & Egan, T. D. (1995). Relational demography: The missing link in vertical dyad linkage.
- Van de Ven, N., Hoogland, C. E., Smith, R. H., Van Dijk, W. W., Breugelmans, S. M., & Zeelenberg, M. (2015). When envy leads to schadenfreude. *Cognition and Emotion*, 29(6), 1007-1025.
- Van de Ven, N., Zeelenberg, M., & Pieters, R. (2009). Leveling up and down: the experiences of benign and malicious envy. *Emotion*, 9(3), 419.
- Van de Ven, N., Zeelenberg, M., & Pieters, R. (2011). Why envy outperforms admiration. *Personality and social psychology bulletin*, 37(6), 784-795.
- Van de Ven, N., Zeelenberg, M., & Pieters, R. (2012). Appraisal patterns of envy and related emotions. *Motivation and emotion*, 36(2), 195-204.
- Vandello, J. A., Bosson, J. K., Cohen, D., Burnaford, R. M., & Weaver, J. R. (2008). Precarious manhood. *Journal of personality and social psychology*, 95(6), 1325.
- Vecchio, R. P. (1993). The impact of differences in subordinate and supervisor age on attitudes and performance. *Psychology and Aging*, 8(1), 112.
- Warner, W. L., Meeker, M., & Eells, K. (1949). *Social class in America; a manual of procedure for the measurement of social status*.
- Willis Towers Watson (2018). Many employers express limited understanding of when workers will retire. Willis Towers Watson. Retrieved from: <https://www.willistowerswatson.com/en-US/News/2018/12/many-employers-express-limited-understanding-of-when-workers-will-retire>
- Wood, J. V. (1989). Theory and research concerning social comparisons of personal attributes. *Psychological bulletin*, 106(2), 231.
- Wright, P. M., Gardner, T. M., Moynihan, L. M., & Allen, M. R. (2005). The relationship between HR practices and firm performance: Examining causal order. *Personnel psychology*, 58(2), 409-446.
- Zhang, L. (2017). A fair game? Racial bias and repeated interaction between NBA coaches and players. *Administrative Science Quarterly*, 62(4), 603-625.
- Zheng, L. (2020, June 15). We're Entering the Age of Corporate Social Justice. *Harvard Business Review*. Retrieved from <https://hbr.org/2020/06/were-entering-the-age-of-corporate-social-justice>.