

Let's choose one of each: Using the partition dependence effect to increase diversity in organizations

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ARTICLE INFO

Keywords:

Choice architecture
Diversity
Partition dependence
Personnel selection
Decision making

ABSTRACT

When employers make hiring decisions, they often pass over highly qualified candidates belonging to minority groups. This research identified a choice-architecture intervention to nudge people to select more diverse candidates. Partitioning job candidates by gender (Study 1), nationality (Study 2), or university (Study 3) led people to choose more diverse candidates on the partitioned dimension, without lowering the average competence of the selected candidates (Studies 5A and 5B). Even experienced human resource professionals exhibited this effect (Study 3). Merely informing people that the candidates belong to different categories did not increase diversity (Study 4). The effect of partitioning was stronger among people who had weaker stereotypes about the relevant category (Study 6). When choosing a single candidate, people were more likely to choose candidates who were not partitioned together than candidates who were partitioned together (Study 7). Overall, we identify a nudge that can increase diversity in hiring.

With an expanding global market and an increasingly globalized workplace, hiring employees from diverse backgrounds has become a critical goal for human resource (HR) managers around the world (Avery, McKay, & Volpone, 2013; Dass & Parker, 1999; Ryan & Powers, 2012). However, a number of companies that have adopted diversity initiatives years ago are still facing an awkward deficit of employee diversity. For example, a survey found that in nine major technology companies in Northern California Silicon Valley, 70% of the employees were men and 88% were European American or Asian—proportions that barely changed even after years of effort to increase diversity (Jones & Trop, 2015).

Although some industries suffer from a restricted pipeline of candidates from diverse backgrounds (Alper, 1993; Blickenstaff, 2005; Helfat, Harris, & Wolfson, 2006), even companies that have a diversely qualified applicant pool struggle to hire diverse employees (Bock, 2014; Bui & Miller, 2016). Given their stereotypes and preferences for individuals from certain academic backgrounds (Alysen, 2005; Bales, 1992), gender (Glick, Zion, & Nelson, 1988; Rudman & Glick, 2001), and ethnicities (Green et al., 2007; McConnell & Leibold, 2001), re-

cruiters often fail to select candidates from minority backgrounds even if they have egalitarian goals and want to be fair (Duguid & Thomas-Hunt, 2015; Ziegert & Hanges, 2005). For example, resumes with names belonging to the majority ethnic group receive about 50% more callbacks for interviews than identical resumes with names belonging to minority groups (Bertrand & Mullainathan, 2004). Similarly, male job applicants are rated as more competent and more hireable than comparable female job applicants (Moss-Racusin, Dovidio, Brescoll, Graham, & Handelsman, 2012; Steinpreis, Anders, & Ritzke, 1999).

To address this longstanding problem, we develop a choice-architecture intervention to nudge recruiters to select more diverse candidates by building on the phenomenon of *partition dependence* (Fox & Clemen, 2005). According to the partition dependence effect, when people have to choose a few options from many available options that are partitioned on a given dimension, people tend to choose one option from each category. For example, when six wines made from three different types of grapes and in three different regions were partitioned based on the type of grape that they were made from, the majority of people selected one wine of each type of grape but not one wine from

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each region. However, when the same wines were partitioned based on the region that they came from, the majority of people selected one wine from each region but not one wine of each type of grape (Fox, Ratner, & Lieb, 2005, Study 5; see also Bardolet, Fox, & Lovallo, 2011). The partition dependence effect probably occurs because partitioning options activates a *diversification heuristic* in the minds of decision makers—“let’s choose some from each category.” This heuristic, in turn, leads decision makers to diversify their choices on the dimension on which the options are partitioned.

We propose that the partition dependence effect can be used to increase diversity in the hiring context. That is, if job applicants are partitioned based on a given dimension (e.g., gender, ethnicity, university, and area of specialization), the activation of the diversification heuristic might nudge people to choose some applicants from each category. People might therefore choose a more diverse group of candidates than they would otherwise in the absence of partitioning. In addition, we extend the phenomenon of partition dependence by theorizing that the beneficial effects of partitioning on more diverse choices would not come at the cost of lower quality choices, and that the effect would vary as a function of individuals’ stereotypes about social groups. We test our hypotheses in eight studies with participants from diverse backgrounds (e.g., US residents, undergraduates in Singapore, and experienced HR professionals in China). We examined the effect of partition dependence on diversity on various dimensions, including gender, nationality, ethnicity, and university, all of which represent different dimensions that organizations might want to diversify their workforce on.

Taken together, our research makes several contributions to the extant literature. First, we contribute to the social categorization literature. Whereas prior research has mainly focused on the negative outcomes of social categorization, such as discrimination against minority group members (e.g., Heilman & Okimoto, 2007; Landy, 2008; Rudman, Moss-Racusin, Phelan, & Nauts, 2012), we investigate increased selection diversity as a positive outcome of social categorization. Our investigation thus extends the social categorization literature by providing an alternative theoretical perspective on social categories. Specifically, we posit that the salience of social categories can serve to increase the selection of members who would normally be discriminated against if these categories are used as a basis for partitioning people into different groups.

Second, we contribute to the partition dependence literature in several ways. First, we are the first to test the partition dependence effect in the personnel selection context, thereby extending prior research which has exclusively examined the partition dependence effect in such domains as consumer choices (Fox, Ratner, et al., 2005), investment decision making (Benartzi & Thaler, 2001), and firm strategy (Bardolet et al., 2011). Moreover, we are also the first to empirically test the underlying mechanism of the partition dependence effect, activation of the diversification heuristic, and to identify individuals’ stereotypes about social groups as a boundary condition for the partition dependence effect. Thus, our research provides a nuanced understanding of the partition dependence effect in the diversity hiring context.

Third, we also contribute to the diversity hiring literature. Extant diversity selection research tends to focus on the application stage of the hiring process (e.g., Avery, Hernandez, & Hebl, 2004; Highhouse, Stierwalt, Bachiochi, Elder, & Fisher, 1999; Slaughter, Sinar, & Bachiochi, 2002), whereas our study focuses on the next stage of the hiring process—the selection stage. We show that partitioning candidates into different categories has positive effects on the diversity of the selected candidates, and that this positive effect does not necessarily compromise the competency of the selected candidates. This finding may encourage hiring managers to use partition dependence as an economical yet effective tool in the personnel selection process in order to increase selection diversity.

1. Theory and hypotheses

1.1. Partition dependence and selection diversity

Partition dependence effect operates in the same manner in the personnel selection domain as it does in the case of consumer choice and investment decisions (Benartzi & Thaler, 2001; Fox, Ratner, et al., 2005)—increasing the diversity of people’s choices. People might be unconsciously attracted to candidates from the majority group, or to candidates from positively stereotyped backgrounds, even if they would like to be fair and unbiased (Duguid & Thomas-Hunt, 2015; Ziegert & Hanges, 2005). As such, even well-intentioned recruiters are likely to select less diverse candidates. However, partitioning candidates into different categories might activate a diversification heuristic in the minds of decision makers—“let’s choose some from each category.” Such a heuristic, if activated, would lead recruiters to choose more diverse candidates based on the dimension on which the candidates are partitioned. Although the partition dependence literature has argued for the existence of such a heuristic (Fox, Bardolet, & Lieb, 2005), no research to our knowledge has explicitly tested the underlying role of the extent to which this heuristic is activated. Building on the phenomenon of partition dependence (Fox & Clemen, 2005), we reasoned that in personnel screening decisions, in which HR professionals need to screen out a few candidates from many applicants, the manner in which the candidates are partitioned would influence the diversity of the selected candidates. Specifically, we propose that:

Hypothesis 1. *Partitioning job candidates on a given dimension would increase the diversity of the candidates selected on that dimension, such that compared to people in the no partition condition, people in the partition condition would select more diverse candidates.*

Hypothesis 2. *Activation of the diversification heuristic would mediate the effect of the partitioning manipulation on the diversity of the selected candidates.*

1.2. Tension between diversity and quality

Before recommending recruiters to use partition dependence to increase the diversity of the selected candidates, an important question arises: does the increased diversity come at the cost of lower quality of the selected candidates? This question is important in the special case in which one group of candidates is on average less qualified than the other. In this situation, if people select more diverse candidates when the candidates are partitioned into different categories, are they also more likely to select less qualified applicants on average? This concern has been voiced by a number of personnel selection researchers (Kravitz, 2008; Ployhart & Holtz, 2008; but see Nisbett et al., 2012; Walton & Spencer, 2009, for alternate views). Past research on partition dependence has not empirically examined the question of whether partition dependence necessarily compromises quality. Nevertheless, the seminal article documenting the partition dependence effect has implicitly assumed that partition dependence leads people to make suboptimal choices (Fox, Ratner, et al., 2005). We explicitly test this assumption in the present research.

We answer the question of whether partition dependence would necessarily compromise quality by referring to dual-process theories (Chen & Chaiken, 1999; Evans, 2008; Gawronski & Creighton, 2013), which distinguish between systematic and heuristic processes. Systematic processes are effortful, deliberative, and conscious, whereas heuristic processes are effortless, automatic, and nonconscious (Evans, 2008; Keren & Schul, 2009; Kruglanski & Gigerenzer, 2011). When recruiters hire candidates, hiring competent candidates is likely to be a salient goal, which means that recruiters would be likely to rely on systematic processing to ensure that they meet this goal (Evans, 2008). Even if partitioning the candidates into different categories activates

the diversification heuristic (i.e., as part of heuristic processing), it is unlikely to override the goal of selecting competent and qualified candidates. Indeed, researchers have argued that people can engage in heuristic and systematic processing simultaneously for different aspects of the decision without necessarily facing a conflict (Chen & Chaiken, 1999). Therefore, the diversification heuristic need not interfere with recruiters' goal to select qualified candidates.

In the highly unlikely case that minority candidates are strictly inferior to majority candidates, more diversity would obviously come at the cost of lower quality. However, it is rare to find such non-overlapping distributions based on important social categories—typically, majority and minority group members would be represented by overlapping bell curves, with within-group variance often significantly exceeding between-group variance (Reynolds & Suzuki, 2012; Roth, BeVier, Bobko, Switzer, & Tyler, 2001; Vernon, 1979). In such cases, it is not necessary that higher diversity should come at the cost of lower quality. Further, to the extent that people often fail to select minority and women candidates because of their biases even when minorities and women have identical qualifications as majority and men candidates, respectively (e.g., Bertrand & Mullainathan, 2004; Moss-Racusin et al., 2012; Steinpreis et al., 1999), encouraging people to consider qualified candidates from diverse backgrounds through partitioning can even increase selection quality. Thus, we hypothesize:

Hypothesis 3. *People would select more diverse candidates based on whichever dimension the candidates are partitioned, without selecting less qualified candidates on average.*

1.3. The moderating role of individuals' stereotypes about social groups

As the partition dependence effect varies across individuals with varied degree of domain knowledge (Fox & Clemen, 2005) and expertise (Fox, Ratner, et al., 2005), we propose that individuals' stereotypes about social groups are likely to be an important individual difference variable that would influence the strength of the partition dependence effect. According to the unspoken cultural influence model (Weisbuch & Ambady, 2009; Weisbuch, Pauker, & Ambady, 2009), although some people clearly endorse stereotypes more than others, everyone is exposed to societal stereotypes because such stereotypes are entrenched in cultural products, such as movies, TV shows, and news reports (Weisbuch, Lamer, Treinen, & Pauker, 2017). For example, on US American television, people exhibit more negative nonverbal behavior toward individuals who are obese (Weisbuch & Ambady, 2009) or who belong to minority groups (Weisbuch et al., 2009). Exposure to such subtle cultural products influences people's attitudes and decisions even if people cannot consciously detect any biases in the cultural products (Weisbuch et al., 2017).

Drawing on the unspoken cultural influence model, we propose that even people with weak stereotypes about social groups exhibit biased decision making. This is because they are exposed to the stereotypes in the broader cultural context. However, their information processing is likely flexible because they have not internalized the stereotypes as personally held beliefs (Sherman, Lee, Bessenoff, & Frost, 1998). That is, even if people with weak stereotypes often prefer candidates from positively stereotyped groups, their biased decision making is probably not driven by strongly held personal beliefs. Therefore, when job candidates are partitioned into different categories, the activated diversification heuristic "let's choose some of each" might in many cases be strong enough to override the effect of culturally acquired stereotypes. Thus, for people with weak stereotypes about social groups, we expect that partitioning job candidates into different categories would increase their chances of selecting candidates from more diverse backgrounds.

People with strong stereotypes about social groups, on the other hand, are less likely to choose candidates from negatively stereotyped groups because of their entrenched personal beliefs about the inherent deficiency or unsuitability of certain groups (e.g., Agerström & Rooth,

2011; King & Ahmad, 2010; Rudman, 1998; Rudman & Glick, 1999). Therefore, when the "let's choose some of each" heuristic is activated in the minds of these individuals, the heuristic might not be strong enough to overcome their personal beliefs about the inherent inadequacy of candidates from particular social groups. Further, as partitioning job candidates is likely to make their social categories particularly salient, it might activate people's stereotypes if they possess strong stereotypes, and might therefore even reduce the proportion of candidates chosen from minority groups. Based on these arguments, we hypothesize:

Hypothesis 4. *People's stereotypes about social groups would moderate the positive effect of partitioning on selection diversity, such that the partition dependence effect would be stronger for people with weaker stereotypes about groups on which the candidates are partitioned.*

1.4. The case of choosing one candidate

The above discussion is focused on cases in which recruiters are selecting a few candidates from a large number of applicants. Indeed, the partition dependence effect, as originally conceptualized, only applies in cases in which people are selecting more than one option (Fox, Ratner, et al., 2005). However, in many real-life hiring scenarios, recruiters can select only a single candidate. How might the partition dependence effect apply in such cases? Recent research has documented a variant of the partition dependence effect that applies to cases in which decision makers are selecting a single option (Tannenbaum, Fox, & Goldstein, 2018). The idea is that when some options are combined into a category but others are listed separately, people mentally represent the combined options as a single unit, and thus are less likely to choose one of the combined options, and are instead more likely to choose an option that is not combined with other options. For example, Tannenbaum et al. (2018, Study 1) asked participants to select one of six charities, half of which were animal-related charities, and half were nature-related charities. In one condition, they grouped the three nature charities together but kept the three animal charities separate, and vice-versa in the other condition. Their prediction was that participants would represent the options that were combined together as a single entity, and thus think that they are choosing one of four options rather than one of six options. If this is the case, then the options that are combined together would overall receive less weight, and thus would not be chosen as often.

Extending this idea to the hiring scenario, we suggest that if an organization wishes to increase the number of employees from a minority group, then it can present candidates from the minority background separately but put candidates from the majority background into a single category. Specifically, we hypothesize:

Hypothesis 5. *When selecting a single candidate, people would be more likely to select candidates who are not partitioned together compared to candidates who are partitioned together into an overarching category.*

2. Overview of studies

We tested our hypotheses across eight experiments. Study 1 asked participants to select three out of eight candidates (half men, half women), and tested whether participants would choose more gender-diverse candidates when the job candidates were partitioned by gender than when they were interspersed together. Study 2 sought to provide a conceptual replication by asking participants to select five out of fifteen candidates (belonging to four different nationalities), and tested whether participants would choose more nationally-diverse candidates when the job candidates were partitioned by nationality than when they were interspersed together. Study 3 tested whether the decisions of even experienced HR professionals are influenced by the partitioning manipulation. Study 4 tested whether merely informing participants that the candidates belong to two groups would be sufficient to increase

the diversity of participants' choices, or whether partitioning candidates into two groups is necessary for increasing diversity. Studies 5A and 5B tested cases in which applicants from one group are more qualified on average, whether partitioning candidates would increase diversity without reducing the quality of the selected candidates. Moreover, Study 5A explicitly tested the underlying mechanism of the partition dependence effect—activation of the diversification heuristic. Study 6 tested whether the effect of partitioning candidates is particularly strong among people who have weaker implicit stereotypes about the relevant social group. Finally, Study 7 examined a variant of the partition dependence effect that applies in contexts in which participants are selecting a single job candidate.

Across all studies, no participants were excluded unless reported. All experimental conditions and measures are reported.

3. Operationalization of diversity and analysis strategy

Harrison and Klein (2007) suggested that diversity variables should be operationalized in a way that matches the corresponding conceptualization of diversity (i.e., variety, separation, or disparity), and fulfils the relevant goals of the researchers or of the practitioners (see also Harrison, Price, & Bell, 1998). In other words, the conceptualization of diversity variables should be context-dependent. In line with this suggestion, we consider two different operationalizations of diversity.

In many jobs, the goal is to ensure a reasonable level of diversity that matches the population. For example, approximately half of business school graduates in the US are women (i.e., 47.2%; see Department of Education data released by National Center for Education Statistics, 2017). Therefore, for the position of business analyst, the ideal breakdown would be half men and half women—selecting too many men would be problematic, and selecting too many women would also be problematic. The most appropriate conceptualization of diversity in such cases is in terms of *variety*, which is captured by Blau's (1977) index of heterogeneity, $1 - \sum P_i^2$, where P represents the proportion of candidates chosen in the i^{th} category of a certain diversity category variable. The Blau's index ranges from 0, indicating no diversity, to a theoretical maximum of 1. Higher numbers indicate greater diversity. In our Studies 1–5B, participants have to select candidates for a business analyst position. As this is not a field with a severe shortage of either men or women (see Labor Force Statistics from U.S. Department of Labor, 2019), we operationalize diversity in terms of the Blau's index in these studies.

By contrast, in other jobs, there is a severe shortage of certain subgroups. For example, the field of engineering is overwhelmingly male-dominated (see Labor Force Statistics from U.S. Department of Labor, 2019). In such cases, the key goal is to increase the small percentage of women employees. The risk of having a majority of female employees in such cases is minuscule given the skewed nature of the workforce. The most appropriate conceptualization of diversity in such cases is *disparity*, which is appropriate when there are substantial status and power hierarchies existing among groups (Phillips & Zuckerman, 2001). In our Study 6, participants have to select candidates for an engineering position. Given the substantial gender disparity in this field (see Labor Force Statistics from U.S. Department of Labor, 2019), we operationalize diversity in terms of the percentage of women candidates in this study. Overall, we follow Harrison and Klein's (2007) principle that “conceptualization must be aligned with operationalization” when studying diversity constructs (p. 1.213).

4. Study 1: gender partition, choosing three out of eight

The goal of Study 1 was to test whether partitioning job candidates into different categories would lead people to choose more diverse candidates on the partitioned dimension. We focused on gender in this study because many organizations do not have a similar proportion of men and women employees even when they have a similar pipeline of

men and women candidates (Koch, D'Mello, & Sackett, 2015; Triana, Jayasinghe, Pieper, Delgado, & Li, 2019), and because there are significant gender biases in hiring decisions (Moss-Racusin et al., 2012; Steinpreis et al., 1999). We employed a subtle and ecological way of partitioning job candidates: using candidates' first names to implicitly create categories, based on the idea that first names can often reveal one's gender (e.g., see Steinpreis et al., 1999).

4.1. Method

4.1.1. Participants

A survey seeking 400 U.S.-resident respondents was posted on Amazon's Mechanical Turk for a payment of 50 cents. In response, 435 participants completed the survey ($M_{\text{age}} = 36.15$, $SD_{\text{age}} = 10.80$, 12 declined to state; 55.7% women, 13 declined to state). Participants were randomly assigned to either the *no partition* condition or the *gender partition* condition.

4.1.2. Procedure

Participants in both conditions were presented with the following scenario:

Imagine that you are a Human Resource manager in a large investment bank. Recently, your company launched a new business division. There are three vacancies for the position of a Business Analyst in that division, which have attracted a large number of applicants. After a few rounds of interviews, you have shortlisted 8 candidates. All eight candidates have a Master of Business Administration (MBA) degree in different finance-related fields. You need to select three of the eight candidates for the job openings.

Participants were presented with a list of eight candidate profiles. Each profile contained the candidate's name (e.g., Karen Brown), education background (e.g., MBA from the University of Michigan, Ann Arbor), and his/her MBA GPA. A pilot study verified that participants perceived the candidates as being similarly and highly qualified for the position (see Supplementary Materials). In the *gender partition* condition, the eight candidates were sorted by their first names alphabetically (i.e., Daniel, Edwards, Frank, George, Karen, Linda, Michelle, and Nancy) such that the first four were men and the last four were women; in the *no partition* condition, all the eight candidates were listed in a random order. There was some blank space between men candidates and women candidates in the *gender partition* condition, but there was no such boundary in the *no partition* condition. See Supplementary Materials for examples.

Participants were asked to choose 3 out of 8 candidates. We excluded sixty-nine participants who did not select exactly three candidates.

4.2. Results

Using Blau's index as the dependent variable, an independent samples *t*-test found that participants in the *gender partition* condition ($M = 0.34$, 95% CI [0.31, 0.37], $SD = 0.19$) scored significantly higher on the gender diversity index than those participants in the *no partition* condition ($M = 0.29$, 95% CI [0.26, 0.32], $SD = 0.21$; $t(364) = 2.38$, $p = .018$; Cohen's $d = 0.25$).

4.3. Discussion

Study 1 provided support for Hypothesis 1, that partitioning candidates on a certain category (i.e., gender) would increase people's selection diversity on such category compared to no partition at all. However, Study 1 is limited in that participants were presented with brief profiles about job candidates. Although companies often use this type of profile screening in the very first step of narrowing down the applicant pool (Brown & Campion, 1994; Cable & Gilovich, 1998), they

would then screen applicants' resumes (Piotrowski & Armstrong, 2006).

5. Study 2: nationality partition, choosing five out of fifteen

The goal of Study 2 was to test Hypothesis 1 while addressing the limitation of Study 1. Specifically, instead of asking participants to read job candidates' profiles, we asked participants to carefully review job candidates' resumes. Further, we partitioned participants on a different dimension—nationality—which is another salient social category that has been identified as a source of discrimination (U.S. Equal Employment Opportunity Commission, 2016).

5.1. Method

5.1.1. Participants

We posted a survey seeking 100 participants on a paid student subject pool at a major university in Singapore. In response, 89 Singaporean Chinese undergraduates ($M_{\text{age}} = 22.81$, $SD_{\text{age}} = 2.19$; 55.1% women) completed the study. Each participant received a S\$5 voucher (worth approximately US\$3.67). Participants were randomly assigned to either the *no partition* condition or the *nationality partition* condition.

5.1.2. Procedure

As the experiment required participants to review soft copies of resumes (as is common in real-life resume screening), we required that all participants doing this experiment use a desktop or a laptop with a PDF© reader installed. Participants in both two conditions were presented with the following scenario:

Imagine that you are a Human Resource manager in a large investment bank in Singapore. Each year, your company hires new financial analysts to work in the Business Analysis division. From past experience, you have found Masters of Business Administration (MBA) graduates with a specialization in finance to be the best employees for this position. You advertised your job opening with four local universities and received 15 applications. Your job is to review these applicants' resumes and shortlist five candidates for a face-to-face interview.

We then presented participants with a link to download a zipped file that contained the fifteen resumes (see Supplementary Materials for examples). Participants were instructed to download the zipped file and unzip it on their computer. To make sure that participants indeed downloaded the resumes, we asked them a multiple-choice question in which they had to indicate the number of resume files in the unzipped folder from a list of five options. Participants who selected options other than 15 resumes were not allowed to proceed with the survey.

Participants were asked to spend at least ten minutes to review the fifteen resumes carefully (the median time spent reviewing the resumes was 11.22 min). The fifteen resumes were formatted using the same template containing the following information: candidate's name (from which their nationality could be inferred), education background (e.g., university and degree), work experience, extra-curricular activities, honors and awards, and additional information (e.g., other knowledge or skills). We had four candidates from three Asian countries (China, India, and South Korea) and three candidates from the US. They all had an MBA degree in finance from one of four Singapore-based business schools.

The only difference between the two experimental conditions was in the manner in which the resume files were named: in the *nationality partition* condition, we named the resumes with the candidate's nationality (i.e., China-01, China-02, China-03, China-04, India-01, India-02...); in the *no partition* condition, we named the resumes with the word "Applicant" plus a number from 1 to 15 (i.e., Applicant-01, Applicant-02, Applicant-03...). In both conditions, we sorted the fifteen resumes by their file name. Note that the categorization is subtle and implicit in that there was no hard boundary between the four

nationalities—it just happened that the candidates from the same nationality were listed contiguously.

Participants were asked to select five out of the 15 candidates. All participants selected exactly 5 candidates.

5.2. Results

Using Blau's index as the dependent variable, an independent-samples *t*-test revealed that participants in the *nationality partition* condition ($M = 0.65$, 95% CI [0.62, 0.67], $SD = 0.09$) scored significantly higher on the nationality diversity index than those in the *no partition* condition ($M = 0.60$, 95% CI [0.58, 0.63], $SD = 0.09$; $t(87) = 2.22$, $p = .029$; Cohen's $d = 0.48$).

5.3. Discussion

Study 2 provided further support for Hypothesis 1 using a resume screening task. When the resumes of 15 candidates were partitioned into four nationalities, participants were more likely to choose candidates of different nationalities compared to when the resumes of the 15 candidates were randomly interspersed.

6. Study 3: replication with human resource professionals

Although Studies 1 and 2 provided support for Hypothesis 1, they used either an adult community sample or a student sample instead of actual recruiters. Therefore, the ecological validity of the findings is not clear (Derous, Ryan, & Nguyen, 2012; Derous, Ryan, & Serlie, 2015; Landy, 2008). It might be possible that experienced HR professionals, who have extensive experience in making hiring decisions, would focus exclusively on candidates' competence, and thus, would not be influenced by the manner in which candidates are partitioned. However, extensive research has shown that even real-world recruiters suffer from a whole host of judgment and decision making biases (Dalal et al., 2010; Slaughter & Kausel, 2014), and stereotypes-related biases (Bertrand & Mullainathan, 2004; Moss-Racusin et al., 2012; Steinpreis et al., 1999).

The goal of Study 3 was to test Hypothesis 1 using a sample of full-time HR professionals. We asked participants to review the resumes of sixteen job candidates and to select four for a face-to-face interview. We used university as the partitioning dimension in this study. University is an important factor that companies consider when hiring employees (e.g., Renwick & Tosi, 1978), and a factor on which many companies want some diversity. Indeed, greater diversity in employees' educational backgrounds is associated with a number of positive outcomes, such as increased use of relevant information (Dahlin, Weingart, & Hinds, 2005), better team performance (Kearney, Gebert, & Voelpel, 2009), and better company financial performance (Smith et al., 1994).

6.1. Method

6.1.1. Participants

We sent an invitation letter to 200 full-time HR professionals at a large state-owned petroleum and chemicals enterprise located in Beijing. In response, 121 participants completed the survey ($M_{\text{age}} = 34.93$, $SD = 9.19$; 51.2% women; 81.7% had a bachelor's degree or above; $M_{\text{HR-related experience}} = 8.05$ years, $SD = 8.22$), yielding a response rate of 60.5%. We paid participants who completed our study 20 RMB per person (approximately US\$3 at the time of the study). Participants were randomly assigned to either the *no partition* condition or the *university partition* condition.

6.1.2. Procedure

The experiment was conducted online. Upon clicking a link to the study that was included in the invitation letter, participants were directed to a webpage. Participants in both conditions were presented

with the following scenario:

Imagine that you are an HR professional working in the headquarter office of a large state-owned investment company in Beijing. There is a Business Analysis Center in your company. Every year, the center would delegate your department to recruit some good graduates for the Business Analyst position from several prestigious universities in Beijing. You have been in charge of this for a few years. From your past experience and the feedback given by the director of the Business Analysis Center, you concluded that master graduates with a specialization in economics- or management- related areas (e.g., accounting, finance, economics, and management) are the ideal candidates for the Business Analyst position. You advertised your job opening with four local universities and received 16 applicants' resumes. Your job is to review these applicants' resumes and shortlist four candidates for a face-to-face interview.

We then presented participants with a link to download a zipped file that contained sixteen resumes (see Supplementary Materials for examples). Participants were instructed to download the zipped file and unzip it on their computer. To make sure that participants indeed downloaded the resumes, we asked them a multiple-choice question in which they had to indicate the number of resume files in the unzipped folder from a list of six options. Participants who selected other than 16 resumes were not allowed to proceed with the survey.

Each of the sixteen job applicants graduated from one of the top four local universities (i.e., Peking University, Tsinghua University, Renmin University of China, and Beijing Normal University). The only difference between the two experimental conditions was in the manner in which the resume files were named: in the *university partition* condition, we named the resumes with an abbreviation of the candidate's university (i.e., PKU-01, PKU-02, PKU-03, PKU-04, THU-01, THU-02...); in the *no partition* condition, we named the resumes with the word "Applicant" plus the number from 1 to 16 (i.e., Applicant-01, Applicant-02, Applicant-03...). In both conditions, we sorted the sixteen resumes by file names. As in Study 2, the categorization is subtle and implicit in that there was no hard boundary between the four universities. It just happened that the candidates from the same university were listed contiguously. Participants were instructed to spend at least ten minutes to review all sixteen resumes carefully. The median time spent was 11.75 min.

Participants were asked to select four candidates, and to indicate their choice on a webpage listing all 16 candidates sorted in a random order. All participants selected exactly four candidates. As part of the demographics form, we measured participants' years of HR experience using the question, "How many years of human resource management related experience you have had?"

6.2. Results

Using Blau's index as the dependent variable, an independent-samples *t*-test revealed that participants in the *university partition* condition ($M = 0.64$, 95% CI [0.61, 0.67], $SD = 0.10$) scored significantly higher on the university diversity index than those in the *no partition* condition ($M = 0.59$, 95% CI [0.56, 0.62], $SD = 0.13$; $t(119) = 2.37$, $p = .019$; Cohen's $d = 0.44$). Therefore, Hypothesis 1 receives support.

Next, we tested whether participants' years of experience as an HR manager moderated the effect of the partitioning manipulation. We ran a regression with the university diversity index as the dependent variable, and the partitioning manipulation (control condition = 0, partition condition = 1; mean centered), years of HR experience (mean centered), and their interaction as predictors. We found a significant main effect of the partitioning manipulation on the university diversity index ($B = 0.06$, 95% CI [0.016, 0.103], $SE = 0.022$; $t = 2.706$, $p = .008$), but did not find a significant main effect of years of HR experience on the university diversity index ($B = 0.000$, 95% CI [-0.003, 0.003], $SE = 0.001$; $t = -0.094$, $p = .926$). The interaction between the partitioning manipulation and years of HR experience on

the university diversity index is not significant ($B = 0.001$, 95% CI [-0.005, 0.007], $SE = 0.003$; $t = 0.326$, $p = .745$).

6.3. Discussion

Using a sample of full-time HR professionals who had an average of 8 years of HR-related experience, Study 3 provided an additional test of Hypothesis 1. When the HR professionals were presented with a folder containing 16 resumes that were implicitly partitioned by university, they were more likely to choose candidates from different universities. The extent to which the HR managers were affected by the partitioning manipulation was not influenced by their years of work experience. This finding suggests that the partitioning manipulation can be effective in increasing diversity in the workplace.

7. Study 4: verbally spelling out the social categories

The previous three studies provided support for Hypothesis 1, that partitioning job candidates into different categories can be used to increase the diversity of selected candidates on desired dimensions. Would we observe the same findings when the salience of social categories is heightened through other means, such as verbally spelling out that there are several categories of candidates? We tested this possibility in Study 4 by conducting a 2 (*no partition* vs. *gender partition*) \times 2 (*verbally spelling out: present* vs. *absent*) between-participants design.

7.1. Method

7.1.1. Participants

A survey seeking 500 U.S.-resident respondents was posted on Amazon's Mechanical Turk for a payment of 50 cents. In response, 576 participants ($M_{\text{age}} = 36.93$, $SD_{\text{age}} = 12.56$, 156 declined to state; 52.5% women, 161 declined to state) completed the survey. Participants were randomly assigned to one cell of four conditions: the *no partition & verbally spelling out: absent* condition, the *no partition & verbally spelling out: present* condition, the *gender partition & verbally spelling out: absent* condition, and the *gender partition & verbally spelling out: present* condition.

7.1.2. Procedure

Participants were presented with the same scenario as in Study 1 and a list of eight candidate profiles. Each profile contained the candidate's name (e.g., Karen Brown), education background (e.g., MBA from the University of Michigan, Ann Arbor), and GPA. A pilot study verified that participants perceived the candidates as being similarly and highly qualified for the position (see Supplementary Materials). In the *gender partition* condition, the eight candidates were sorted by their first names alphabetically (i.e., Daniel, Edwards, Frank, George, Karen, Linda, Michelle, and Nancy) such that the first four were men and the last four were women; in the *no partition* condition, all the eight candidates were listed in a random order. In the *gender partition* condition, there was some blank space between men candidates and women candidates, but there was no blank space in the *no partition* condition. See Supplementary Materials for examples.

In the *verbally spelling out: present* condition, we explicitly told participants that the 8 shortlisted candidates consisted of four men and four women; in the *verbally spelling out: absent* condition, we did not provide this information (as in the previous studies).

Participants were asked to select two out of the eight candidates. We excluded sixty-two participants who did not select exactly two candidates.

7.2. Results

We submitted the gender diversity Blau's index to a 2 (*no partition* vs. *gender partition*) \times 2 (*verbally spelling out: present* vs. *absent*) ANOVA.

We found a significant main effect of the partitioning manipulation, $F(1, 510) = 10.686, p = .001$. Specifically, participants in the *gender partition* condition ($M = 0.36, 95\% \text{ CI } [0.34, 0.39], SD = 0.22$) scored significantly higher on the gender diversity index than those in the *no partition* condition ($M = 0.30, 95\% \text{ CI } [0.27, 0.33], SD = 0.25; t(512) = 3.26, p = .001; \text{Cohen's } d = 0.29$). We found a marginal main effect of the verbally spelling out manipulation, $F(1, 510) = 3.597, p = .058$. Participants in the *verbally spelling out: present* condition ($M = 0.35, 95\% \text{ CI } [0.32, 0.38], SD = 0.23$) scored marginally higher on the gender diversity index than those in the *verbally spelling out: absent* condition ($M = 0.31, 95\% \text{ CI } [0.28, 0.34], SD = 0.24; t(512) = 1.87, p = .062; \text{Cohen's } d = 0.17$). The 2×2 interaction was not significant, $F(1, 510) = 0.019, p = .889$.

7.3. Discussion

Study 4 provided further support for Hypothesis 1: when eight candidates were partitioned by gender, participants were more likely to select a balance of men and women candidates than when the candidates were randomly interspersed. However, simply verbally informing participants that the candidates consisted of both men and women did not have as much of an effect, indicating that partitioning candidates into separate categories is a more effective means for improving diversity than simply informing people that the different categories exist.

8. Study 5A: Increased diversity without lower quality – overlapping GPA distributions

Studies 1–4 provided consistent support for Hypothesis 1, that partitioning candidates into different categories increases the diversity of the selected candidates on the partitioned dimension. Study 5A directly tested the underlying mechanism—activation of the diversification heuristic (Hypothesis 2).

Moreover, given that hiring competent candidates is usually the primary goal for most organizations, it is important to ensure that increased diversity does not come at the cost of lower competency. Indeed, researchers have expressed concern that hiring to increase diversity, if implemented improperly, could compromise the quality of the selection process (Kravitz, 2008; Pyburn, Ployhart, & Kravitz, 2008). To address this concern, Study 5A also tested Hypothesis 3: whether partitioning candidates by gender would necessarily lead participants to select candidates with greater gender diversity without necessarily selecting less competent candidates on average.

We varied candidates' qualifications by varying their college grade average point (GPA), which has been shown to be a valid predictor of job performance (Roth, BeVier, Switzer, & Schippmann, 1996). We presented participants with one of two scenarios: *men more qualified than women* or *women more qualified than men*. Within each of these scenarios, we either partitioned candidates by gender (the *gender partition* condition) or interspersed them (the *no partition* condition). We hypothesized that partitioning the candidates by gender increased diversity without compromising the competency of the selected candidates.

8.1. Method

8.1.1. Participants

A survey seeking 400 U.S.-resident respondents was posted on Amazon's Mechanical Turk for a payment of 50 cents. In response, 447 participants ($M_{\text{age}} = 38.45, SD_{\text{age}} = 12.65, 37$ declined to state; 63.7% women, 36 declined to state) completed the survey. Participants were randomly assigned to one cell of a 2 (partition: *no partition* vs. *gender partition*) $\times 2$ (GPA level: *men-high-women-low* vs. *women-high-men-low*) between-participants design.

8.1.2. Procedure

Participants were presented with the same scenario as in Study 1, along with a list of eight candidate profiles. Each profile contained the candidate's name (e.g., Karen Brown), education background (e.g., MBA from the University of Michigan, Ann Arbor), and GPA. As in Study 1, we sorted the candidates by their first names in the *gender partition* condition (i.e., Daniel, Edwards, Frank, George, Karen, Linda, Michelle, and Nancy), and sorted them randomly in the *no partition* condition. We added some blank space between the first four and last four candidates in the *gender partition* condition, but there was no such space in the *no partition* condition. See Supplementary Materials for examples.

To manipulate candidates' competency, we varied the mean GPA across the two competency conditions. In the *men-high-women-low* condition, men candidates had higher GPAs on average (i.e., 3.51, 3.57, 3.63, and 3.69 out of 5.00) than women candidates (i.e., 3.42, 3.48, 3.50, and 3.60 out of 5.00). In the *women-high-men-low* condition, we switched the GPAs across the two groups.

Participants were asked to select any two of the eight candidates. Fifty-two participants who did not select exactly two candidates were excluded from the analyses.

After participants made a choice, we measured activation of the diversification heuristic by asking participants: "When choosing the two candidates, to what extent were you thinking, 'Let me choose one of each gender?'" Participants were asked to respond on a 7-point scale ranging from "1 = Not at all" to "7 = Extremely".

8.2. Results

First, we submitted the gender diversity Blau's index to a 2 (*no partition* vs. *gender partition*) $\times 2$ (*men-high-women-low* vs. *women-high-men-low*) ANOVA. We found a significant main effect of the partitioning manipulation, $F(1, 391) = 22.96, p < .001$. Specifically, participants in the *gender partition* condition ($M = 0.35, 95\% \text{ CI } [0.32, 0.39], SD = 0.23$) scored significantly higher on the gender diversity index than those in the *no partition* condition ($M = 0.24, 95\% \text{ CI } [0.20, 0.27], SD = 0.25; t(393) = 4.78, p < .001; \text{Cohen's } d = 0.48$). The main effect of the competency manipulation was significant, $F(1, 391) = 7.52, p = .006$. In particular, participants in the *men-high-women-low* condition ($M = 0.33, 95\% \text{ CI } [0.29, 0.36], SD = 0.24$) scored significantly higher on the gender diversity index than those in the *women-high-men-low* condition ($M = 0.26, 95\% \text{ CI } [0.23, 0.30], SD = 0.25; t(393) = 2.72, p = .007; \text{Cohen's } d = 0.28$). The interaction effect was nonsignificant, $F(1, 391) = 0.19, p = .660$.

Second, we submitted the mean GPA of the selected candidates to the same 2×2 ANOVA. We did not find a significant main effect of the partitioning manipulation, $F(1, 391) = 0.22, p = .641$. Specifically, the mean GPA of the selected candidates by participants in the *gender partition* condition ($M = 3.62, 95\% \text{ CI } [3.61, 3.63], SD = 0.04$) did not differ from the mean GPA of the selected candidates by participants in the *no partition* condition ($M = 3.62, 95\% \text{ CI } [3.62, 3.63], SD = 0.05; t(393) = 0.48, p = .632; \text{Cohen's } d = 0.05; BF_{01} = 11.23$). The Bayes Factor showed that the null model was preferred over the alternative model by a factor of 11.23, indicating positive support for the null (i.e., there is no significant difference between two experimental conditions in terms of the mean of selected candidates' GPA). The main effect of the competency manipulation was significant, $F(1, 391) = 5.52, p = .019$. In particular, the mean GPA of the selected candidates by participants in the *women-high-men-low* condition ($M = 3.63, 95\% \text{ CI } [3.62, 3.63], SD = 0.05$) was significantly higher than the mean GPA of the selected candidates by participants in the *men-high-women-low* condition ($M = 3.62, 95\% \text{ CI } [3.61, 3.62], SD = 0.05; t(393) = 2.38, p = .018; \text{Cohen's } d = 0.24; BF_{01} = 0.79$). The Bayes Factor showed that the null model was preferred over the alternative model by a factor of 0.79, indicating weak evidence for the null (i.e., there is significant difference between two experimental conditions in terms of the mean of

selected candidates' GPA). The interaction effect was nonsignificant, $F(1, 391) = 0.92, p = .339$.

Third, we submitted participants' endorsement of the diversification heuristic to the same 2×2 ANOVA. We found a significant main effect of the partitioning manipulation, $F(1, 391) = 5.47, p = .020$. Specifically, participants in the *gender partition* condition ($M = 3.24, 95\% \text{ CI } [2.93, 3.56], SD = 2.23$) scored significantly higher on endorsement of the diversification heuristic than those in the *no partition* condition ($M = 2.72, 95\% \text{ CI } [2.41, 3.03], SD = 2.22; t(393) = 2.35, p = .019$; Cohen's $d = 0.24$). The main effect of the competency manipulation was significant, $F(1, 391) = 4.25, p = .040$. In particular, participants in the *men-high-women-low* condition ($M = 3.20, 95\% \text{ CI } [2.88, 3.52], SD = 2.28$) scored significantly higher on endorsement of the diversification heuristic than those in the *women-high-men-low* condition ($M = 2.75, 95\% \text{ CI } [2.44, 3.05], SD = 2.17; t(393) = 2.03, p = .043$; Cohen's $d = 0.21$). The interaction effect was nonsignificant, $F(1, 391) = 1.52, p = .218$.

Finally, we conducted a mediation analysis to test whether activation of the diversification heuristic mediates the effect of the partitioning manipulation on the diversity of the selected candidates. We used Hayes' (2013) PROCESS macro for SPSS with 5000 bootstrapped iterations. The mediation analysis revealed that diversification heuristic mediated the effect of partitioning on selection diversity (indirect effect = 0.48, 95% CI = [0.07, 0.92]), thereby providing support for Hypothesis 2.

8.3. Discussion

Study 5A helped answer an important question without which it would have been difficult to recommend HR managers to use partition dependence in the field: does the increased diversity because of partition dependence come at the cost of lower quality? Instead of examining diversity hiring in contexts in which candidates from majority and minority backgrounds are equally competent, we considered situations in which one group of candidates was more qualified on average than the other.

The results supported Hypothesis 1: partitioning candidates by gender increased the gender diversity of the selected candidates. However, this increased diversity did not compromise quality—the mean GPAs were nearly identical across the *gender partition* condition and the *no partition* condition. These results indicate that the increase in diversity due to partition dependence does not necessarily compromise the competency of selected candidates, thus providing support for Hypothesis 3. Finally, the effect of the partitioning manipulation was mediated by stronger activation of the heuristic "Let's choose one from each group," thereby providing support for Hypothesis 2.

Although not predicted, we found that participants chose more gender-diverse candidates in the *men-high-women-low* condition than in the *women-high-men-low* partition condition, but candidates with a higher GPA on average in the *women-high-men-low* condition than in the *men-high-women-low* condition. This is because participants chose more women in the *women-high-men-low* condition (45.2% of participants chose two women), than men in the *men-high-women-low* condition (31.3% of participants chose two men). This finding probably reflects a social desirability bias, such that people are more comfortable selecting two women than selecting two men. This is not surprising given that selecting two men is more likely to be perceived as a more sexist decision than selecting two women.

Admittedly, in cases in which recruiters' goal is to consider competency only, the most rational decision would be to select two candidates with the highest GPAs irrespective of gender. However, whenever recruiters are also asked to consider diversity of hired candidates, selecting only the most competent candidates would not be the best decision. The finding that the mean GPAs of selected candidates did not differ across the *gender partition* and the *no partition* conditions, irrespective of whether one group was more qualified than the other,

suggests that partition dependence can help recruiters increase diversity without necessarily sacrificing quality, thus achieving an optimal goal of hiring for both diversity and competency.

9. Study 5B: increased diversity without lower quality – non-overlapping GPA distributions

Study 5A provided support for our argument that partition dependence can increase selection diversity without compromising the competency of the selected candidates when the two groups overlap on the competency dimension. The current study tested whether the findings hold even in the unlikely case in which the two groups do not overlap on the relevant competency dimension. We presented participants with one of three scenarios: *equally qualified men and women*, *men more qualified than women*, or *women more qualified than men*. Within each of these scenarios, we either categorized candidates by gender (the *gender partition* condition) or interspersed them (the *no partition* condition). We hypothesized that partitioning the candidates by gender increased diversity without compromising the competency of the selected candidates.

9.1. Method

9.1.1. Participants

A survey seeking 500 U.S.-resident respondents was posted on Amazon's Mechanical Turk for a payment of 50 cents. In response, 558 participants ($M_{\text{age}} = 33.30, SD_{\text{age}} = 11.13$, 1 declined to state; 64.2% women) completed the survey. Participants were randomly assigned to one cell of a 2 (partition: *no partition* vs. *gender partition*) \times 3 (GPA level: *equal* vs. *men-high-women-low* vs. *women-high-men-low*) between-participants design.

9.1.2. Procedure

Participants were presented with the same scenario as in Study 1 and a list of eight candidate profiles. Each profile contained the candidate's name (e.g., Karen Brown), education background (e.g., MBA from the University of Michigan, Ann Arbor), and GPA. We sorted the candidates by their first names in the *gender partition* condition (i.e., Daniel, Edwards, Frank, George, Karen, Linda, Michelle, and Nancy), and sorted them randomly in the *no partition* condition. Again, there was some blank space between men candidates and women candidates in the *gender partition* condition, yet there was no clear boundary between men and women in the *no partition* condition. See Supplementary Materials for examples.

To manipulate candidates' competency, we varied the mean GPA across the three competency conditions. In the *equal* condition, all eight candidates' GPAs were nearly the same (i.e., 3.00 to 3.70 out of 5.00), and the average GPA of men and women was identical; in the *men-high-women-low* condition, men candidates had higher GPAs on average (i.e., 3.10, 3.20, 3.40, and 3.70 out of 5.00) than women candidates (i.e., 2.00, 2.30, 2.50, and 2.60 out of 5.00). In the *women-high-men-low* condition, the GPAs were switched across the two groups.

Participants were asked to select any two of the eight candidates. Thirteen participants who did not select exactly two candidates were excluded from the analyses.

9.2. Results

First, we submitted the gender diversity Blau's index to a 2 (*no partition* vs. *gender partition*) \times 3 (*equal* vs. *men-high-women-low* vs. *women-high-men-low*) ANOVA. We found a significant main effect of the partitioning manipulation, $F(1, 539) = 29.27, p < .001$. Specifically, participants in the *gender partition* condition ($M = 0.25, 95\% \text{ CI } [0.22, 0.28], SD = 0.25$) scored significantly higher on the gender diversity index than those in the *no partition* condition ($M = 0.17, 95\% \text{ CI } [0.14, 0.19], SD = 0.24; t(543) = 4.13, p < .001$; Cohen's $d = 0.36$). The

main effect of the competency manipulation was significant, $F(2, 539) = 220.55, p < .001$. In particular, participants in the *equal* condition ($M = 0.44, 95\% \text{ CI } [0.42, 0.46], SD = 0.16$) scored significantly higher on the gender diversity index than those in the *men-high-women-low* condition ($M = 0.11, 95\% \text{ CI } [0.08, 0.14], SD = 0.21; t(365) = 17.04, p < .001; \text{Cohen's } d = 1.78$) and those in *women-high-men-low* condition ($M = 0.08, 95\% \text{ CI } [0.05, 0.11], SD = 0.19; t(357) = 19.40, p < .001; \text{Cohen's } d = 2.05$). However, participants in the *men-high-women-low* condition ($M = 0.11, 95\% \text{ CI } [0.08, 0.14], SD = 0.21$) did not differ from those in *women-high-men-low* condition ($M = 0.08, 95\% \text{ CI } [0.05, 0.11], SD = 0.19; t(362) = 1.27, p = .206; \text{Cohen's } d = 0.13$) in terms of the gender diversity index. The interaction effect was significant, $F(2, 539) = 3.62, p = .027$.

Second, we submitted the mean GPA of the selected candidates to the same 2×3 ANOVA. We did not find a significant main effect of the partitioning manipulation, $F(1, 539) = 0.98, p = .322$. Specifically, the mean GPA of the selected candidates by participants in the *gender partition* condition ($M = 3.53, 95\% \text{ CI } [3.51, 3.55], SD = 0.13$) did not differ from the mean GPA of the selected candidates by participants in the *no partition* condition ($M = 3.52, 95\% \text{ CI } [3.51, 3.53], SD = 0.12; t(543) = 1.02, p = .311; \text{Cohen's } d = 0.09; BF_{01} = 8.86$). The Bayes Factor showed that the null model was preferred over the alternative model by a factor of 8.86, indicating positive support for the null (i.e., there is no significant difference between two experimental conditions in terms of the mean of selected candidates' GPA).

The main effect of the competency manipulation was significant, $F(2, 539) = 8.44, p < .001$. In particular, the mean GPA of the selected candidates by participants in the *equal* condition ($M = 3.56, 95\% \text{ CI } [3.53, 3.58], SD = 0.15$) was significantly higher than the mean GPA of the selected candidates by participants in the *men-high-women-low* condition ($M = 3.51, 95\% \text{ CI } [3.49, 3.52], SD = 0.11; t(365) = 3.46, p = .001; \text{Cohen's } d = 0.36; BF_{01} = 0.04$). The Bayes Factor showed that the null model was preferred over the alternative model by a factor of 0.04, indicating weak evidence for the null (i.e., there is significant difference between two experimental conditions in terms of the mean of selected candidates' GPA). Moreover, the mean GPA of the selected candidates by participants in the *equal* condition ($M = 3.56, 95\% \text{ CI } [3.53, 3.58], SD = 0.15$) was significantly higher than the mean GPA of the selected candidates by participants in the *women-high-men-low* condition ($M = 3.51, 95\% \text{ CI } [3.49, 3.53], SD = 0.11; t(357) = 3.31, p = .001; \text{Cohen's } d = 0.35; BF_{01} = 0.06$). The Bayes Factor showed that the null model was preferred over the alternative model by a factor of 0.06, indicating weak evidence for the null (i.e., there is significant difference between two experimental conditions in terms of the mean of selected candidates' GPA). However, the mean GPA of the selected candidates by participants in the *men-high-women-low* condition ($M = 3.51, 95\% \text{ CI } [3.49, 3.52], SD = 0.11$) did not differ from the mean GPA of the selected candidates by participants in the *women-high-men-low* condition ($M = 3.51, 95\% \text{ CI } [3.49, 3.53], SD = 0.11; t(362) = 0.06, p = .953; \text{Cohen's } d = 0.01; BF_{01} = 12.06$). The Bayes Factor showed that the null model was preferred over the alternative model by a factor of 12.06, indicating positive support for the null (i.e., there is no significant difference between two experimental conditions in terms of the mean of selected candidates' GPA). The interaction effect was nonsignificant, $F(2, 539) = 0.39, p = .679$.

9.3. Discussion

Although the non-overlapping distributions of GPA across two groups are extreme and rarely observed in the real world (Nisbett et al., 2012), we replicated the key findings of Study 5A. The results provided support for Hypothesis 1: partitioning candidates on the gender dimension increased the gender diversity of the selected candidates. Nevertheless, this increased diversity did not compromise the competency of selected candidates—the mean GPAs were almost identical across the gender partition condition and the no partition condition.

These results therefore provide further support for Hypothesis 3. Taken together, Studies 5A and 5B demonstrate that our key findings—that the increase in diversity due to partition dependence does not necessarily comprise the quality of the selected candidates—hold both when the groups overlap and when they do not overlap on the competency dimension.

10. Study 6: the role of stereotypes

Study 6 tested Hypothesis 4 that whether the partition dependence effect is contingent on people's stereotypes about the partitioned social group. Further, in all previous studies, we asked participants to choose candidates for the position of a business analyst. In the current study, however, we tested whether the partition dependence effect holds for a domain in which people have stronger gender stereotypes, such as about engineering. Given the stronger gender stereotypes in the domain of engineering (see Labor Force Statistics from U.S. Department of Labor, 2019), we use the proportion of women selected, rather than the gender diversity index, as our main dependent variable. Specifically, we tested the hypothesis in which partitioning job candidates' resumes based on gender would increase the percentage of female candidates selected, and that this effect would be stronger for people with weaker gender stereotypes about engineering.

10.1. Method

10.1.1. Participants

We posted a survey seeking 150 undergraduate students at a large university in Singapore. In response, 146 undergraduates ($M_{\text{age}} = 21, SD_{\text{age}} = 1.60; 52.7\%$ women) completed the study in exchange for partial course credits. Participants were randomly assigned to either the *no partition* condition or the *gender partition* condition.

10.1.2. Procedure

Participants first completed an implicit association test (IAT) that measured their implicit gender stereotypes about engineering. The IAT is a reaction time task that asks participants to classify words into categories. This test is based on the idea that reaction times for category combinations that participants find compatible (e.g., press one button for words related to *men* or *engineering*, and a different button for words related to *women* or *humanities*) are shorter than for categories that participants find incompatible (e.g., press one button for words related to *women* or *engineering*, and a different button for words related to *men* or *humanities*; Greenwald & Banaji, 1995). In accordance with a standard practice, we administered a total of seven blocks in which participants were presented with a series of word classification tasks (see Supplementary Materials for more details). We used the d score to operationalize the measure of gender stereotypes (Greenwald, Nosek, & Banaji, 2003). Positive d scores indicate a stronger association between “men and engineering” and “women and humanities,” whereas negative d scores indicate a stronger association between “women and engineering” and “men and humanities.” Therefore, higher d scores represent stronger gender stereotypes.

After completing the IAT measure, participants received a big envelope. They were instructed to open the envelope only after reading the following cover story:

Imagine that you are a Human Resource manager in a large engineering company in Singapore, which manufactures machinery and equipment used in oil and gas exploration and production. Recently, your company launched a new business division. There are four vacancies for the position of a Product Engineer in that division. From past experience, you have found Masters of Engineering graduates with a specialization in engineering to be the best employees for this position. You advertised your job opening with four local universities and received 16 applications. Your job is to review these applicants' resumes and shortlist four

candidates for a face-to-face interview.

Enclosed in the big envelope were printouts of sixteen job candidates' resumes. Participants were asked to spend at least ten minutes to review the sixteen resumes carefully, and then were asked to shortlist four candidates from the 16 provided. The sixteen resumes were formatted using the same template (see Supplementary Materials for examples), which contained the following information: name (from which a candidate's gender can be inferred), education background (e.g., university and degree), work experiences, extra-curricular activities, honors and awards, and additional information (e.g., knowledge or skills). Each of the sixteen candidates (eight men and eight women) had a master degree in engineering from one of four Singapore-based universities.

The only difference between the two experimental conditions is how the sixteen resumes were sorted. In the *gender partition* condition, the sixteen resumes were sorted by the job candidates' first names alphabetically, such that the first eight were men and the last eight were women. We partitioned the candidates by binding resumes in the same category (i.e., gender) using a paper clip. Thus, there were two piles of resumes in the *gender partition* condition. However, in the *no partition* condition, there was only one pile of resumes, with the sixteen resumes being randomly sorted. All participants selected exactly 4 candidates. The median time participants spent reviewing the resumes was 10.09 min.

10.2. Results

An independent samples *t*-test found that participants selected a larger percentage of women candidates in the *gender partition* condition ($M = 0.50$, 95% CI [0.45, 0.55], $SD = 0.22$) than in the *no partition* condition ($M = 0.42$, 95% CI [0.37, 0.47], $SD = 0.21$; $t(144) = 2.37$, $p = .019$; Cohen's $d = 0.40$). Next, we submitted this variable to a regression with partitioning condition (control condition = 0, partition condition = 1; mean centered), IAT d score (mean centered), and their interaction as predictors. As shown in Table 1, we found a significant main effect of the partitioning manipulation on the percentage of women selected ($B = 0.083$, 95% CI [0.014, 0.152], $SE = 0.035$; $t = 2.376$, $p = .019$), but did not find a significant main effect of the IAT d score on the percentage of women selected ($B = -0.022$, 95% CI [-0.129, 0.085], $SE = 0.054$; $t = -0.415$, $p = .679$). Moreover, we found a significant interaction between the partitioning manipulation and IAT d score (i.e., gender stereotypes) on the percentage of women selected ($B = -0.224$, 95% CI [-0.438, -0.010], $SE = 0.108$; $t = -2.073$, $p = .04$).

Table 1
The Moderating Effect of Gender Stereotype (Study 6).

Variables	Percentage of Women Selected			
	Step 1		Step 2	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
Intercept	0.46***	0.02	0.46***	0.02
Gender partition ^a	0.08*	0.04	0.08*	0.04
Gender stereotypes ^b	-0.02	0.06	-0.02	0.05
Gender partition × Gender stereotypes			-0.22*	0.11
Δ <i>R</i> ²	0.04 [†]		0.03*	

Note. $n = 146$. All lower-order terms used in the interaction were centered prior to analysis.

^aGender partition: 0 = no partition condition, 1 = gender partition condition.

^bLower scores on this measure indicate weaker gender stereotypes, while higher scores indicate stronger gender stereotypes.

[†] $p < .10$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Fig. 1 depicts the pattern of the interaction effect. We conducted simple slope analyses (Aiken & West, 1991) to interpret the interaction. At one standard deviation below the mean on the IAT d score (i.e., for people with relatively weak stereotypes), the gender partition manipulation significantly increased the percentage of women selected ($B = 0.155$, 95% CI [0.058, 0.251], $SE = 0.049$; $t = 3.158$, $p = .002$). However, at one standard deviation above the mean on the IAT d score (i.e., for people with relatively strong stereotypes), the effect of the gender partition manipulation was nonsignificant ($B = 0.011$, 95% CI [-0.086, 0.109], $SE = 0.049$; $t = 0.225$, $p = .822$). Further, in the *no partition* condition, there was no relationship between the IAT d score and the percentage of women selected ($r = 0.15$; $p = .225$); in the *gender partition* condition, this relationship was negative and nonsignificant ($r = -0.20$, $p = .093$).

10.3. Discussion

Study 6 provided further support for Hypothesis 1 in a domain in which people hold strong gender stereotypes—engineering. When resumes of 16 candidates were partitioned by gender using paper clips, participants were more likely to choose women candidates than when the resumes were presented into a single group. Further, Study 6 also provided support for Hypothesis 4: participants with relatively weak gender stereotypes about engineering were more likely to select more women when the job candidates were partitioned by gender, but participants with relatively strong gender stereotypes were not affected by the manipulation. Thus, our findings indicate that the partitioning manipulation is particularly effective for individuals who do not hold strong stereotypes about the relevant domain and the relevant category.

Consistent with the unspoken cultural influence model (Weisbuch et al., 2009), we found that in the no partition condition, participants' stereotypes were not related to the proportion of women that they chose. Thus, it seems that participants chose fewer women irrespective of their personal stereotypes because of the prevalent cultural stereotypes² about gender and engineering. However, when candidates were partitioned by gender, a trend emerged such that people with stronger stereotypes chose fewer women candidates. This finding suggests the possibility that by explicitly highlighting the relevant social categories, the partitioning manipulation could possibly activate people's stereotypes if they possess strong stereotypes in that domain. Nevertheless, the partitioning manipulation still had an overall positive effect on increasing the chances of the minority and negatively stereotyped candidates being chosen.

11. Pilot study: choosing a single candidate – ethnicity partition

In Studies 1–6, we asked participants to choose more than two or more candidates from the candidate pool. However, in many real-life personnel selection situations, there may be only one job opening. A question then arises: does partitioning candidates influence recruiters' likelihood of selecting a minority candidate? Prior research on the partition dependence effect makes no prediction about cases in which people are choosing a single option—it only refers to cases in which people are choosing multiple options (e.g., Fox & Clemen, 2005; Fox,

²Cultural stereotypes refer to people's knowledge of a stereotype of a social group (i.e., what people think the stereotypes about a certain social group are). In contrast, personal stereotypes refer to people's personal beliefs about a social group (Devine, 1989; Krueger, 1996). As people are more routinely exposed to cultural stereotypes in their everyday lives, cultural stereotypes are more accessible than personal stereotypes (Devine, 1989; Dovidio, Evans, & Tyler, 1986). When a certain social category is not salient, people's descriptions of the self and others are guided more by their cultural stereotypes; when a certain social category is made salient, people's descriptions of the self and others are more guided by their personal stereotypes (Devine, 1989; Higgins & King, 1981).

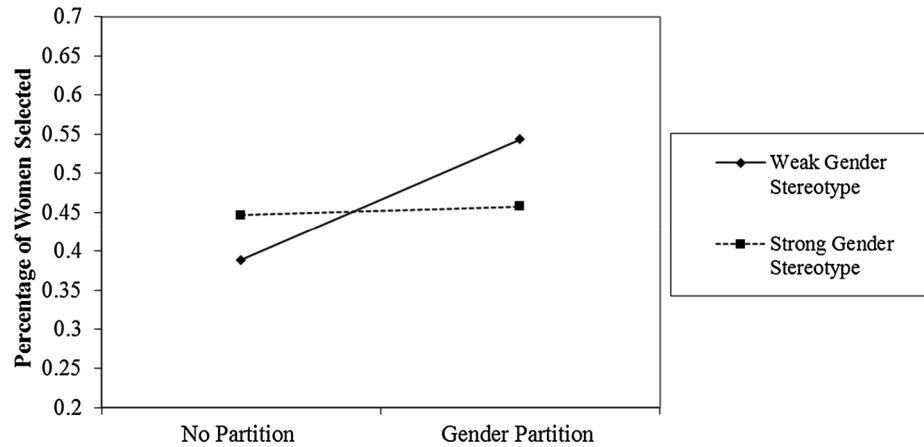


Fig. 1. The interactive effect of gender partition manipulation and gender stereotypes on the percentage of women selected (Study 6).

Ratner, et al., 2005). Therefore, we conducted a pilot study to explore whether partitioning candidates influences whether people choose a majority or a minority candidate. In this study, we partitioned candidates based on their ethnicity, as there is significant ethnicity-based bias in hiring (Klink & Wagner, 1999; Kulik, Roberson, & Perry, 2007; Lepore & Brown, 1997).

11.1. Method

11.1.1. Participants

A survey seeking 200 U.S.-resident respondents was posted on Amazon's Mechanical Turk for a payment of 50 cents. In response, 232 participants ($M_{age} = 40.91$, $SD_{age} = 13.07$, 26 declined to state; 60.3% women, 13 declined to state) completed the survey. Participants were randomly assigned to either the *no partition* condition or the *ethnicity partition* condition.

11.1.2. Procedure

Participants were presented with the same scenario as in Study 1, along with a list of eight candidate profiles. Each profile contained the candidate's name (e.g., George Anderson), education background (e.g., MBA from the University of Virginia, Charlottesville), and GPA. We sorted the candidates by their last names in the *ethnicity partition* condition (i.e., Anderson, Brown, Clark, Davis, Patel, Rodriguez, Williams, and Zhang), and sorted them randomly in the *no partition* condition. We added some blank space between the first four and the last four candidates in the *ethnicity partition* condition, but there was no such space in the *no partition* condition. See Supplementary Materials for examples.

Participants were asked to choose 1 out of 8 candidates. We excluded twenty-six participants who did not select exactly one candidate.

11.2. Results

Our dependent variable was whether or not participants chose a candidate from a minority group over a majority group. We found that although participants in the *no partition* condition (61.6%) were more likely to choose a candidate from the minority group than participants in the *ethnicity partition* condition (56.4%), the difference between these two conditions was nonsignificant ($\chi^2 = 0.58$, $p = .45$; Cramer's $V = 0.04$).

The exploratory pilot study found that when people are selecting a single candidate, partitioning candidates does not influence their choice.

12. Study 7: choosing a single candidate – ethnicity partition

In this study, we used a variant of the standard partition dependence

effect to test whether recruiters can be nudged to select minority candidates even when they are choosing a single option. Instead of using the standard partition dependence paradigm in which candidates are partitioned into two or more categories, following Tannenbaum et al. (2018), we partitioned candidates by combing some candidates into one category but listing other candidates separately. We hypothesized that participants would be more likely to choose candidates who are listed separately than candidates who are put together in a category.

12.1. Method

12.1.1. Participants

A survey seeking 500 U.S.-resident respondents was posted on Amazon's Mechanical Turk for a payment of 50 cents. In response, 559 participants ($M_{age} = 39.13$, $SD_{age} = 12.50$; 55.7% women, 2 declined to state) completed the survey. Participants were randomly assigned to one cell of a 2 (*no partition* vs. *partition*) \times 2 (*minority-grouping* vs. *majority-grouping*) between-participants design.

12.1.2. Procedure

Participants in all conditions were presented with the following scenario:

Imagine that you are a Human Resource manager working in a large investment bank. Recently, your company launched a new business division. There is only one vacancy for the position of a Business Analyst in that division, which has attracted a large number of applicants. After a few rounds of interviews, you have shortlisted 6 candidates. All six candidates have a Master of Business Administration (MBA) degree, have earned very good grades in college, and are comparable in most respects. The primary dimensions on which the candidates differ are the university where they received their MBA degree, and their topic of major. You need to select one of the six candidates for the job openings.

Participants were presented with a list of six candidate profiles. Each profile contained the candidate's name (e.g., Michael Davis), graduate school (e.g., Wharton Business School), and major (e.g., accounting). All participants had one of four specializations (one in accounting, one in banking, one in economics, and three in finance). In the *no partition* condition, all candidates were listed individually. In the *partition* condition, however, candidates with the same major (i.e., finance) were partitioned into a single listing. We used candidates' major as a basis for grouping some candidates into one category but listing other candidates separately. In the *minority-grouping* condition, the three minority candidates (Miguel Rodriguez, Tyrone Williams, and Alex Zhang) were all assigned the finance major, whereas the three white candidates (Michael Davis, James Smith, and Lisa Taylor) were assigned three different majors (accounting, banking, and economics).

In the *majority-grouping* condition, the three white candidates were assigned the finance major, whereas the minority candidates were assigned one of the other three majors. See Supplementary Materials for examples.

Participants were asked to select exactly one candidate. Twelve participants who did not select exactly one candidate were excluded from the final analyses.

12.2. Results

Our dependent variable was whether participants chose a minority candidate (0 = no, 1 = yes). We conducted a logistic regression with partitioning condition (0 = partition, 1 = no partition; mean centered), grouping condition (0 = minority-grouping, 1 = majority-grouping; mean centered), and their interaction as predictors. We found a significant main effect of the partitioning condition ($B = 0.60$, $\text{Exp}(B) = 1.83$, 95% CI [1.12, 2.97], $SE = 0.25$; $Wald = 5.90$, $p = .015$), but did not find a significant main effect of the grouping condition ($B = 0.34$, $\text{Exp}(B) = 1.40$, 95% CI [0.87, 2.25], $SE = 0.24$; $Wald = 1.93$, $p = .164$). The interaction between the partitioning condition and the grouping condition was significant ($B = -1.47$, $\text{Exp}(B) = 0.23$, 95% CI [0.12, 0.46], $SE = 0.35$; $Wald = 17.56$, $p < .001$).

To investigate the interaction, we conducted Chi-square tests within each of the two grouping conditions. In the minority-grouping condition, we found that participants in the *no partition* condition (59.7%) were more likely to choose a minority candidate than participants in the *partition* condition (38.4%; $\chi^2 = 12.41$, $p < .001$; Cramer's $V = 0.75$). In the majority-grouping condition, we found that participants in the *partition* condition (65.9%) were more likely to choose a minority candidate than participants in the *no partition* condition (51.4%; $\chi^2 = 5.95$, $p = .015$; Cramer's $V = 0.36$).

12.3. Discussion

Study 7 demonstrated that a version of the partition dependence effect is applicable when people are selecting a single candidate: participants were more likely to select candidates who are not grouped together compared to candidates who are grouped together into an overarching category, thereby providing support for Hypothesis 5. When minority candidates were grouped together and majority candidates were not, participants were more likely to choose a majority candidate. By contrast, when majority candidates were grouped together and minority candidates were not, participants were more likely to choose a minority candidate. These findings suggest that if organizations want to increase the representation of a particular group, when presenting candidates to recruiters, they can ungroup candidates from minority backgrounds but group candidates from the majority background together.

13. General discussion

The present research documented that a choice-architecture intervention based on the partition dependence effect can nudge people to select more diverse candidates without sacrificing quality of the recruitment process. Using a profile review task, Study 1 found that participants were more likely to select job candidates from different genders when candidates were partitioned by gender compared to when they were randomly interspersed. Study 2 replicated this finding when participants viewed full resumes of the job candidates rather than short profiles, and when job candidates were partitioned based on their nationality. Study 3 provided yet another replication using a sample of experienced HR professionals who have first-hand recruitment experience, and when job candidates were partitioned based on their university. We found that even experienced HR professionals are susceptible to the partition dependence effect when making personnel selection decisions. Study 4 found that merely verbally spelling out that

the job candidates belong to different social categories was not as effective as partitioning the job candidates into separate categories.

Studies 5A and 5B documented that the partition dependence does not increase diversity of chosen candidates at the cost of quality. Even when one group had higher competency than the other group on average, partitioning candidates into multiple categories led participants to choose more diverse candidates but no less competent candidates. This finding held irrespective of whether the competence distributions of the two groups were overlapping (Study 5A) or non-overlapping (Study 5B). Study 5A also provided evidence for the underlying mechanism of the partition dependence effect—partitioning candidates into different categories activates the diversification heuristic, the idea “let’s choose some of each,” which mediates the effect of partitioning candidates on increased diversity of the selected candidates. Study 6 found that individuals with weaker stereotypes about the partitioned dimension were particularly likely to diversify their choices when job candidates were partitioned into different categories. Finally, Study 7 demonstrated that when selecting a single candidate, recruiters are more likely to choose candidates who are not combined with other candidates compared to candidates who are partitioned together. Overall, the findings from the eight experiments indicate that partitioning candidates into different categories can be an effective choice architecture tool to nudge recruiters to select more diverse candidates.

13.1. Theoretical implications

This research contributes to theory in three ways. First, we contribute to the literature on social categorization. Most previous research on social categorization has regarded social categories as a key source of stereotypes and biases toward under-represented groups (Bodenhausen, Kang, & Peery, 2012; Ferguson & Porter, 2013; Fiske & Lee, 2008; Williams & O’Reilly, 1998), and has found that the salience of social categories leads to undesirable outcomes, such as discrimination and low diversity (Landy, 2008). Taking a different theoretical perspective, we proposed that the salience of social categories may not always lead to negative outcomes provided the options from different categories are arranged in a manner that activates the diversification heuristic. When candidates from different social categories are partitioned together, we found that the salience of social categories can actually serve to increase diversity. Thus, social categories can be converted from the scourge of hiring decisions to an asset for increasing diversity. Partitioning candidates into different categories increases rather than reduces diversity probably because important social categories are nearly always salient even if they are not explicitly highlighted by partitioning candidates based on their social categories. However, partitioning candidates activates the diversification heuristic, which counteracts people’s biased decision making due to their stereotypes associated with different social categories.

Second, this research contributes to the literature on partition dependence (e.g., Fox & Clemen, 2005; Fox, Ratner, et al., 2005). Although the partition dependence effect has been documented in numerous domains, including consumer choices (Fox, Ratner, et al., 2005), investment decision making (Benartzi & Thaler, 2001), and firm strategy (Bardolet et al., 2011), we show that partition dependence is relevant in the personnel decision-making context and in the diversity hiring context. We document for the first time that partition dependence can be strategically used to help people make more unbiased choices when their baseline choices might be biased because of other reasons. More importantly, we are also the first to empirically test the underlying mechanism of the partition dependence effect—activation of the diversification heuristic. Our Study 5A is probably the first to provide direct evidence for the diversification heuristic as the mechanism explaining the partition dependence effect.

We also contribute to the partition dependence literature by discovering a novel boundary condition. Study 6 found that the effect of partitioning candidates on the proportion of minorities selected is

moderated by individuals' stereotypes about the relevant social category, and that the partition dependence effect is stronger for people with weaker stereotypes. These findings highlight that although the partition dependence effect is effective overall, it is not strong enough to counteract strong personal biases. Further, we contribute to the partition dependence literature by documenting that partition dependence can increase diversity on the partitioned dimension without necessarily sacrificing the quality of participants' choices. Although past research has largely assumed that greater diversity due to partition dependence comes at the cost of lower quality (Fox, Ratner, et al., 2005), our Studies 5A and 5B show that if used properly, partition dependence can be strategically used to increase diversity without reducing quality of the selection method or reducing the competency of the selected candidates.

Third, we contribute to the literature on diversity hiring. Researchers have accumulated a substantial body of knowledge about various initiatives that firms can use to increase diversity in the workplace (Avery et al., 2013; Kossek, Lobel, & Brown, 2006; Kulik & Roberson, 2008; Ryan & Powers, 2012). For example, portraying racially diverse employees in recruitment advertisements or websites attracts more diverse applicants (Avery, 2003; Avery et al., 2004; Perkins, Thomas, & Taylor, 2000; Walker, Field, Bernerth, & Becton, 2012). Communicating identity-conscious staffing policies (e.g., affirmative action) encourages minority applicants to apply (Highhouse et al., 1999; Slaughter et al., 2002). Despite this accumulated evidence, past research has largely focused on encouraging candidates from more diverse backgrounds to apply for job openings. However, even if qualified minority candidates apply for job openings, chances are that recruiters' biases would prevent applicant diversity from being translated into employee diversity. For example, research shows that resumes with names belonging to the majority ethnic group get 50% more callbacks for interviews than identical resumes with names belonging to minority groups (Bertrand & Mullainathan, 2004). Thus, our study extends this line of research by focusing on increasing diversity at the next stage of the hiring process—HR professionals screening profiles or resumes of candidates to interview.

We further contribute to the diversity hiring literature by documenting that simply changing the order in which job applicants' information is presented during the hiring process can subtly influence recruiters to select more diverse candidates on the desired characteristic. Importantly, the strategy identified has the unique advantage of being both economical, as it requires minimum efforts to implement, and effective, as it could help recruiters achieve the goal of hiring more diverse employees without compromising the goal of hiring competent candidates. Our research is among the first to bring a judgment and decision making perspective to the diversity hiring literature. Our findings suggest that scholars can consider whether numerous trivial and subtle aspects of the decision process can be tweaked to help achieve the diversity goal without sacrificing quality.

13.2. Practical implications

Our research has three key practical implications. First, given that HR professionals in many companies and countries have the goal of hiring more diverse employees (Thomas & Ely, 1996), and given that many companies are spending millions of dollars annually (e.g., Wingfield, 2015) on expensive yet not-so-effective diversity programs (Dover, Major, & Kaiser, 2016; Kalev, Dobbin, & Kelly, 2006; Miller, 2015), our research provides HR professionals with a low-cost method for increasing the diversity of candidates considered without compromising the competency of new hires. Whenever HR professionals wish to choose more diverse candidates on a given dimension, they can categorize candidates based on the relevant dimensions before examining them. In practical terms, job application portals can be tweaked such that spreadsheets containing the information that job applicants entered sorts the applicants by the category on which the company wants

more diversity (as in our Studies 1, 4, 5A, and 5B). When recruiters download resumes from their job application portal, the resumes can be automatically named and sorted by the relevant categories (as in our Studies 2 and 3). When recruiters consider printed resumes, the person doing the printing can place resumes of candidates from different categories into separate piles (as in our Study 6). Thus, the different methods that we used to test our hypotheses suggest multiple concrete steps that organizations can take to increase the diversity of selected candidates.

Second, our research encourages HR professionals to pay more attention to the way in which information is presented in personnel selection decisions. Despite the substantial influence of information presentation on decision outcomes, as documented in judgment and decision making and consumer behavior research (e.g., Bettman & Kakkar, 1977; Bettman & Zins, 1979; Payne, Bettman, & Johnson, 1992), HR researchers and practitioners probably pay little attention to information presentation. To avoid or to make use of information presentation effects in personnel decision making, HR professionals need to pay careful attention to various aspects of the presentation format, such as the organization of the information (e.g., table or matrix), the modality of the information (e.g., numerical, verbal, or pictorial), and the sequence of options (e.g., ascending or descending; Kleinmuntz & Schkade, 1993).

Third, our findings that the phenomenon of partition dependence has a strong effect in personnel screening decisions warn HR professionals that they need to be particularly cautious about ways in which this heuristic can yield unwanted outcomes. If candidates are unintentionally sorted into different categories, whether because of their names, their universities, or their time of application, these implicit categories can influence hiring managers' decisions. If they wish to make decisions irrespective of any category information, HR professionals would be advised to sort candidates' profiles and resumes randomly before considering them. In recent years, many management practitioners have learned quite a number of hidden traps in decision making and this knowledge has helped them to avoid falling prey to various decision making biases (Hammond, Keeney, & Raiffa, 1998). The knowledge of partition dependence effect, as suggested in our research, might help HR professionals take steps to avoid unwanted influences.

13.3. Limitations and directions for future research

One limitation of the present research is that we only focus on one mechanism—activation of the diversification heuristic—to explain the partition dependence effect in the personnel selection context. However, a number of alternative mechanisms could potentially explain the partition dependence effect. One possibility might be *category salience* (Bodenhausen & Macrae, 1998; Kulik et al., 2007)—when different candidates are partitioned together, the category memberships that they share with each other but do not share with other candidates might become more salient. This increased salience of the different categories might motivate people to avoid appearing prejudiced (Kulik et al., 2007; Monteith, Ashburn-Nardo, Voils, & Czopp, 2002; Plant & Devine, 1998), thus leading them to diversify their choices. Another possible mechanism is *selective attention* (Johnston & Dark, 1986)—normally, people might pay more attention to candidates about whom they have positive associations and ignore candidates about whom they have negative stereotypes. Separating the candidates into different categories might induce people to allocate similar amounts of attentional resources to both groups of candidates, and thereby lead to more diverse choices. Future research can employ more sophisticated techniques, such as eye tracking or neuroimaging, to further investigate these potential underlying mechanisms of the partition dependence effect in the personnel selection context.

Second, we focused on an individual difference factor, people's stereotypes about social groups, that serves as a boundary condition for

the partition dependence effect on selection diversity. Specifically, partitioning increased the diversity of the selected candidates on average, but this was less so when the decision maker had strong stereotypes in the relevant domain. If most recruiters in a given organization have strong stereotypes, then partitioning candidates might not increase the diversity of the selected candidates. Other individual and situational factors might also influence the strength of the partition dependence effect. For example, when people expect more diverse choices to be evaluated more favorably by others, or when their choices are subject to public scrutiny, they choose more diverse options (Ratner & Kahn, 2002). Applying this finding to the hiring context, we would expect that when people perceive that more diverse choices would be evaluated more positively in their organization, the effect of partitioning candidates on selection diversity might increase, as the partitioning might prime decision makers with the diversity goal. Future research can examine these moderators.

Third, we tested our hypotheses in the personnel screening context (i.e., profile screening and resume screening), but the real-world recruitment process usually has multiple stages, including interviews, in-basket tests, and assessments. It is not clear whether a greater diversity of candidates in the screened set would translate into a greater diversity of employees ultimately hired. To the extent that qualified minority candidates are not even considered for interviews and tests (e.g., Bertrand & Mullainathan, 2004; Moss-Racusin et al., 2012; Steinpreis et al., 1999), the partition dependence effect can at least increase the number of minority candidates in the early stages of the recruitment pipeline. Future research can investigate the partition dependence effect in later stages of the personnel selection process, and test whether any increase in diversity due to partition dependence in earlier stages translates into diversity of employees actually hired. For example, given that many companies interview job applicants on multiple days and make a final decision only after all interviews are conducted, researchers can test whether interviewing candidates belonging to different categories on different days would increase the diversity of the selected candidates compared to randomly assigning candidates to days without reference to their category memberships.

14. Conclusion

The present research contributes to a new phase at the intersection of management and judgment and decision making, in which researchers' goal is not just to document people's biases but also to use knowledge of decision making biases to help people make better choices (Thaler & Sunstein, 2008). Although choice architecture (Johnson et al., 2012) has become a prominent area of research within the basic judgment and decision making literature, and has attracted the attention of policymakers (e.g., US Executive Order No. 13,707, 2015), it has received little attention from management scholars. The present research highlights that choice architecture can play a significant role in personnel selection decisions, and that the manner in which options are partitioned is an important element of choice architecture that can help managers make decisions that are more in line with their core values and beliefs. We hope our research will stimulate further exploration into the important role of partition dependence in helping people make better decisions in the domain of personnel selection.

CRedit authorship contribution statement

Zhiyu Feng: Conceptualization, Methodology, Investigation, Project administration, Data curation, Formal analysis, Validation, Writing - original draft. **Yukun Liu:** Conceptualization, Methodology, Investigation, Data curation, Formal analysis, Writing - original draft. **Zhen Wang:** Methodology, Resources. **Krishna Savani:** Conceptualization, Methodology, Writing - review & editing, Funding acquisition, Resources, Supervision.

Acknowledgement

This research was supported by a Nanyang Assistant Professorship grant awarded by Nanyang Technological University to Krishna Savani. We thank Ee Hwee Lau, Dayana Bulchand, and Li Shi Tan for assistance with this research, and Aneeta Rattan for helpful feedback on previous drafts.

Appendix A. Supplementary material

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.obhdp.2020.01.011>.

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