Effects of Individual Differences on the Perceived Job Relatedness of a Cognitive Ability Test and a Multimedia Situational Judgment Test

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Although there is a growing number of publications concerning applicant reactions to different selection instruments, the relationships between individual differences and applicant reactions have largely remained unexplored. The aim of the present study was to examine the effects of several testing-related and general individual differences (anxiety, self-evaluations, and personality) on the most commonly studied dimension of applicant reactions, namely the perceived job relatedness of selection instruments. Participants were 153 psychology students, who completed a cognitive ability test and a multimedia situational judgment test as part of their educational program. Our results indicated that computer anxiety negatively affected perceived job relatedness and core self-evaluations, subjective well-being, agreeableness, emotional stability, and openness to experience positively affected perceived job relatedness. Openness to experience was the most consistent predictor of perceived job relatedness. The results of our study suggest that certain individuals may be more predisposed to react positively to selection instruments. Therefore, we concluded that the nature of the applicant pool should be carefully considered when designing interventions to improve applicant reactions.

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1. Introduction

There has been a vast amount of research on the validity and utility of selection instruments that have demonstrated how an organization can benefit from using valid selection instruments (e.g., Barrick & Mount, 1991; McDaniel, Hartman, Whetzel, & Grubb, 2007; McDaniel, Whetzel, Schmidt, & Maurer, 1994; Salgado, Viswesvaran, & Ones, 2001; Schmidt & Hunter, 1998). As a result, researchers have started to develop an interest in examining personnel selection from the applicant's perspective (e.g., Anderson, 2003; Ryan & Ployhart, 2000; Rynes & Connerley, 1993; Smither, Reilly, Millsap, Pearlman, & Stoffey, 1993). Measuring how applicants react to selection instruments has been found to be not only relevant for applicants themselves, but also for the organization. Previous studies have demonstrated that applicant reactions are related to intentions to accept the job, intentions to recommend the organization to others, the likelihood of litigation against the outcome of the selection procedure, and perceived organizational attractiveness (Anderson, Lievens, Van Dam, & Ryan, 2004; Chan & Schmitt, 2005; Gilliland, 1993; Ryan & Ployhart, 2000).

Much of the research on applicant reactions has focused on descriptive questions, such as the comparison of favorability reactions across procedures and instruments (e.g., Hausknecht, Day, & Thomas, 2004; Kluger & Rothstein, 1993; Rynes & Connerley, 1993). However, theory is lacking on why applicants evaluate different selection instruments in a different manner (Anderson, 2003). Recent research has, therefore, moved beyond the comparison of applicant reactions across different instruments to the assessment of how test-related factors, such as test content or test method, affect those

reactions (e.g., Bauer, Truxillo, Paronto, Weekley, & Campion, 2004; Chan & Schmitt, 1997; Kanning, Grewe, Hollenberg, & Hadouch, 2006). For example, Chan and Schmitt (1997) demonstrated that the way in which a situational judgment test (SJT) is administered affects its face validity. Participants rated the face validity of a video-based SJT significantly more positive than the face validity of a paper-and-pencil SJT. Yet, one domain of antecedents has remained largely unexplored, namely individual differences between applicants. Differences in test anxiety, computer anxiety or openness to experience are likely to influence applicant reactions, yet have only been included in a few studies (Bernerth, Feild, Giles, & Cole, 2006; Ryan, Greguras, & Ployhart, 1996; Wiechmann & Ryan, 2003).

The aim of the present study is to examine the relationship of a number of testing-related and general individual differences with the most frequently studied dimension of applicant reactions, namely perceived job relatedness (Chan & Schmitt, 2004). Gilliland (1993) defined job relatedness as the extent to which a test appears to measure content relevant to the job (face validity) and at the same time appears to be predictively valid (perceived predictive validity). Smither *et al.* (1993) provide evidence that these aspects are two related, but distinguishable, dimensions of job relatedness. However, in most studies job relatedness, face validity, and perceived predictive validity are used as interchangeable terms. Because personnel selection instruments are increasingly administered via computers (e.g., Lievens, Van Dam, & Anderson, 2002), we examined the effects of individual differences on the perceived job relatedness of two often used computer-based selection instruments, namely a cognitive ability test and a multimedia SJT intended to measure managerial skills.

2. The perceived job relatedness of cognitive ability tests and multimedia SJTs

The perceived job relatedness of selection instruments has been found to influence several valued organizational outcomes. Bauer, Maertz, Dolen, and Campion (1998) examined the effects of five justice dimensions (information known about the test, chance to perform, treatment at the test site, consistency of the test administration, and job relatedness) on organizational attractiveness, intentions to accept a position, intentions to encourage others to apply, perceptions of testing fairness, and test-taking self-efficacy. Of these justice dimensions, job relatedness appeared to be the most consistently and significantly related to the organizational outcomes. Furthermore, researchers have argued that low job relatedness may result in biased or inaccurate test scores, and therefore reduces the operational validity of selection instruments (e.g., Cascio, 1987; Robertson & Kandola, 1982; Smither *et al.*, 1993).

Some selection instruments are perceived as more job related than others. In general, applicants perceive work samples or other high fidelity assessments to be more job related than cognitive ability tests (Hausknecht *et al.*, 2004; Macan, Avedon, Pease, & Smith, 1994; Ployhart & Ryan, 1998; Rynes & Connerley, 1993; Smither *et al.*, 1993). Hausknecht *et al.* (2004) meta-analytically demonstrated that selection instruments with a transparent relationship with job tasks, such as interviews or works samples, are perceived as more favorable than selection instruments with a less transparent relationship with job tasks, such as cognitive ability tests and personality questionnaires. However, none of the reported studies surveyed participants that actually completed the selection instruments they were evaluating. Kluger and Rothstein (1993) argue that differences in the amount of cognitive effort required to respond to test items and ego involvement may also produce differences in applicant reactions. Ego involvement reflects the degree of concern with one's level of performance relative to others (Koestner, Zuckerman, & Koestner, 1987). Cognitive ability tests generally yield the most cognitive effort and ego-involvement, and are, thus, less favorably perceived than other selection instruments. A number of studies have specifically evaluated applicants' perceived job relatedness concerning multimedia SJTs (e.g., Chan & Schmitt, 1997; Kanning *et al.*, 2006; Lievens & Sackett, 2006). Most of these studies have examined the effects of specific test characteristics on applicants' perceived job relatedness of the particular SJTs. For example, Kanning *et al.* (2006) examined reactions to SJT items that differed with regard to interactivity (noninteractive vs. interactive) and medium (video vs. paper-and-pencil). Video-based SJT items, in which the response of the participants determines the further course of the item, were perceived as the most favorable in terms of enjoyment, acceptance, and job relatedness.

3. Individual differences and perceived job relatedness

To attract applicants and retain them in the selection process, organizations have to understand applicant's preferences toward selection instruments (Macan *et al.*, 1994). The literature on applicant reactions until now lacks a clear consensus regarding potential causes of applicants' perceived job relatedness (Chan & Schmitt, 2004; Ryan & Ployhart, 2000). Research has shown that test content and test characteristics affect the perceived job relatedness of selection instruments, but there is still substantial variance in these perceptions that remains unexplained. Brutus (1995) proposed that the perceived job relatedness of selection instruments is affected by

test characteristics, but also may be affected by individual differences. Individual differences include applicants' pretest feelings and attitudes that may reflect previous experiences or attitudes about tests, such as anxiety and self-efficacy, and also applicants' more general characteristics, such as core self-evaluations and personality (Chan, Schmitt, DeShon, Clause, & Delbridge, 1997). Examining the effects of individual differences on the perceived job relatedness of selection instruments seems important for two reasons. Conceptually, it would further increase our understanding of the nature of applicant reactions. Practically, it would help test developers to identify specific sources of differences in applicant reactions. If negative applicant reactions are due to individual differences instead of test content, modifying the test content or test administration medium will have little effect (Schmitt & Chan, 1999). Interestingly, despite several calls for the inclusion of individual differences in the applicant reaction literature (Anderson, 2003; Bauer *et al*., 2004; Chan & Schmitt, 2004; Ryan & Ployhart, 2000), the relationships between individual differences and applicant reactions have remained largely unexplored. This paper will address this shortcoming by examining the effects of individual differences on the perceived job relatedness of a cognitive ability test and a multimedia SJT. There are several individual differences that we expect or that have been previously shown to affect applicant reactions. These can be clustered into three categories: anxiety, self-evaluations, and personality.

3.1. Anxiety

Test anxiety is composed of individuals' cognitive and affective reactions to evaluative situations, in the times before, during, and after evaluative tasks (Cassady & Johnson, 2002). Test anxiety consists of two dimensions, namely physiological responses experienced during evaluative situations and excessive worrying (Hembree, 1988). Individuals with test anxiety are often concerned with subsequent confrontations with similar evaluative tasks and with loss of self-worth (Depreeuw, 1984). Test anxiety has been found to be related to withdrawal from the selection process (Schmit & Ryan, 1997).

As the cognitive ability test and the multimedia SJT are administered via the computer, computer anxiety may also affect applicant reactions. Computer anxiety is an affective response where people are worried about damaging the computer, looking stupid, or losing control over their work (Bloom & Hautaluoma, 1990). A number of studies found that the lack of experience with computers is a major determinant of computer anxiety (e.g., Beckers & Schmidt, 2003; Heinssen, Glass, & Knight, 1987). Wiechmann and Ryan (2003) demonstrated that computer anxiety explained significant variance in process fairness, face validity, perceived difficulty, enjoyment, and self-assessed performance regarding a computer-based in-basket exercise. Therefore, our first hypothesis is:

Hypothesis 1: Anxiety (test anxiety and computer anxiety) will be negatively related to the perceived job relatedness of a cognitive ability test and a multimedia SJT.

3.2. Self-evaluations

In our study, the category self-evaluations contains three dimensions, namely test-taking self-efficacy, core self-evaluations, and subjective well-being. Test-taking self-efficacy is the belief that one can perform effectively (Bandura, 1997), that is in this case to perform well on the selection instrument. According to Bandura (1997), self-efficacy determines how much effort people will expend on an activity and how long they will persevere when confronting obstacles. Of the self-evaluation constructs, to our knowledge only test-taking self-efficacy has been studied in relation to applicant reactions. Horvath, Ryan, and Stierwalt (2000) demonstrated that individuals who believe that they will perform well will see the test as fairer and more predictively valid. Test-taking self-efficacy has also been found to be positively related to the perceived job relatedness of several selection instruments (Gilliland, 1994; Ryan *et al*., 1996; Wiechmann & Ryan, 2003), enjoyment, perceived test ease, and self-assessed test performance (Wiechmann & Ryan, 2003). Core self-evaluations and subjective well-being have not yet been examined with respect to applicant reactions. According to Judge, Locke, and Durham (1997), core self-evaluations is a broad dispositional trait that is indicated by four more specific traits, namely self-esteem, generalized self-efficacy, locus of control, and emotional stability. Core self-evaluations was found to be positively related to job and life satisfaction (Judge, Locke, Durham, & Kluger, 1998), and higher initial levels of work success and steeper work success trajectories (Judge & Hurst, 2008). Subjective well-being comprises people's long-term levels of pleasant affect, lack of unpleasant affect, and life satisfaction (Diener, 1994). Characteristics related to subjective well-being include confidence, optimism, self-efficacy, likeability, effective coping with challenge and stress, originality, and flexibility (Lyubomirsky, King, & Diener, 2005). We believe that individuals with positive dispositions will have more positive emotions and cognitions in evaluative situations, and therefore will react more positively concerning the perceived job relatedness of a cognitive ability test and a multimedia SJT. Therefore, we hypothesize the following:

Hypothesis 2: Self-evaluations (test-taking self-efficacy, core self-evaluations, and subjective well-being) will be positively related to the perceived job relatedness of a cognitive ability test and a multimedia SJT.

3.3. Personality

Extensive research has documented the relationship between personality traits and job performance (e.g., Barrick & Mount, 1991) and employee attitudes (e.g., Judge, Heller, & Mount, 2002; Organ, 1994). However, the relationship between personality traits and applicant reactions has been examined in only a limited number of studies (Bernerth *et al*., 2006; Truxillo, Bauer, Campion, & Paronto, 2006; Viswesvaran & Ones, 2004; Wiechmann & Ryan, 2003). Among these there is a study by Wiechmann and Ryan (2003), who examined the relationship between openness to experience and a number of applicant reactions toward a computer-based in-basket exercise. They found a positive relationship between openness to experience and face validity. Truxillo *et al*. (2006) found that neuroticism was consistently negatively related and agreeableness was consistently positively related to police recruit applicants' perceived fairness of a paper-and-pencil multiple choice test, to self-assessed performance, and to perceptions of the hiring organization. Regarding a paper-and-pencil organizational leadership test, Bernerth *et al*. (2006) found that agreeableness and openness to experience were positively related to the perceived procedural justice about the use of a leadership test as selection instrument and also to the perceived distributive justice about the selection decision. Furthermore, neuroticism was negatively related to the perceived distributive justice about the selection decision.

Agreeableness focuses on interpersonal relations. Specifically, it is related to individual differences in the motivation to maintain positive relations with others (Graziano & Eisenberg, 1997). Highly agreeable individuals are trusting, sympathetic, and cooperative (Costa & McCrae, 1992). Individuals who score low on agreeableness tend to be temperamental, argumentative, emotional, and difficult to calm when distressed (Skarlicki, Folger, & Tesluk, 1999). Therefore, individuals low on agreeableness might have a tendency to react more negatively to selection instruments.

Emotional stability represents an individual's tendency to experience psychological distress (Costa & McCrae, 1992). Individuals with low scores of emotional stability tend to be fearful of novel situations and susceptible to feelings of helpfulness and dependence (Wiggins, 1995). Emotional stability also refers to the subjective ability to respond to external stimuli while keeping emotions and impulses under control (Marcati, Gianluigi, & Peluso, 2008). As evaluative situations are generally experienced as stressful, individuals who score low on emotional stability will be inclined to project their negative emotions on their perceived job relatedness of the selection instruments.

Individuals high in openness to experience tend to be intellectually curious and behaviorally flexible in their attitudes and values (Costa & McCrae, 1992). Individuals low in openness to experience fear the unknown and ambiguity involved in evaluative situations (Bernerth *et al*., 2006). Therefore, it is likely that there will be some resistance to modern computer-based selection instruments. Individuals who are less resistant to new experiences may react more positively to computer-based selection instruments than individuals who are resistant to new experiences (Wiechmann & Ryan, 2003).

Based on the results of Wiechmann and Ryan (2003), Truxillo *et al*. (2006), and Bernerth *et al*. (2006) we expect agreeableness, emotional stability and openness to experience to be positively related to the perceived job relatedness of a cognitive ability test and a multimedia SJT. Therefore, our last hypothesis is as follows:

Hypothesis 3: Agreeableness, emotional stability, and openness to experience will be positively related to the perceived job relatedness of a cognitive ability test and a multimedia SJT.

4. Method

4.1. Participants and procedure

This study was conducted among 153 psychology students at a large Dutch University. Of the students, 85 were master students (55.6%) and 68 were bachelor students (44.4%), 101 were female (66.0%) and 52 were male (34.0%). Their age ranged from 19 to 44 ($M = 22.3$; $SD = 3.17$). Of the students, 106 (69.3%) had experience with cognitive ability tests and 41 (26.8%) had experience with multimedia SJTs. Most of them had some kind of work experience (70.1%).

As part of their educational program, students completed a cognitive ability test and a multimedia SJT intended to measure managerial skills. We attempted to motivate the students to perform well on the selection instruments by emphasizing the benefits they could have in the future when they would really apply for a job, by practicing with genuine selection instruments, and by giving them a professional report of their scores. To provide a frame of reference, the participants were told that the tests they were about to complete are generally used in the assessment of candidates for a variety of high-level management jobs, a profession most students are familiar with. Before completing the actual cognitive ability test and multimedia SJT participants had to fill out a computer-based personality questionnaire and a paper-and-pencil questionnaire containing items on test anxiety, computer anxiety, core self-evaluations, and subjective well-being. After the introduction of the cognitive ability test and the multimedia SJT, participants had to fill out a questionnaire containing items on test-taking self-efficacy. Immediately after completing each selection test participants had to fill out a questionnaire containing items on face validity, perceived predictive validity, and self-assessed test performance. It took the students about two and a half hour to complete all tests and questionnaires.

4.2. Measures

4.2.1. Individual differences

Personality, test anxiety, computer anxiety, core self-evaluations, and subjective well-being were measured before participants started the tests. Participants rated the items on a scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*.

The personality traits were measured with a 224-item computer-based personality questionnaire developed by GITP (Koch, 1998), a large Dutch HR-consultancy firm. Each scale consists of 23–47 items. An example of an item for Extraversion is as follows: *Rate yourself on the following statement: Enjoys meeting new people*. The scales of the personality questionnaire show substantial correlations ($r = .48$–$.72$) with scales of the revised NEO-Personality Inventory that were intended to measure the same constructs (Costa & McCrae, 1992). Coefficient αs are substantial: $\alpha = .92$ for Extraversion, $\alpha = .83$ for Agreeableness, $\alpha = .92$ for Conscientiousness, $\alpha = .88$ for Emotional Stability, $\alpha = .90$ for Openness to experience. Correlations from .10 to .51 were found between the scales.

Test-anxiety was defined as the individuals' cognitive and affective reactions to evaluative situations, in the times before, during, and after evaluative tasks (Cassady & Johnson, 2002). This construct was measured with seven items, adopted from Cassady and Johnson (2002). An example of an item is: *At the beginning of a test, I am so nervous that I often can't think straight*. In this study, coefficient $\alpha = .85$.

Computer anxiety is an affective response where people are worried about damaging the computer, looking stupid or losing control over their work (Bloom & Hautaluoma, 1990). This construct was measured with five items, adopted from Heinssen *et al*. (1987). An example of an item is: *I hesitate to use a computer for fear of making mistakes that I can not correct*. In this study, coefficient $\alpha = .81$.

Core self-evaluations was defined as basic conclusions or bottom-line evaluations that individuals hold about themselves (Judge *et al*., 1997), and was measured with the 12-item Core Self Evaluation Scale of Judge, Erez, Bono, and Thoreson (2003). An example of an item is: *I am confident I get the success I deserve in life*. In this study, coefficient $\alpha = .86$.

Subjective well-being was measured with the Satisfaction With Life Scale (Diener, Emmons, Larsen, & Griffin, 1985), a five-item scale designed to measure global cognitive judgments of satisfaction with one's life. An example of an item is: *In most ways my life is close to ideal*. In this study, coefficient $\alpha = .70$.

Test-taking self-efficacy was measured after a short introduction of the test. Participants rated the items on a scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*. Test-taking self-efficacy was measured with three items, adopted from Pintrich and De Groot's (1990) Motivated Strategies for Learning Questionnaire. An example of an item is: *I think I will do very well on this test*. In this study, coefficient $\alpha = .83$ for the cognitive ability test and .81 for the multimedia SJT.

4.2.2. Posttest measures

Face validity, perceived predictive validity, and self-assessed test performance were measured after each test, but before participants received feedback on their test scores. Participants rated the items on a scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*.

Face validity was measured with three items adopted from Smither *et al*. (1993). Face validity is defined as the extent to which test takers perceive the content of the selection procedure to be related to the job. Unlike content validity, face validity is assessed by test takers who do not have the expertise of test developers or other subject matter experts. To provide a frame of reference, participants were asked to give ratings on the items concerning relationships between the test and a high-level management job. An example of an item is: *It would be obvious to anyone that the test is related to a managerial job*. In this study, coefficient $\alpha = .74$ for the cognitive ability test and .69 for the multimedia SJT.

Perceived predictive validity was measured with three items adopted from Smither *et al*. (1993). Perceived predictive validity is defined as the perception of how well the selection procedure predicts future job performance, regardless of how the selection procedure looks like (Smither *et al*., 1993). To provide a frame of reference, participants were asked to give ratings on the items concerning relationships between the test and a high-level management job. An example of an item is: *I am confident that the test can predict how well an applicant will perform in a managerial job*. In this study, coefficient $\alpha = .81$ for the cognitive ability test and .73 for the multimedia SJT. A series of confirmatory factor analyses was conducted to test whether face validity and perceived predictive validity are distinguishable dimensions of job relatedness. The second-order structure, with job relatedness as the higher level factor and face validity and perceived predictive validity as the first-order factors, showed good fit (Hu & Bentler, 1999) for both the cognitive ability test ($\chi^2 = 9.03$, $df = 6$, $p = .17$, CFI = .99, SRMR = .03, RMSEA = .06) and the multimedia SJT ($\chi^2 = 10.67$, $df = 6$, $p = .10$, CFI = .98, SRMR = .04, RMSEA = .07). Moreover, the fit of the second-order structure was significantly better for both the cognitive ability test ($\Delta\chi^2 = 27.52$, $df = 3$, $p < .01$) and the multimedia SJT ($\Delta\chi^2 = 41.96$, $df = 3$, $p < .01$) than the fit of the model with job relatedness as single factor. These results confirm that face validity and perceived predictive validity are two related, but distinguishable, dimensions of job relatedness.

Self-assessed test performance was measured with four items, based on the scale of Wiechmann and Ryan (2003). An example of an item is: *I think I have performed*

well on the test. In this study, coefficient $\alpha = .83$ for the cognitive ability test and .78 for the multimedia SJT.

4.2.3. Cognitive ability test

The computer-based cognitive ability test is developed by GITP (Van Leeuwen, 2004), a large Dutch HR-consultancy firm, and consists of three scales, namely Verbal Reasoning (VR), Number Series (NS) and Abstract Reasoning (AR). Together, the three scales aim to measure general cognitive ability. The test consists of 81 items. An example of an item of the NS scale is as follows: *Complete the following series of numbers: 10 11 13 16 20 25?* The scales of the cognitive ability test show substantial correlations ($r = .44–.78$) with the Dutch intelligence test series of Drenth, a frequently used measure of cognitive ability in The Netherlands (Drenth, 1965). The time limit to complete all items was 51 min. Coefficient αs of the scales, based on a sample of candidates who had completed all items within the time limit, were .87 for the VR scale ($N = 889$), .63 for the NS scale ($N = 649$), and .68 for the AR scale ($N = 757$). There were moderate correlations between the three scales ($r = .24–.41$). The total amount of correctly answered items represents the participants' scores, which could range from 0 to 81.

4.2.4. Multimedia SJT

The SJT consists of 17 short video clips, representing a wide range of work-related situations managers are likely to encounter on their job. Each situation depicts a manager and a subordinate interacting on the job and describes an interpersonal or job-related problem. After each situation, four possible ways to handle the situations are presented via video clips. Participants are asked to judge these response alternatives on a 5-point scale ranging from (− −) *very ineffective* to (+ +) *very effective*. An expert-based scoring method was used to score the participants' effectiveness ratings of the response alternatives (Bergman, Drasgow, Donovan, Henning, & Juraska, 2006). Ten experts individually watched the videotaped vignettes and rated the four response alternatives on the same 5-point scale. The absolute distance between the mean effectiveness ratings of the experts and the participants' effectiveness ratings was calculated for each response alternative. The absolute distances of all responses were summed and extracted from 100, so participants receive a higher score if they tend to agree with the experts. All participants completed the multimedia SJT within 45 min. In this study, coefficient $\alpha = .91$.

5. Results

5.1. Descriptive statistics

Means, standard deviations, reliabilities and correlations between all study variables are presented in Table 1 for the cognitive ability test and in Table 2 for the multimedia

Table 1. Descriptive statistics and correlations between individual differences and the perceived job relatedness of the cognitive ability test

	M	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Age	22.33	3.17	(–)															
2. Gender	0.66	0.48	−.02	(–)														
3. Job experience	1.51	1.12	.34**	−.05	(–)													
4. Test experience	3.81	0.84	−.17*	−.08	−.02	(.82)												
Individual differences																		
5. Test anxiety	2.41	0.67	.01	−.07	.03	−.14	(.85)											
6. Computer anxiety	1.35	0.44	−.04	−.08	.04	−.16	.19*	(.81)										
7. Test-taking self-efficacy	3.33	0.56	.09	−.38**	.01	.23**	−.25**	−.19*	(.83)									
8. Core self-evaluations	3.75	0.48	.12	−.25**	.09	.17*	−.55**	−.39**	.31**	(.86)								
9. Subjective well-being	3.79	0.53	−.05	.01	−.02	.15	−.29**	−.32**	.30**	.57**	(.70)							
10. Extraversion	3.55	0.52	.13	−.18*	.11	.08	−.08	−.16	.04	.34**	.19*	(.92)						
11. Agreeableness	3.74	0.30	.07	.04	.03	.05	.01	−.17	.00	.15	.12	.22**	(.83)					
12. Conscientiousness	3.66	0.38	.15	.12	.10	.02	−.10	−.05	.−.01	.16*	.16	.10	.31**	(.92)				
13. Emotional stability	3.30	0.43	.24**	−.23**	.06	.24**	−.41**	−.34**	.24**	.62**	.39**	.34**	.25*	.13	(.88)			
14. Openness to experience	3.79	0.29	.19*	−.20*	.09	.16	−.12	−.27**	.20*	.35**	.11	.51**	.37**	.17*	.30**	(.90)		
Posttest measures																		
15. Face validity	3.76	0.81	.14	.02	.02	.05	−.04	−.08	−.03	.14	−.01	.12	.20*	.14	.27**	.27**	(.74)	
16. Perceived predictive validity	2.91	0.77	.36**	−.20*	.18*	−.01	−.01	−.13	.14	.19*	.05	.16	.22*	.14	.26**	.29**	.54**	(.81)

Note: Coefficient αs are presented on the diagonal, between parentheses. Gender is coded as follows: 0 = male, 1 = female. Job experience is coded as follows: 0 = no experience, 1 = less than 1 year, 2 = 1–2 years, 3 = 6–10 years, and 4 = more than 10 years. All scales range from 1 to 5. The correlations with face validity and perceived predictive validity are controlled for self-assessed test performance. $N = 153$. $^{*}p < .05$, $^{**}p < .01$.

Table 2. Descriptive statistics and correlations between individual differences and the perceived job relatedness of the multimedia situational judgment test (SJT)

	M	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Age	22.33	3.17	(–)															
2. Gender	0.66	0.48	−.02	(–)														
3. Job experience	1.51	1.12	.34**	−.05	(–)													
4. Test experience	2.80	1.16	.19*	−.08	.13	(.84)												
Individual differences																		
5. Test anxiety	2.41	0.67	.01	.20*	.03	−.09	(.85)											
6. Computer anxiety	1.35	0.44	−.04	−.07	.04	−.05	.19**	(.81)										
7. Test-taking self-efficacy	3.39	0.51	−.01	−.19*	.09	.23**	−.10	−.08	(.81)									
8. Core self-evaluations	3.75	0.48	.12	−.25**	−.02	.07	−.55**	−.39**	.31**	(.86)								
9. Subjective well-being	3.79	0.53	−.05	.01	.13	−.02	−.29**	−.32**	.35**	.57**	(.70)							
10. Extraversion	3.55	0.52	.13	−.18*	.11	.11	−.08	−.16	.27**	.34**	.19*	(.92)						
11. Agreeableness	3.74	0.30	.07	.04	.03	.00	.01	−.17*	−.05	.15	.12	.22**	(.83)					
12. Conscientiousness	3.66	0.38	.15	.12	.10	.27**	−.10	−.05	.14	.16*	.16	.10	.31**	(.92)				
13. Emotional stability	3.30	0.43	.24**	−.23**	.06	.14	−.41**	−.34**	.24**	.62**	.39**	.34**	.25*	.13	(.88)			
14. Openness to experience	3.79	0.29	.19*	−.20*	.09	.04	−.12	−.27**	.24**	.35**	.11	.51**	.37**	.17*	.30**	(.90)		
Posttest measures																		
15. Face validity	4.41	0.51	−.05	.13	−.07	−.05	−.06	−.20*	.08	.20*	.17*	.15	.08	−.13	.12	.19*	(.69)	
16. Perceived predictive validity	3.60	0.61	−.04	.09	.19*	.15	.03	.01	.12	.04	.17*	.05	.08	.10	.01	−.09	.39**	(.73)

Note: Coefficient αs are presented on the diagonal, between parentheses. Gender is coded as follows: 0 = male, 1 = female. Job experience is coded as follows: 0 = no experience, 1 = less than 1 year, 2 = 1–5 years, 3 = 6–10 years, and 4 = more than 10 years. All scales range from 1 to 5. The correlations with face validity and perceived predictive validity are controlled for self-assessed test performance. $N = 153$. *$p < .05$, **$p < .01$.

SJT. Before we tested the hypotheses, we first looked at significant correlations between demographic characteristics and the other study variables. Age was significantly related to emotional stability ($r = .24$, $p < .01$), openness to experience ($r = .19$, $p < .05$), and the perceived predictive validity of the cognitive ability test ($r = .36$, $p < .01$). Gender was related to a number of study variables. The largest difference between male students and female students was found for self-efficacy regarding the cognitive ability test ($r = -.38$, $p < .01$, $t = 4.51$, $p < .01$) and core self-evaluations ($r = -.25$, $p < .01$, $t = 3.45$, $p < .01$) in favor of the male students. Job experience was significantly related to the perceived predictive validity of both the cognitive ability test ($r = .18$, $p < .05$) and the multimedia SJT ($r = .19$, $p < .05$). Experience with a cognitive ability test was significantly related to test-taking self-efficacy ($r = .23$, $p < .01$), core self-evaluations ($r = .17$, $p < .05$), and emotional stability ($r = .24$, $p < .01$). Experience with the multimedia SJT was significantly related to test-taking self-efficacy ($r = .23$, $p < .01$) and conscientiousness ($r = .27$, $p < .01$). Because of these significant correlations, we controlled for age, gender, job experience and test experience in the regression analyses.

We conducted paired-sample *t*-tests to examine whether the perceived job relatedness of the cognitive ability test differed from the perceived job relatedness of the multimedia SJT. Participants rated the face validity ($M = 4.41$, $SD = 0.51$) and the predictive validity ($M = 3.60$, $SD = 0.61$) of the multimedia SJT significantly higher than the face validity ($M = 3.76$, $SD = 0.81$, $t = -8.92$, $p < .01$) and the predictive validity ($M = 2.91$, $SD = 0.77$, $t = -9.95$, $p < .01$) of the cognitive ability test.

6. The role of individual differences in job relatedness perceptions

Research has shown that test performance has an influence on applicant reactions (Chan, Schmitt, Sacco, & DeShon, 1998). Thus, to provide a stringent test of the effects of individual differences on the perceived job relatedness of the cognitive ability test and the multimedia SJT, we controlled for self-assessed test performance in the analyses. In this study self-assessed test performance is a more appropriate control variable than actual test performance, because participants were not yet notified of their test scores when they reported the perceived job relatedness of the selection instruments.

The results for Hypotheses 1–3, regarding the effects of individual differences on job relatedness, are given in Table 1 for the cognitive ability test and in Table 2 for the multimedia SJT. Hypothesis 1, which stated that test anxiety and computer anxiety would be negatively related to perceived job relatedness, received only weak support. No significant correlations were found between test anxiety and the perceived job relatedness of the

cognitive ability test and the multimedia SJT. However, computer anxiety was negatively related to the face validity of the multimedia SJT ($r = -.20$, $p < .05$). It was unrelated to the face validity of the cognitive ability test ($r = -.08$, *ns*), and also unrelated to the perceived predictive validity of the cognitive ability test ($r = -.13$, *ns*) and the multimedia SJT ($r = .01$, *ns*). No significant correlations were found between test anxiety and the perceived job relatedness of the cognitive ability test and the multimedia SJT. Hypothesis 2 stated that test-taking self-efficacy, core self-evaluations and subjective well-being would be positively related to perceived job relatedness. This hypothesis was partly supported as the dimension core self-evaluations was positively related to the perceived predictive validity of the cognitive ability test ($r = .19$, $p < .05$) and the face validity of the multimedia SJT ($r = .20$, $p < .05$), and subjective well-being was positively related to the face validity of the multimedia SJT ($r = .17$, $p < .05$) and the perceived predictive validity of the multimedia SJT ($r = .17$, $p < .05$). No significant correlations were found between test-taking self-efficacy and the face validity and the perceived predictive validity of the cognitive ability test and the multimedia SJT. Hypothesis 3, which stated that agreeableness, emotional stability, and openness to experience would be positively related to perceived job relatedness, was supported regarding the perceived job relatedness of the cognitive ability test. Agreeableness was positively related to its face validity ($r = .20$, $p < .05$) and its perceived predictive validity ($r = .22$, $p < .05$), emotional stability was positively related to its face validity ($r = .27$, $p < .01$) and its perceived predictive validity ($r = .26$, $p < .01$), and openness to experience was positively related to its face validity ($r = .27$, $p < .01$) and its perceived predictive validity ($r = .29$, $p < .01$). Openness to experience was also significantly related to the face validity of the multimedia SJT ($r = .19$, $p < .05$). We did not find other significant correlations between the personality dimensions and the perceived job relatedness of the multimedia SJT. Therefore, Hypothesis 3 was not supported regarding the multimedia SJT.

In addition, we conducted a series of stepwise multiple regression analyses, to examine which individual difference explains most of the variance in job relatedness perceptions. Step 1 included the control variables: Age, gender, job experience, test experience, and self-assessed test performance. Step 2 included the individual differences which we expected to affect perceived job relatedness (see Table 3–6). Regarding the face validity of the cognitive ability test, openness to experience ($\beta = .20$, $t = 2.18$, $p < .05$) and emotional stability ($\beta = .19$, $t = 1.99$, $p < .05$) survived the stepwise procedure. Regarding the perceived predictive validity of the cognitive ability test, only openness to experience ($\beta = .19$, $t = 2.11$, $p < .05$) explained additional variance up to and beyond the control variables. Regarding the face validity of the multimedia SJT, openness to experience ($\beta = .19$, $t = 2.10$, $p < .05$) and core self-evaluations ($\beta = .19$, $t = 2.03$, $p < .05$) explained additional variance up to and beyond the control variables. Regarding the perceived predictive validity of the multimedia SJT, only subjective well-being ($\beta = .19$, $t = 2.18$, $p < .05$) explained additional variance up to and beyond the control variables.

Table 3. Hierarchical regression model testing for the association of individual differences and face validity of the cognitive ability test

	β	t	R^2	ΔR^2	ΔF
Step 1 – control variables					
Age	.10	0.99			
Gender	−.02	−0.20			
Job experience	−.11	−1.18			
Test experience	−.10	1.08			
Self-assessed test performance	.08	0.98			
			.07	.07	1.77
Step 2					
Openness to experience	.20	2.18*			
			.12	.06	7.84**
Step 3					
Emotional stability	.19	1.99*			
			.15	.03	3.95**
$F(7, 147) = 3.08$**					

Note: Gender is coded as follows: 0 = male, 1 = female. Job experience is coded as follows: 0 = no experience;, 1 = less than 1 year, 2 = 1–5 years, 3 = 6–10 years, and 4 = more than 10 years. β coefficients in the overall model are presented. R^2 and ΔR^2 may appear inconsistent due to rounding. *$p < .05$, **$p < .01$.

Table 4. Hierarchical regression model testing for the association of individual differences and perceived predictive validity of the cognitive ability test

	β	t	R^2	ΔR^2	ΔF
Step 1 – control variables					
Age	.28	3.00**			
Gender	−.15	−1.73			
Job experience	.03	0.34			
Test experience	.03	0.37			
Self-assessed test performance	.10	1.20			
			.16	.16	4.62**
Step 2					
Openness to experience	.19	2.11*			
			.19	.03	4.46**
$F(6, 144) = 4.71$**					

Note: Gender is coded as follows: 0 = male, 1 = female. Job experience is coded as follows: 0 = no experience, 1 = less than 1 year, 2 = 1–5 years, 3 = 6–10 years, and 4 = more than 10 years. β coefficients in the overall model are presented. *$p < .05$, **$p < .01$.

7. Discussion

The aim of this study was to examine the relationship between individual differences and perceived job

Table 5. Hierarchical regression model testing for the association of individual differences and face validity of the multimedia situational judgment test (SJT)

	β	t	R^2	ΔR^2	ΔF
Step 1 – control variables					
Age	−.08	−0.87			
Gender	.20	2.23*			
Job experience	−.04	−0.43			
Test experience	−.05	−0.52			
Self-assessed test performance	.02	0.23			
			.03	.03	0.65
Step 2					
Openness to experience	.19	2.10*			
			.08	.06	7.77**
Step 3					
CSE	.19	2.03*			
			.11	.03	4.12*
$F(7, 149) = 2.23$*					

Note: Gender is coded as follows: 0 = male, 1 = female. Job experience is coded as follows: 0 = no experience, 1 = less than 1 year, 2 = 1–5 years, 3 = 6–10 years, and 4 = more than 10 years. β coefficients in the overall model are presented. R^2 and ΔR^2 may appear inconsistent due to rounding. *$p < .05$, **$p < .01$.

Table 6. Hierarchical regression model testing for the association of individual differences and perceived predictive validity of the multimedia situational judgment test (SJT)

	β	t	R^2	ΔR^2	ΔF
Step 1 – control variables					
Age	−.11	−1.19			
Gender	.12	1.41			
Job experience	.22	2.40			
Test experience	.14	1.64*			
Self-assessed test performance	−.07	−0.77			
			.08	.08	2.07*
Step 2					
Subjective well-being	.19	2.18*			
			.11	.03	4.74*
$F(6, 143) = 2.56$*					

Note: Gender is coded as follows: 0 = male, 1 = female. Job experience is coded as follows: 0 = no experience, 1 = less than 1 year, 2 = 1–5 years, 3 = 6–10 years, and 4 = more than 10 years. β coefficients in the overall model are presented. *$p < .05$.

relatedness, which consisted of two related, but distinguishable dimensions, namely face validity and perceived predictive validity. The results indicated that computer anxiety, core self-evaluations, subjective well-being, agreeableness, emotional stability, and openness to experience affected the perceived job relatedness of a cognitive ability test and a multimedia SJT, but not systematically. Openness to experience was the most consistent predictor of job relatedness perceptions. Given that perceived job relatedness is related to several important organizational outcomes (e.g., Bauer *et al*., 1998), and considering that the organization's selection procedure is the first contact moment between an employee and an organization, the results reported in this study may have practical implications. We will discuss each of our findings in turn.

First, we expected that test anxiety and computer anxiety would be negatively related to the perceived job relatedness of a cognitive ability test and a multimedia SJT (Hypothesis 1). We found weak support for this hypothesis, as only computer anxiety was significantly related to face validity of the multimedia SJT. The nonsignificant effects of test anxiety and computer anxiety are surprising, as these individual differences have previously been found to be related to a variety of applicant reactions (Schmit & Ryan, 1997; Wiechmann & Ryan, 2003). These results could possibly be explained by the homogeneous sample, regarding age, cultural background and educational level. Students are frequently exposed to test situations. In our sample nearly 70% of the students had experience with cognitive ability tests, and nearly 30% had experience with multimedia SJTs. Furthermore, students work with computers on a daily basis, demonstrated by the low mean of 1.35 for computer anxiety on a 5-point scale. Therefore, it is important to verify and extend our findings in a more heterogeneous sample.

Our second hypothesis stated that test-taking self-efficacy, core self-evaluations, and subjective well-being would be positively related to the perceived job relatedness of a cognitive ability test and a multimedia SJT. This hypothesis was partly supported as the dimension core self-evaluations was positively related to the perceived predictive validity of the cognitive ability test and the face validity of the multimedia SJT, and subjective well-being was positively related to the face validity of the multimedia SJT and the perceived predictive validity of the multimedia SJT. Moreover, in the prediction of the perceived job relatedness of the multimedia SJT, core self-evaluations and subjective well-being were able to explain additional variance over and above age, gender, job experience, test experience, and self-assessed test performance. To our knowledge, core self-evaluations and subjective well-being until now have not yet been examined with respect to applicant reactions. The importance of these findings is that self-evaluations should be considered when assessing applicant reactions.

Test-taking self-efficacy has previously been found to be positively related to the perceived job relatedness of selection instruments (Gilliland, 1994; Ryan *et al*., 1996; Wiechmann & Ryan, 2003). However, our study did not indicate any relationship between test-taking self-efficacy and perceived job relatedness. The setting of our study could possibly explain the non-significant relationship between test-taking self-efficacy and job relatedness perceptions. Self-efficacy is related to how much effort an individual will expend on an activity and how long they will persevere when confronting obstacles (Bandura, 1997). Our results were obtained in a research setting, which typically lacks the motivational and self-presentational issues inherent in actual high-stakes situations. It is possible that applicants would have exerted more effort and gave up les quickly when confronted with difficult

items than our participants did. Therefore, differences in test-taking self-efficacy may have more influence on perceptions in a real applicant sample.

Furthermore, we expected that agreeableness, emotional stability, and openness to experience would be positively related to job relatedness perceptions (Hypothesis 3). Despite previous calls for investigating the role of personality traits in explaining differences in applicant reactions (e.g., Chan & Schmitt, 2004; Ryan & Ployhart, 2000), there has been only limited research on the effects of personality on applicant reactions (Bernerth *et al*., 2006; Wiechmann & Ryan, 2003). The hypothesized relationships between personality and perceived job relatedness were generally supported at the correlational level. Our results indicated that agreeableness, emotional stability, and openness to experience were indeed positively related to the face validity and the perceived predictive validity of the cognitive ability test. Openness to experience was also significantly related to the face validity of the multimedia SJT. These findings are consistent with past findings regarding the relationship between openness to experience and applicant reactions. For example, Bernerth *et al.* (2006) found that agreeableness, emotional stability, and openness to experience were positively related to distributive justice perceptions about the selection decision. Our findings, coupled with the findings of Bernerth *et al*., suggest that certain individuals may be more predisposed to react positively to selection instruments.

While, the relationships between individual personality dimensions and perceived relatedness were less consistent in the regression analyses, openness to experience still accounted for additional variance over and above age, gender, job experience, test experience, and self-assessed test performance in the face validity of the cognitive ability test and the multimedia SJT, and the perceived predictive validity of the cognitive ability test. Thus, individuals who are more amenable to new experiences seem to react more positively to computer-based selection instruments than individuals who are resistant to new experiences. Wiechmann and Ryan (2003) also found a positive relationship between openness to experience and the face validity of a computer-based in-basket exercise. Like Wiechmann and Ryan, we measured the perceived job relatedness of modern computer-based selection instruments. Therefore, we can not generalize our findings to selection instruments in general. It is quite plausible that openness to experience is less important when using traditional paper-and-pencil tests. Therefore, we recommend future studies to examine the relationships between personality and the perceived job relatedness of other selection instruments as well.

The importance of examining the relationship between individual differences and job relatedness perceptions using other selection instruments is also emphasized by the different correlations we found for the perceived job relatedness of the cognitive ability test and the perceived job relatedness of the multimedia SJT. For example, the face validity of the cognitive ability test was related to agreeableness, emotional stability, and openness to experience, while the face validity of the multimedia SJT was related to computer anxiety, core self-evaluations, subjective well-being, and openness to experience. This implies that relationships between individual differences and the perceived job relatedness of one selection instrument can not be generalized to other selection instruments. This conclusion is relevant for future research, because most studies on the effects of individual differences on applicant reactions have included only one selection instrument (Bernerth *et al*., 2006; Truxillo *et al*., 2006; Wiechmann & Ryan, 2003). The correlates of perceived job relatedness could possibly be determined by the type of construct the test measures. Kluger and Rothstein (1993) argue that differences in the amount of cognitive effort required to respond to test items may produce differences in applicant reactions. Recently, Yeo and Neal (2008) demonstrated that subjective cognitive effort is, in turn, related to personality. Thus, personality might explain more variance in the perceived job relatedness of selection instruments that require relatively more cognitive effort. To assess whether the construct a selection instrument measures indeed affects the correlates of the perceived job relatedness of that particular selection instrument, we recommend future studies to include multiple selection instruments when examining relationships between individual differences and applicant reactions.

We believe that the present study contributed to the knowledge of applicant reactions. Traditionally, researchers have focused on descriptive questions, such as the comparison of favorability reactions across procedures and instruments (e.g., Hausknecht *et al*., 2004; Kluger & Rothstein, 1993; Rynes & Connerley, 1993). Other researchers have assessed how test-related factors, such as test content or test method, affect applicant reactions (e.g., Bauer *et al*., 2004; Chan & Schmitt, 1997; Kanning *et al*., 2006). For example, Chan and Schmitt (1997) found the face validity of a multimedia SJT to be significantly more positive than the face validity of a paper-and-pencil SJT. However, our findings revealed that stable individual differences may also account for a portion of variance in applicant reactions, thus, suggesting there may be a stable component to applicant reactions in addition to test-related factors. Future applicant reaction research should, therefore, consider individual differences to obtain a more complete understanding of the factors affecting applicant reactions.

8. Limitations of this study and suggestions for future research

The current study has some general limitations that should be noted. First, we only measured the perceived

job relatedness of the selection instruments before the participants received feedback on their test scores. These perceptions of job relatedness may relate to behaviors exhibited by applicants during later stages of the selection process before the organization's decision (e.g., intentions to accept the job). However, because test feedback can influence applicant reactions (Bauer *et al*., 1998), we recommend future studies to also measure the perceived job relatedness of selection instruments after participants receive feedback on their test scores, as these perceptions may be related to more long-term behaviors (Ryan & Ployhart, 2000).

Secondly, as in most studies on applicant reactions (e.g., Bernerth *et al*., 2006; Chan *et al*., 1997; Hausknecht *et al*., 2004; Kluger & Rothstein, 1993; Wiechmann & Ryan, 2003), results were obtained in a research setting, using a population that only consisted of students. The research setting allowed us to assess more individual differences and reactions prior and after each selection instrument than would have been possible in a field setting. Several researchers have noted that the nature of procedural justice perceptions justifies the use of both student and field samples (e.g., Bernerth *et al*., 2006; Ryan & Ployhart, 2000). Moreover, we attempted to motivate the students to perform well on the selection instruments, by emphasizing the benefits they could have by practicing with genuine selection instruments, and by giving them a professional report of their scores. We believe that the present study provides a contribution to the current literature on applicant reactions, but care should be taken when generalizing the results to an applicant sample.

The use of an applicant sample will also provide the opportunity to assess ethnicity differences in antecedents of the perceived job relatedness of selection instruments. For example, Viswesvaran and Ones (2004) found differences across ethnic groups in the importance they placed on different aspects of selection system characteristics that relate to fairness perceptions. Future research could examine whether these ethnicity difference also apply to the perceived job relatedness of selection instruments. Furthermore, the use of an applicant sample will also provide the opportunity to assess relationships between applicant reactions and important consequences for organizations, such as applicant retention, withdrawal from the hiring process, and subsequent job performance (Hausknecht *et al*., 2004).

Previous research has shown that job relatedness perceptions of instruments are influenced by the context in which the instrument is being used (e.g., Elkins & Phillips, 2000; Murphy, Thornton, & Prue, 1991). For example, Elkins and Phillips (2000) demonstrated that a biodata instrument is more positively perceived in terms of job relatedness when the instrument is used for the selection of entry-level international managerial jobs than for the selection of nonspecified managerial jobs. In the present study participants were told that the cognitive ability test and the multimedia SJT they were about to complete were generally used in the assessment of candidates for a variety of high-level management jobs. Because both selection tests are used in the assessment of candidates for a variety of high-level management jobs in a variety of companies, we intended to make the findings generalizable to this wide range of managerial jobs. Therefore, the job context was not specified in the present study. Yet, in future studies it would be worth examining whether the type of managerial job to which applicants are applying for affects the relationship between individual differences and the perceived job relatedness of the selection instruments.

In the present study we examined the effects of individual differences on the perceived job relatedness of two often used selection instruments. Although, perceived job relatedness is the most studied dimension of applicant reactions to different selection instruments (e.g., Chan & Schmitt, 1997; Lievens & Sackett, 2006; Ryan & Ployhart, 2000), other reactions, for example fairness perceptions, have also been found to affect organizational outcomes (e.g., Bauer *et al*., 1998; Ryan & Ployhart, 2000). Therefore, we would recommend studying the effects of individual differences on a broader range of applicant reactions.

The results of our study suggest that certain individuals may be more predisposed to react positively to selection instruments. Applicant reactions are, thus, not only influenced by the selection instrument or medium itself, but also by factors outside the organization's control. Interventions to improve applicant reactions are, therefore, less likely to be effective for all applicants. The nature of the applicant pool should be carefully considered when designing interventions to improve applicant reactions. We encourage further research on the effect of individual differences on applicant reactions using additional measures, samples, and selection instruments.

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