Ethnic Differences in Perceptions of Cognitive Ability Tests: The explanatory role of self-serving attributions

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This study examined the role of self-serving attributions in the formation of pretest and posttest fairness perceptions of cognitive ability tests among ethnic majority and ethnic minority applicants. In total, 180 unemployed (52.8% Dutch majority) job seekers participated in an application training program consisting of a cognitive ability test and several pretest and posttest questionnaires. Results showed that both pretest and posttest fairness perceptions are prone to self-serving attributions. Ethnic minority applicants have a stronger tendency than ethnic majority applicants to attribute their previous test experiences and their perceived test performance to the fairness of cognitive ability testing. Self-serving attributions were partly explained by (ethnic differences in) attribution style.

1. Introduction

Until recently, personnel selection research has mainly focused on the construct validity, predictive validity, adverse impact, and utility of selection instruments (e.g., Schmidt & Hunter, 1998). In addition to these objective outcome measures, research has demonstrated that organizations can also benefit from using subjective outcome measures, such as applicant perceptions, as criteria for deciding which instruments to use in the selection process (e.g., Ryan & Ployhart, 2000). Indeed, studies have shown applicant perceptions to be related to test performance, intentions to accept the job, the likelihood of litigation against the outcome of the selection procedure, and perceived organizational attractiveness (Anderson, Lievens, Van Dam, & Ryan, 2004; Hausknecht, Day, & Thomas, 2004).

The vast majority of studies across countries and cultures has demonstrated that cognitive ability tests are perceived as the least favorable selection tool among job applicants (e.g., Hausknecht *et al.*, 2004; Anderson, Salgado, & Hülsheger, 2010). Applicants from ethnic minority groups seem to hold particularly unfavorable perceptions of cognitive ability tests (e.g., Chan & Schmitt, 1997; Schmit & Ryan, 1997; Ryan, 2001). Despite the frequent observations of this phenomenon, the precise cause of these ethnic differences in applicant perceptions for cognitive ability tests is still debated. For example, some researchers claim that ethnic differences in applicant perceptions are caused by differences in evaluative history and test-taking skills (e.g., Helms, 1992), while others suggest that actual differences in cognitive ability (e.g., McDaniel, Skepes, & Banks, 2011) or stereotype threat are the main drivers (e.g., Steele & Aronson, 1995). Given that cognitive ability tests are one of the best single predictors of job performance (Schmidt & Hunter, 1998), and are therefore frequently used as a part of the selection procedure (Ryan, McFarland, Baron, & Page, 1999), and given the potential detrimental consequences of negative applicant perceptions (e.g., Schmit & Ryan, 1997), it is imperative that research sheds light on the underlying mechanisms that give rise to these unfavorable perceptions. The present study aims to contribute to the debate by proposing and testing the explanatory role of self-serving attributional processes for ethnic differences in applicant perceptions.

Since previous studies have demonstrated that both pretest perceptions (e.g., Schreurs, Derous, Proost, Notelaers, & De Witte, 2008; Schreurs, Derous, Proost, & De Witte, 2010) and posttest perceptions (Hausknecht

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et al., 2004) affect applicants' attitudes and intentions, the present study looks at pretest as well as posttest fairness perceptions of cognitive ability tests. As the majority of applicant perception research has been conducted in the United States, the present study extends its focus with findings from a European context, specifically the Netherlands. Unlike traditional immigration countries, like the United States, the Netherlands (and other European countries) experienced large-scale immigration only since World War II. Three categories of immigrants can be distinguished in the Netherlands: (1) immigrants from the (former) colonies, (2) foreign workers and their families from Mediterranean countries, and (3) refugees and asylum-seekers from countries with political unrest (Eldering, 1997). The definition of minority member status, therefore, differs between the United States and Europe (Hanges & Feinberg, 2009). In the Netherlands, ethnic minority membership is based on the nationality and country of birth of a person, his or her biological parents, and his or her biological grandparents (Central Bureau of Statistics, 2012).

1.1. Self-serving attributions

Attributional processes explain how individuals perceive and infer causality for various events. As such, attributional processes are a fundamental determinant of human behavior (Fiske & Taylor, 1991; Fosterling, 2001). A well-known phenomenon occurs when individuals form attributions about their own behavior and attribute successes to internal, stable, and controllable factors, while failures are ascribed to external, unstable, and uncontrollable factors (Miller, 1978; Weiner, 1985). These so-called 'self-serving attributions' serve as a buffer to protect oneself from lowered self-esteem (Abramson, Seligman, & Teasdale, 1978), and have frequently been observed in a diversity of performance-related contexts (Mezulis, Abramson, Hyde, & Hankin, 2004).

The strength of this self-serving bias may be influenced by situational as well as cultural factors. On the situational level, research suggests that attribution formation is relatively automatic and fast (Fosterling, 2001), and happens primarily when an event is surprising, stressful, novel, unfavorable, and important (Wong & Weiner, 1981). As these conditions are inherent in selection contexts, attributional heuristics are likely to play a large role during the application process. Ployhart and Harold (2004) even go one step further arguing that applicant perceptions are fundamentally driven by attributional processes. Their applicant attribution-reaction theory (AART) proposes that applicant (fairness) perceptions are simply byproducts of attributional processes. According to the AART, the administration of a selection tool prompts an attributional search (e.g., Why did I perform this way on the test?). These attributions vary along three dimensions: locus (internal vs. external), stability (stable vs. unstable), and controllability (controllable vs. uncontrollable) (Weiner, 1985). For example, a poor-performing applicant might attribute his/her performance to a lack of preparation, which might be an internal, stable, and controllable factor, or to the fairness of the test, which is an external, unstable, and uncontrollable factor. According to the AART, favorable fairness perceptions are most likely when applicants attribute their performance to internal, stable, and controllable causes (e.g., their knowledge of the test material), which – according to the self-serving attribution bias – they tend to do when they (think that they) performed successfully. Unfavorable fairness perceptions are most likely when applicants attribute their performance to external, unstable, and uncontrollable causes (e.g., the content of the test), which – according to the self-serving attribution bias – they tend to do when they (think that they) performed unsuccessfully. There is some evidence that applicants indeed display a tendency to use self-serving attributions in selection contexts which in turn influences their test perceptions (e.g., Ployhart & Ryan, 1997; Oostrom, Bos-Broekema, Serlie, Born, & Van der Molen, 2012; Schinkel, Van Vianen, & Van Dierendonck, 2013). In line with the self-serving attribution bias and the AART, we hypothesize that:

Hypothesis 1: Perceived test performance affects fairness perceptions (measured pretest/posttest) of a cognitive ability test.

1.2. The role of self-serving attributions for ethnic differences in applicant perceptions

In addition to situational factors (e.g., high stakes selection context), cultural factors also influence the tendency to rely on the self-serving attribution bias. Studies of ethnic differences in social behavior (Newman, 1993), criminal behavior (Morris & Peng, 1994), and smiling (Matsumoto & Kudoh, 1993) suggest that ethnic majority groups have a general tendency to make more internal, stable, and controllable attributions and ethnic minority groups have a general tendency to make more external, unstable, and uncontrollable attributions (Mirowsky & Ross, 1983; Oyserman, Coon, & Kemmelmeier, 2002). Research has also repeatedly attested to cultural differences in self-serving attribution style (Alderfer & Sims, 2003; Mezulis *et al*., 2004).

In the context of cognitive ability testing, there are at least two reasons that underlie the expectation that ethnic differences in attribution style lead to more unfavorable perceptions of cognitive ability tests among ethnic minority groups than ethnic majority groups. First, according to Helms (1992), most cognitive ability tests are based on the values, customs, traditions, and characteristics of the ethnic majority group. For example,

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cognitive ability tests are assumed to reflect a person's true intellectual level, while ethnic minorities believe that performance on a cognitive ability test reflects factors caused by luck, test-taking conditions, or other circumstances outside of the person. For this reason, ethnic minority applicants might be more likely to attribute performance on a cognitive ability test to external, unstable, and uncontrollable causes, and therefore have less favorable perceptions of cognitive ability tests than ethnic majority applicants.

A second potential reason for the relationship between ethnicity and fairness perceptions of cognitive ability tests arises from the ethnic score differences on cognitive ability tests, with ethnic minority members generally obtaining significantly lower scores than ethnic majority members (e.g., Te Nijenhuis & Van der Flier, 2003; Ployhart & Holtz, 2008). As we know from the self-serving attribution phenomenon, low performance is more likely to be attributed to external, unstable, and uncontrollable factors, which may translate into more unfavorable fairness perceptions. Furthermore, ethnic minority applicants are likely to perceive cognitive ability testing as more stressful and threatening than ethnic majority applicants due to their own knowledge of these general, well-known ethnic performance differences. As causal attributions serve to maintain self-esteem (e.g., Heider, 1976) this predicts different attributional patterns between the ethnic majority group and the ethnic minority group.

The present study is the first to examine ethnic differences in attribution styles for cognitive ability testing and how these ethnic differences in attribution processing affect the formation of applicant perceptions. On the basis of the above-mentioned cultural, historical, and experiential factors it can be expected that ethnic minority applicants display a greater tendency towards using self-serving attributions than ethnic majority applicants. Furthermore, we hypothesize that ethnic minority applicants will make more external, unstable, and uncontrollable attributions, than ethnic majority applicants, which translates into less favorable fairness perceptions towards cognitive ability testing among ethnic minority as compared to ethnic majority groups.

Hypothesis 2: Ethnicity moderates the relationship between perceived test performance and fairness perceptions (measured pretest/posttest) of a cognitive ability test, such that this relationship will be stronger for ethnic minority applicants.

Hypothesis 3: Ethnic minority applicants have a more external, unstable, and uncontrollable attribution style in the context of cognitive ability testing than ethnic majority applicants.

Hypothesis 4: Ethnic differences in attribution style partly explain the moderation effect of ethnicity on the relationship between perceived test performance and fairness perceptions (measured pretest/posttest) of a cognitive ability test.

2. Method

2.1. Sample and procedure

In total, 217 unemployed job seekers participated in an application training program. The participants were recruited via several employment agencies in the Netherlands.

We asked the employment agencies to only recruit ethnic minority participants who were able to speak Dutch at a comprehensive level, comparable to the B2 language level, meaning that the main ideas of complex texts on both concrete and abstract topics should be understood (Council of Europe, 2013). Thirty seven participants were removed from the dataset because of excessive missing data (i.e., omitted more than 50% of the items), or insufficient language skills (which was tested with the Dialang; Alderson & Huhta, 2005). The final sample ($N = 180$; 51.1% male) had an average age of 32.44 years ($SD = 12.81$). Their work experience varied between 0 and 44 years ($M = 12.18$, $SD = 11.94$). The highest obtained educational degree was for 8.9% of our participants from primary school, for 47.8% from high school, for 20.0% from intermediate vocational school, for 14.4% from higher vocational school, and for 8.9% from university. In the Netherlands, a distinction is generally made between the four largest ethnic minority groups: Turkish, Moroccan, Surinamese, and Dutch Antilleans. The sample consisted of the following ethnicities: 52.8% Dutch majority, 7.8% Turkish, 5.0% Antillean, 5.0% Surinamese, 4.4% Moroccan, and 25.0% other non-Westerners (e.g., Asians, Africans).

All participants signed a consent form before the tests were administered. This form stated that study participation was voluntary and that their results would be treated confidentially and used to further improve selection procedures and affective reactions of applicants to these procedures. To motivate the participants to act like real applicants, they were informed that this study was part of their formal application training, that a professional report of their test scores would be sent to them a few weeks after the application training, and that the study and their results would be discussed during the next meeting with their job consultant. During that meeting, the participants were informed about the exact research purpose.

During the applicant training, participants took the following tests in a proctored setting either at the university or at an employment agency: a cognitive ability test and several pretest and posttest questionnaires containing items on attribution style, previous test experience, perceived test performance, and fairness perceptions. We made a distinction between pretest and posttest

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perceptions because research has shown that pretest perceptions differ from posttest perceptions and continue to influence organizational attitudes and intentions until after the selection process (e.g., Schreurs *et al.*, 2010).

3. Measures

Unless otherwise mentioned, all Likert-type items were rated on a 5-point scale (1 = *not at all applicable*, 5 = *very much applicable*).

3.1. Attribution style

Attribution style was measured first, before the participants started with the cognitive ability test. The Causal Dimension Scale (CDSII – revised version) of McAuley, Duncan, and Russell (1992) was used to measure participants' attribution style. Internal, stable, and controllable attribution styles were all measured with three items. Participants indicated on a 9-point scale whether the cause of their test performance was internal or external, stable or unstable, and controllable or uncontrollable. The items presented two endpoints of a dimension, for example '*The cause of my test performance is something* (1) *that reflects an aspect of the situation* and (9) *that reflects an aspect of yourself*.' For this particular item, a low score would indicate that participants have an external attribution style and a high score would indicate that participants have an internal attribution style. Coefficient alphas were as follows: 0.62 for internal attribution, .25 for stable attribution, and 0.61 for controllable attribution. The removal of the reversed-coded item of the stable attribution scale resulted in an alpha of 0.58. Because of the low alpha, the results regarding the stable attribution scale should be interpreted with caution.

3.2. Perceived test performance

Perceived test performance was measured pretest (after participants read the instructions and a sample item of the cognitive ability test) and posttest. Pretest, we operationalized perceived test performance as the valence of prior experience with cognitive ability tests and measured the construct with three items specifically developed for the present study. An example of an item is: '*When I took this test in the past, it was a positive experience*.' Coefficient alpha was 0.75. Posttest, perceived test performance was measured with the 5-item scale of Wiechmann and Ryan (2003). An example of an item is: '*I am satisfied with my performance on the cognitive ability test*.' Coefficient alpha was 0.69.

3.3. Fairness

Fairness was measured pretest (after participants read the instructions and a sample item of the cognitive ability test) and posttest with the 5-item scale of Tonidandel and Quiñones (2000). An example of an item is: '*I think that this test is fair*.' Coefficient alpha was 0.72 pretest and 0.68 posttest.

3.4. Cognitive ability test

The General Aptitude Test Battery (GATB) was used to measure cognitive ability (Dolan, Roorda, & Wicherts, 2004). The GATB is a cognitive aptitude test that consists of eight subtests. Each subtest measures a specific cognitive aptitude. For this study only the following five subtests were used because those were the ones that measured general cognitive ability: (1) name comparison, (2) computation, (3) three-dimensional space, (4) vocabulary, and (5) arithmetic reasoning. All subtests have a time limit of 6 min, with the exception of the arithmetic reasoning subtest that has a time limit of 7 min. The total number of correct answers of each subtest was standardized. The total cognitive ability test score was represented by the total number of correct answers. The reliability, construct validity, and criterion-related validity of the GATB have been judged as sufficient for personnel selection purposes in a review by the Dutch Test Committee of the Dutch Psychological Association (COTAN, 2010).

4. Results

4.1. Preliminary analyses

Table 1 presents the means, standard deviations, and inter-correlations of all study variables. As Table 1 shows, there were some significant correlations between the demographic variables and the study variables. Age was significantly related to a controllable attribution style ($r = -.19$, $p = .01$), to previous experiences ($r = .21$, $p < .01$), and to perceived test performance ($r = .18$, $p = .01$). Job experience was significantly related to previous experiences ($r = .24$, $p < .01$), to pretest fairness perceptions ($r = .21$, $p < .01$), to perceived test performance ($r = .16$, $p = .04$), and to posttest fairness perceptions ($r = .17$, $p = .04$). The ethnic minority group was younger (t [178] = 2.87, $p < .01$; $d = .43$) and had on average less job experience (t [178] = 4.78, $p < .01$, $d = 0.72$) than the ethnic majority group. The ethnic minority group scored 0.31 *SD* (t [178] = 2.06, $p = .04$) lower on the cognitive ability test than the ethnic majority group. Finally, pretest and posttest fairness were only moderately correlated; $r = .44$, $p < .01$. These findings are in line with previous studies that showed that pretest and posttest perceptions cannot be used interchangeably (e.g., Oostrom *et al.*, 2012).

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Table 1. Means, standard deviations, and correlations of all study variables

	M	*SD*	1	2	3	4	5	6	7	8	9	10	11	12
1. Age	32.44	12.81	(-)											
2. Gender	.49	0.50	−.17*	(-)										
3. Job experience	12.18	11.94	.84**	−.20**	(-)									
4. Ethnicity	.47	0.50	−.21**	.12	−.34**	(-)								
5. Internal attribution	6.27	1.28	.00	−.06	.00	−.18*	(.62)							
6. Stable attribution	4.05	1.66	−.01	−.04	−.02	.07	.32**	(.58)						
7. Controllable attribution	6.18	1.30	−.19*	.00	−.14	−.15*	.62**	.23**	(.61)					
8. Previous experiences	3.27	0.60	.21**	.02	.24**	−.22**	.08	−.04	.03	(.75)				
9. Pretest fairness	3.08	0.60	.14	−.02	.21**	−.33**	.12	.06	.03	.23**	(.72)			
10. Cognitive ability	134.16	36.98	−.05	−.03	−.09	−.18*	.11	−.01	.20*	.09	.16	(-)		
11. Perceived test performance	3.17	0.55	.18*	−.14	.16*	−.35**	.11	−.03	.17*	.19*	.23**	.09	(.69)	
12. Posttest fairness	3.02	0.52	.11	−.06	.17*	−.31*	.16*	.04	.09	.19*	.44*	.02	.36*	(.68)

Note: $N = 180$. Gender was coded as 0 = male and 1 = female. Ethnicity was coded as 0 = ethnic majority and 1 = ethnic minority. Attribution styles were measured on a 9-point scale. The total cognitive ability test score was represented by the total score on the subtests. Previous experience, fairness perceptions, and perceived test performance were measured on a 5-point scale. Coefficient alphas are presented on the diagonal.
* $p < .05$, ** $p < .01$ (two-tailed).

4.2. Hypotheses testing

The hypotheses were tested with Muller, Judd, and Yzerbyt's (2005) procedure for testing mediated moderation effects. This procedure is based on hierarchical regression analyses with the following steps. In Step 1, the control variables are entered (in our study: age and job experience). In Step 2, the dependent variable (in our study: the pretest or posttest fairness perceptions) is regressed on the independent variable (in our study: previous experience or perceived test performance), the moderator (in our study: ethnicity), and the product of the independent variable and the moderator. In Step 3, the mediator and the product of the mediator and the independent variable are added. The independent variables, the mediator, and the moderator were first centralized before added to the equation. Tables 2 and 3 present the results for the pretest and posttest fairness perceptions, respectively.

Our first hypothesis stated that perceived test performance affects fairness perceptions. As Tables 2 and 3 show, previous experience significantly predicted pretest fairness perceptions ($\beta = .18$, $t = 2.40$, $p < .01$) and perceived test performance significantly predicted posttest fairness perceptions ($\beta = .29$, $t = 3.78$, $p < .01$). These results support our hypothesis.

Our second hypothesis stated that ethnicity moderates the relationship between perceived test performance and fairness perceptions. Tables 2 and 3 show that pretest fairness perceptions were significantly predicted by the product of previous experience and ethnicity ($\beta = .13$, $t = 1.76$, $p = .04$) and posttest fairness perceptions were significantly predicted by the product of ethnicity and perceived test performance ($\beta = .15$, $t = 2.06$, $p = .02$). Simple slope analyses showed that the slopes for the ethnic majority group are nonsignificant; $t = 0.84$, $p = .41$ for pretest fairness perceptions and $t = 1.35$, $p = .18$ for posttest fairness perceptions. Yet, the slopes for the ethnic minority group are positive and significant; $t = 2.78$, $p < .01$ for pretest fairness perceptions and $t = 3.79$, $p < .01$ for posttest fairness perceptions. So, only for the ethnic minority group do fairness perceptions depend on previous experiences or perceived test performance. In total, 16% of the variance in pretest fairness perceptions was explained by the control variables, previous experiences, ethnicity, and their interactions (F [5,174] = 6.59, $p < .01$), and 20% of the variance in posttest fairness perceptions were explained by the control variables, perceived test performance, ethnicity, and their interaction (F [5,174] = 7.92, $p < .01$). These results support our hypothesis.

Hypothesis 3, which stated that ethnic majority applicants have a more internal, stable, and controllable attribution style than ethnic minority applicants, was partly supported. An ANCOVA, controlling for age and job experience, showed that the ethnic majority group scored significantly higher than the ethnic minority group on internal attribution ($M = 6.48$, $SD = 0.96$ and $M = 6.03$, $SD = 1.53$, respectively; F [1, 176] = 6.68, $p = .01$, partial $\eta^2 = .04$) and on controllable attribution ($M = 6.37$, $SD = 0.93$ and $M = 5.97$, $SD = 1.59$, respectively; F [1, 176] = 7.52, $p < .01$, partial $\eta^2 = .04$). However, no significant difference was found for stable attribution ($M = 3.94$, $SD = 1.51$ and $M = 4.16$, $SD = 1.82$, respectively; F [1, 176] = 0.67, $p = .21$, partial $\eta^2 < .01$).

Hypothesis 4 stated that attribution style mediates the moderation effect of ethnicity on the relationship between perceived test performance and fairness perceptions. The moderation effect of ethnicity would be mediated by attribution style if the beta weight of the interaction of attribution style and the independent variable (either previous experience or perceived test performance) would be significant in the prediction of the fairness perceptions and the inclusion of this product term would decrease the beta weight of the interaction of ethnicity and the independent variable. Table 2 shows that no significant interaction effect was found for previous

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Table 2. Regression results for mediated moderation effect on the relationship between previous experiences and pretest fairness perceptions

	Step 1		Step 2		Step 3	
	β	t	β	t	β	t
Control variables						
Age	−.14	−1.05	−.07	−.57	−.09	−.68
Job experience	.33	2.47**	.16	1.21	.17	1.18
Independent variables						
Previous experience			.18	2.40**	.17	2.28*
Ethnicity			−.25	−3.27**	−.25	−3.12**
Previous experience × ethnicity			.13	1.76*	.11	1.52
Internal attribution					.08	0.80
Stable attribution					.07	0.85
Controllable attribution					−.07	−.68
Previous experience × Internal attribution					.00	−.04
Previous experience × Stable attribution					−.01	−.04
Previous experience × Controllable attribution					−.01	−.13
R^2	.05		.16		.17	
F	4.78**		6.59**		3.11**	
ΔR^2	.05		.11		.01	
ΔF	4.78**		7.45**		.33	

Note: $N = 180$. *$p < .05$, **$p < .01$ (one-tailed).

Table 3. Regression results for mediated moderation effect on the relationship between perceived test performance and posttest fairness perceptions

	Step 1		Step 2		Step 3	
	β	t	β	t	β	t
Control variables						
Age	−.14	−.92	−.10	−.70	−.14	−1.00
Job experience	.29	1.96*	.16	1.11	.19	1.36
Independent variables						
Perceived test performance			.29	3.78**	.29	3.79**
Ethnicity			−.17	−2.08*	−.14	−1.81*
Perceived test performance × ethnicity			.15	2.06*	.13	1.79*
Internal attribution					.05	.47
Stable attribution					.02	.30
Controllable attribution					−.03	−.32
Perceived test performance × internal attribution					−.19	−1.82*
Perceived test performance × stable attribution					−.16	−1.99*
Perceived test performance × controllable attribution					.13	1.37
R^2	.02		.20		.27	
F	2.97*		7.92**		5.18**	
ΔR^2	.02		.18		.07	
ΔF	2.97*		10.86**		2.52*	

Note: $N = 180$. *$p < .05$, **$p < .01$ (one-tailed).

experience and attribution style. However, as Table 3 shows, the interaction effects of perceived test performance and internal attribution and perceived test performance and stable attribution do mediate the interaction effect of perceived test performance and ethnicity. The betas for the interaction effects are as follows: $\beta = -.19$, $t = -1.82$, $p = .04$ for internal attribution, and $\beta = -.16$, $t = -1.99$, $p = .03$ for stable attribution. As the interaction effect of perceived test performance decreases in Step 3 ($\beta = .13$, $t = 1.79$, $p = .04$), the moderation effect of ethnicity is partly mediated by attribution style. Simple slope analyses showed that the slope for the participants with external attribution (below median) is positive and significant ($t = 6.02$, $p < .01$) and the slope for participants with internal attribution (above median) is not significant ($t = 1.14$, $p = .26$). The slope for participants with unstable attribution (below median) is positive and significant ($t = 5.97$, $p < .01$) and the slope for participants with stable attribution (above median) is not significant ($t = 1.22$, $p = .23$). In other words, there is a positive relationship between perceived test performance and posttest fairness perceptions for participants with external or unstable attribution styles.

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5. Discussion

As organizations seek to make selection procedures more appealing to applicants, research has accumulated regarding applicant perceptions of selection instruments. However, to date, little examination has been made of how applicant perceptions are formed and why certain applicant groups hold more negative perceptions than other applicant groups. Increasing our knowledge about the underlying mechanisms of differences in applicant perceptions is vital, as these perceptions have the potential to influence key selection-related outcomes, such as accepting or rejecting job offers, recommending the organization to other job seekers, and filing formal complaints or litigations (e.g., Anderson *et al*., 2004; Hausknecht *et al*., 2004). Therefore, the purpose of the present study was to provide insight into ethnic differences in the formation of applicant perceptions. More specifically, we examined the extent to which self-serving attributions play a role in the formation of fairness perceptions of cognitive ability tests and whether ethnic majority and ethnic minority applicants differ in the use of these self-serving attributions. We believe that the findings of our study contribute to the literature in a number of ways.

First of all, the present study provides accumulating evidence for the role of self-serving attributions of applicants. Previous studies already showed that applicants tend to attribute selection outcomes (e.g., being hired or rejected) to external, unstable, and uncontrollable causes, such as the test content, which in turn influences their test perceptions (e.g., Ployhart & Ryan, 1997; Oostrom *et al*., 2012; Schinkel *et al*., 2013). The present study showed that both pretest and posttest fairness perceptions are prone to self-serving attributions, such that applicants who perceive their test performance as low hold more negative perceptions of the cognitive ability tests than applicants who perceive their test performance as high. Pretest perceptions were affected by the valence of previous test experiences and posttest perceptions were affected by perceived test performance. Chan and Schmitt (2004) noted that only a few studies have measured perceived test performance and that the self-serving attribution bias is often tested based on actual test performance. This could, however, lead to misleading inferences, as applicants are often incapable of making accurate estimates of their test performance. To illustrate, in the present study the correlation between actual test performance and perceived test performance was nonsignificant. Thus, when measured posttest, the relevant test of the self-serving bias is the association between perceived test performance and applicant perceptions. As applicants in general are more concerned with their level of performance on a cognitive ability test than on other selection instruments (Koestner, Zuckerman, & Koestner, 1987; Kluger & Rothstein, 1993), it could be that these self-serving attributions are stronger for cognitive ability tests than for other selection instruments.

Second, the present study is the first study to test Ployhart and Harold's (2004) claim that ethnic differences in attributional processing are able to explain the less favorable test perceptions of ethnic minority applicants as compared to ethnic majority applicants. Our findings show that ethnic minority applicants have a stronger tendency than ethnic majority applicants to attribute their previous test experiences and their perceived test performance to the fairness of a cognitive ability test. In fact, post hoc analyses of the interaction effects showed that the relationship between previous test experiences and perceived test performance on the one hand and fairness perceptions on the other hand were nonsignificant for the ethnic majority group, indicating that only ethnic minority applicants show self-serving attributions when it comes to the formation of test perceptions. Heider (1958) noted that causal attributions to maintain self-esteem may predict different patterns of attributions for success and failure. Our results suggest that self-serving attributions are strongest among ethnic minority applicants who have the feeling that they performed poorly, as their fairness perceptions were especially low. However, the participants of the present study took part in an application training program and not in an actual selection procedure. As attribution heuristics are more likely to take place when an event is stressful and important (Wong & Weiner, 1981), it is possible that self-serving attributions, also among ethnic majority applicants, are stronger in high-stakes situations.

Third, the present study showed that different processes play a role in the formation of pretest and posttest perceptions. Pretest, the ethnic differences in self-serving attributions could not be explained by ethnic differences in attribution style. In fact, attribution style did not moderate the self-serving attributions regarding the pretest fairness perceptions. Posttest, however, self-serving attributions were partly explained by (ethnic differences in) attribution style. It is possible that posttest perceptions as compared to pretest perceptions are more likely linked to cognitions, affect, and arousal than pretest perceptions, as these are formed just after the stressful event. Factors other than attribution style might influence the self-serving attributions in the formation of pretest attributions. For example, individual or cultural differences in values, beliefs, or implicit theories could explain these (ethnic differences in) self-serving attributions (Ployhart & Harold, 2004). The present results indicate that it is important to make a distinction between pretest and posttest perceptions as they have differential relationships with external variables. Hence, practical recommendations and decisions may vary depending on when perceptions are measured.

Another reason why attribution style did not moderate the relationship between previous test experience and

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pretest perceptions could lie in the measure of attributions. We used the CDSII – revised version of McAuley *et al.* (1992) to measure attribution style. During the application training, it became clear that participants had difficulty understanding the scale. Often the instructions for this scale had to be given twice before participants figured out how to use the 9-point scale between the two end-points of the dimensions to indicate their attribution style. The alpha reliabilities of the CDSII were probably for this reason rather low. The use of the CDSII could therefore have attenuated our effects. Since these problems have also been reported in previous studies and are not limited to ethnic minorities (e.g., Wall & Hayes, 2000), we advise future researchers seeking to understand applicant attributions to come up with a better measure of attribution style.

6. Limitations and suggestions for future research

The present study has some limitations that should be noted. First of all, and as mentioned above, the present study took place in a low-stake testing situation. Whether ethnic differences in perceptions are present in actual high-stakes selection situations is influenced by the specific context. For example, several studies have shown that ethnic minority applicants had more favorable perceptions than ethnic majority applicants of the fairness of a cognitive ability test in contexts where there were strong affirmative action programs and minorities in visible leadership positions within the organization (Ryan, Ployhart, Greguras, & Schmit, 1997; Schmit & Ryan, 1997). For this reason, it is important to replicate the present study findings in various actual selection contexts. Second, an actual selection context would allow examining the self-serving attribution bias after the actual selection decision. As the last stage of the selection procedure, the perceptions after the selection decision are most influential on outcomes like the likelihood to accept the job, the likelihood of litigation against the outcome of the selection procedure, and perceived organizational attractiveness (Anderson *et al.*, 2004; Hausknecht *et al.*, 2004). Note that after the selection decision has been made, the selection outcome and not perceived test performance is expected to be the main driver of applicant attributions and perceptions. Third, the sample size of the present study did not allow differentiating between the ethnic backgrounds of the participants. Since Mezulis *et al.* (2004) found that there are differences in the magnitude of the self-serving bias between Western and non-Western cultures, but also among non-Western cultures, it is likely that there are differences in attribution styles and attributional processing within our non-Western ethnic minority sample, which could have attenuated our findings. Therefore, it is important to replicate this study using larger samples that allow differentiating between specific ethnic minority groups and to examine why ethnic groups differ in their attribution style.

Another interesting avenue for future research is to examine the extent to which applicant attributions can be influenced by test-related situational factors. Meta-analyses have shown that there are multiple moderators of the self-serving bias, including affect, perceived task difficulty, and outcome expectancies (see e.g., Campbell & Sedikides, 1999 for an overview). It could be that, for example, by providing success stories of previous ethnic minority applicants or by giving a relatively easy practice test before the actual test, ethnic minority applicants will display less self-serving attributions and, consequently, will hold more favorable test perceptions. It seems worthwhile to examine the effects of these situational factors, as this would provide organizations with a concrete tool to prevent applicants attributing their (poor) performance to external causes.

6.1. Practical implications

We believe the present study provides a relevant piece to the puzzle of ethnic differences in the formation of applicant perceptions of cognitive ability tests and several practical implications may be derived from our findings. Given that cognitive ability tests are one of the best single predictors of job performance (Schmidt & Hunter, 1998) and given the potential consequences of negative applicant perceptions for test performance and subsequent selection outcomes (e.g., Schmit & Ryan, 1997), it is imperative that organizations make an effort to improve the perceptions of ethnic minority applicants. The present study shows that interventions for improving perceptions of cognitive ability tests should be directed at improving test performance (to increase subsequent perceptions). Interventions targeted at improving perceptions and not test performance will probably do more harm than good. Making applicants believe they performed well will influence their expectations regarding the selection outcome. Not meeting those expectations may lead applicants to feel betrayed by the organization, which will harm the organization's image and increase the likelihood of litigation against the selection outcome (Bell, Ryan, & Wiechmann, 2004). Several reviews have been published on how to improve the performance of ethnic minority applicants without impairing the criterion-related validity of the test (Ployhart & Holtz, 2008; De Soete, Lievens, & Druart, 2012). Based on these reviews and the present study findings, one of the strategies that can be employed is providing coaching and practice (e.g., by organizing practice opportunities and the possibility to retake the test; Sackett, Schmitt, Ellingson, & Kabin, 2001). Furthermore, this study shows that interventions should not only be tailored to the applicant group but also to the time of

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measurement. For pretest perceptions, the employer relies on the tests that others have used to measure the applicants' cognitive ability. In this case, a coaching program or practice opportunities seem to be the most effective interventions (De Soete *et al*., 2012). For posttest perceptions, however, the interventions should be targeted at the cognitive ability test itself. Alterations to the instructions or the test format (Sacket *et al*., 2001) or providing explanations (Truxillo, Bodner, Bertolino, Bauer, & Yonce, 2009) then seem be the most effective interventions.

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