MEASURING JOB INTERVIEW ANXIETY: BEYOND WEAK KNEES AND SWEATY PALMS

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A multidimensional measure of interview anxiety, called the Measure of Anxiety in Selection Interviews (MASI), was developed using a student sample ($N = 212$) and tested using a sample of job applicants in a field setting ($N = 276$). The MASI goes beyond the measurement of "weak knees" and "sweaty palms" by providing an assessment of 5 interview anxiety dimensions: Communication, Appearance, Social, Performance, and Behavioral. The psychometric properties of the scales were strong and confirmatory factor analyses supported the a priori structure. In addition, substantial evidence for the concurrent, discriminant, criterion-related, and incremental validity of the MASI was obtained. Moreover, a multiple correlation of .34 was found for the 5 MASI scales in the prediction of interview performance. The development of the MASI has important implications for the field, as it may provide the foundation for future research on job interview anxiety, guide interview anxiety treatment programs, and promote the enhancement of job interview validity.

Feelings of anxiety are a pervasive problem in today's stressful and fast-paced work environment (Yuen, 1998). This is particularly true for prospective employees, as the evaluative and competitive nature of the job application process often evokes feelings of anxiety, frustration, and distress (Rynes, Bretz, & Gerhart, 1991). A key source of this anxiety is the employment interview, which is the most common selection device used by organizations (Posthuma, Morgeson, & Campion, 2002). It is not surprising that anxiety is an inherent part of the interview process, as the employment interview is a highly evaluative situation (Heimberg, Keller,

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& Peca-Baker, 1986). In addition, the interviewer is typically a stranger, and talking to strangers has been found to be anxiety provoking (Ayres, Keereetaweep, Chen, & Edwards, 1998). Finally, employment interviews are typically not under the applicants' control, and this lack of control may lead to heightened feelings of anxiety (Jones & Pinkney, 1989).

Applicant anxiety has serious implications, as it may bias the predictive validity of job interviews and result in the selection of less promising candidates. For example, high levels of anxiety may result in a low job interview score, in spite of the fact that the candidate may demonstrate superior on-the-job performance if hired. In support of this proposition, Schmit and Ryan (1992) found that the predictive validity of a selection instrument was *lower* for individuals with high levels of anxiety. Interview anxiety may also influence the pursuit or acceptance of job offers by affecting perceived organizational attractiveness. Indeed, research indicates that applicants who view the selection process more favorably are also more satisfied with the organization (Macan, Avedon, Paese, & Smith, 1994). If applicants experience high levels of anxiety and/or discomfort during the interview process, then they may regard the organization as less attractive. This could result in the loss of qualified individuals and may also have implications for the reputation of the organization, as impressions made in recruitment may be communicated to others. Ultimately, the loss of qualified applicants is a serious problem, as projections indicate that North America is facing an ever-increasing shortage of skilled labor, resulting in greater competition for superior employees (Piktialis & Morgan, 2003).

Although the examination of interview anxiety is important, before empirical research can determine if interview anxiety is related to interview performance, biases the predictive validity of the job interview, or is linked to organizational attractiveness, a comprehensive theory of interview anxiety is needed and a valid measurement tool is required. Consequently, the goals of this work were to: (a) develop and evaluate a measure of job interview anxiety, (b) assess the dimensionality of interview anxiety, and (c) explore a portion of the nomological network of variables surrounding the construct of interview anxiety.

To achieve the aforementioned goals, it was necessary to consider several theoretical issues that are relevant to the construct of job interview anxiety. Consequently, theories of state, trait, and interactional anxiety, along with theories of general anxiety, test-taking anxiety, and interpersonal anxiety, are discussed in subsequent sections.

Existing Research on Job Interview Anxiety

An impressive amount of research has been conducted on the job interviews' psychometric properties, primarily predictive validity (see Huffcutt

& Arthur, 1994; Hunter & Hunter, 1984). Admittedly, considering employ-ment interviews from a psychometric perspective is extremely important. Nevertheless, several researchers have noted that it valuable to consider the interview from another point of view, that of the applicant (Gilliland & Steiner, 1999). It is, therefore, surprising that only a limited number of investigations have examined applicant anxiety in job interview contexts. These investigations provide some initial insight into job interview anxiety but are characterized by four notable limitations. First and foremost, there is an obvious lack of emphasis on the theory underlying job interview anx-iety. This is illustrated, in part, by the failure to develop the construct of interview anxiety. For example, the measurement of anxiety in interview contexts has simply been based on unidimensional scales assessing gen-eral anxiety (Barber, Hollenbeck, Tower, & Phillips, 1994; Cook, Vance, & Spector, 2000; Heimberg et al., 1986; Keenan, 1978) or communication anxiety (Ayres, Ayres, & Sharp, 1993; Ayres & Crosby, 1995; Ayres et al., 1998; Daly, Richmond, & Leth, 1979; Delery & Kacmar, 1998). Second, the generalizability of many of these investigations was limited because they were based on artificial interview scenarios (i.e., Ayres & Crosby, 1995; Ayres et al., 1993; Ayres et al., 1998; Daly et al., 1979; Heimberg et al., 1986). Third, three of the extant interview anxiety investigations (Ayres & Crosby, 1995; Ayres et al., 1998; Delery & Kacmar, 1998) were based on relatively small samples sizes (*N* ranged from 28 to 70). Finally, only three investigations examined the relation between interview anxiety and actual job interview performance (Ayres & Crosby, 1995; Cook et al., 2000; Keenan, 1978).

Findings of the aforementioned studies are somewhat variable and in-consistent. For example, the study by Keenan (1978) found no relation between trait anxiety and interview performance, whereas the study by Ayres and Crosby (1995) found a significant negative relation between communication apprehension and interview performance. This is not sur-prising, as conceptualization of the construct of job interview anxiety has been deficient. What is required for future research is a theoretically driven instrument that comprehensively assesses the construct of job interview anxiety. The current study was designed to develop such a measure.

Goals of the Current Work

As described, the goals of this investigation were: (a) to develop and evaluate a measure of job interview anxiety, (b) to assess the dimension-ality of interview anxiety, and (c) to explore a portion of the nomological network of variables surrounding the construct of interview anxiety. These goals were accomplished in two phases. In Phase 1, a multidimensional measure of interview anxiety, called the Measure of Anxiety in Selection

Interviews (MASI), was developed using a sample of 212 students. In Phase 2, the MASI was administered to 276 actual job applicants in order to determine the psychometric properties of the instrument, to assess the dimensionality of job interview anxiety, and to examine the relation between interview anxiety and other related constructs.

In fulfilling the above three goals, this research fills a void in both the applicant reactions and job interview literatures. First, it provides a theoretical basis for the construct of job interview anxiety. In doing so, it helps to clarify the distinction between interview anxiety and other related constructs, such as general anxiety and test-taking anxiety. Second, this research advances a useful measure of job interview anxiety that comprehensively assesses multiple aspects of anxiety that are relevant to job interviews. Not only is this instrument psychometrically sound, as demonstrated in the proceeding sections, but it also boasts a short and practical format. Third, this study, and the MASI in particular, provides the foundation for future research to explore the antecedents and consequences of applicant anxiety in job interview contexts. Fourth, this investigation examines a portion of the nomological network surrounding job interview anxiety using a combined lab–field approach. Finally, findings from this research will assist in the diagnosis and treatment of interview anxiety among prospective employees. In the following paragraphs, research related to the aforementioned three main goals is discussed.

Operationalization of the construct and theoretical development of the instrument.   In order to develop a measure of job interview anxiety, it was first necessary to consider how the construct should be conceptualized. Not surprisingly, anxiety has been a prominent focus of attention in many theories of personality and abnormal psychology (Spielberger, 1972). Over the years, it has been used to refer to a stimulus, a response, a drive, a motive, and a trait (Endler, Edwards, & Vitelli, 1991). Recently, many researchers have adopted an interactional theoretical perspective, which views anxiety as a product of both the person (i.e., trait) and the situation (i.e., state; Martens, Vealey, & Burton, 1990). According to the interactional theory, the employment interview could be perceived as an anxiety-provoking situation, and individual differences in trait anxiety specific to this situation could be assessed. In other words, anxiety is viewed as a situation-specific, or contextualized, trait. Several measures have been designed to assess situation-specific anxiety from a trait perspective. For example, there are situation-specific trait anxiety scales to measure sport anxiety (Martens, 1977), test-taking anxiety (Arvey, Strickland, Drauden, & Martin, 1990), public speaking anxiety (Bippus & Daly, 1999), and fear of negative evaluation (Watson & Friend, 1969). Situation-specific measures have been associated with lower levels of error variance and higher levels of predictive and structural validity than general measures (Mandler & Sarason, 1952; Schmit, Ryan, Stierwalt, & Powell, 1995).

After a careful review of the research surrounding anxiety, as well as existing anxiety scales, a decision was made to assess the construct of interview anxiety from an interactional theoretical perspective. Accordingly, interview anxiety was conceived of as a situation-specific trait that incorporates individual differences in perceptions of interview threats and context-specific responses to the interview situation. Consistent with the first goal of this research, a context-specific measure of interview anxiety, the Measure of Anxiety in Selection Interviews (MASI), was developed by following recommended scale construction procedures (Jackson, 1971; Spector, 1992) and by incorporating the dimensions described in the next section.

Dimensionality of job interview anxiety. Given that a theory of job interview anxiety did not exist, past research on general anxiety, test-taking anxiety, and interactional anxiety was used as a basis for conceptualizing the structure of job interview anxiety. In terms of general anxiety, a careful examination of existing theories reveals that many are either unidimensional in nature (i.e., Taylor, 1953), or contain separate state and trait dimensions (i.e., Endler et al., 1991). Given that job interview anxiety was conceptualized from an interactional theoretical perspective, differentiation of state and trait dimensions was not required.

Theories of test-taking anxiety were also examined because tests and job interviews are both evaluative situations. The literature pertaining to test-taking anxiety is enormous, with studies dating back as far as 50 years (i.e., Mandler & Sarason, 1952). Much of the research on test-taking anxiety has been conducted in educational contexts and has focused on determining the dimensionality of the test-taking anxiety construct (Spielberger & Vagg, 1995). Currently, the widely accepted view is that test-taking anxiety contains two major components: performance anxiety (i.e., Worry) and behavioral anxiety (i.e., Emotionality; Spielberger & Vagg, 1995). Performance anxiety is conceptualized as "concern" over the outcome of a test (i.e., fear of failure), but behavioral anxiety reflects the "autonomic arousal" experienced as a result of the test-taking situation (i.e., bodily tension). Each of these dimensions were expected to be particularly relevant to job-interview situations, as job interviews are considered to be a type of test (APA, 1985).

It was recognized that the aforementioned performance and behavioral dimensions would not provide comprehensive coverage of the construct of interview anxiety, as, unlike tests, job interviews are an interactional process that involve a social exchange. Consideration of the interactional component of job interview anxiety was essential, as social exchanges involve characteristics that are not covered under the performance and behavioral dimensions (e.g, verbal communication). To this end, existing theories of communication, appearance, and social anxiety were used as a theoretical basis for the structure of job interview anxiety. Communication

anxiety reflects feelings of nervousness or apprehension about one's verbal communication skills, nonverbal communication skills, and listening skills. This type of anxiety is particularly relevant to job interviews because they require constant communication between the interviewee and the interviewer (Watson & Bossley, 1995). Several communication-based studies have examined the cognitions experienced by individuals with respect to job interview situations (Ayres et al., 1993; Ayres & Crosby, 1995; 1998; Daly et al., 1979). Results indicate that individuals high in communication anxiety avoid thinking about an upcoming job interview, whereas those low in communication anxiety spend considerable time thinking about upcoming interviews. Moreover, when individuals with high communication anxiety do think about upcoming interviews, their cognitions focus on how poorly they expect to do (Ayres et al., 1998).

The second type of interactional anxiety, appearance anxiety, reflects feelings of nervousness or apprehension about one's physical appearance. This is relevant to job interviews because both applicants and interviewers are believed to emphasize the importance of physical appearance in interview contexts (Watson & Friend, 1969). Although investigations have yet to examine appearance anxiety among job applicants, Bippus and Daly (1999) examined the role of appearance anxiety in public speaking contexts. Results indicated that appearance anxiety was one of several dimensions of "stage fright." In further support of an "appearance" dimension, Watson and Friend (1969) noted that it may have been beneficial for them to have included a construct reflecting "concern about the appearance of one's body" (p. 456) in their social anxiety and Distress measure. In the context of job interviews, appearance anxiety is expected to form a separate dimension, as applicants may experience considerable distress over their appearance but may not display correspondingly high levels of communication anxiety, social anxiety, behavioral anxiety, and/or performance anxiety when placed in interview situations. Similarly, it is possible that applicants may experience low levels of appearance anxiety, yet report considerable distress on one or more of the other anxiety scales.

The final type of interactional anxiety, Social Anxiety, reflects feelings of nervousness or apprehension about one's social behavior (e.g., correct handshake) resulting from a desire to be liked. Individuals with high levels of social anxiety become very upset when placed in situations that require social interaction (Watson & Friend, 1969). Furthermore, findings indicate that social anxiety is related to an individual's ability to effectively interact with others (Leary, 1991). Social anxiety is likely to play an important role in job interviews, as they involve social interaction between applicants and interviewers. Research to date, however, has not explored this possibility.

As discussed, the construct of interview anxiety was expected to contain five underlying dimensions: Communication Anxiety, Appearance Anxiety, Social Anxiety, Performance Anxiety, and Behavioral Anxiety.

Admittedly, it is possible that other factors could come into play, but these are believed to be the core dimensions. These dimensions were derived from separate theoretical streams of research (i.e., test-taking anxiety, communication anxiety, social anxiety). As a result, existing investigations on the dimensions are fragmented, and studies have not examined how the different dimensions relate to one another. Moreover, no existing measure assesses all five of the relevant dimensions of anxiety in a job interview context. The MASI was designed to fill this niche by providing an assessment of the five aforementioned anxiety dimensions in a single instrument using items that reflect a job interview context.

Exploration of the nomological network. The third main goal of this work was to begin establishing the nomological network of variables surrounding the construct of employment interview anxiety. Consistent with the recommendations of Murphy and Davidshofer (2001), 11 measures were included that would enable an assessment of the concurrent, discriminant, convergent, and criterion-related validity of the interview anxiety scales. With respect to the first two types of evidence of validity, Murphy and Davidshofer (2001) suggest that a test should correlate with measures that it is theoretically related to (concurrent validity) but should not correlate highly with conceptually different or "nuisance" constructs (discriminant validity). To assess concurrent validity, several measures of anxiety, as experienced in day-to-day life (described below in more detail), were included in the questionnaire that participants completed. In contrast, discriminant validity was assessed by examining the relations between job interview anxiety and socially desirable responding. The third type of evidence of validity, convergent validity, reflects the extent to which measures of the same construct, which are obtained from two different methods, are related (Murphy & Davidshofer, 2001). Convergent validity was assessed by examining the relation between applicant self-ratings of interview anxiety and job interviewer ratings of applicant anxiety. Finally, criterion-related validity was explored by examining the relations between interview anxiety and interview performance. The expected valence and magnitude of the predicted relations were delineated a priori. Magnitude was conceptualized in a manner consistent with Cohen and Cohen (1975; small = .10 to .29, medium = .30 to .49, and large = .50 to 1.00).

Concurrent validity was assessed by having applicants complete several measures that examine anxiety in day-to-day life, as opposed to specifically during job interviews. The first was a general measure of communication anxiety that examines conversation-related anxiety—the Dyadic Communication scale from the Personal Report of Communication Apprehension (McCroskey, 1982). The second measure examined the amount of appearance-related anxiety that individuals experience in their day-to-day lives—the Physical Appearance scale of the Stage Fright Questionnaire (Bippus & Daly, 1999). The third and fourth measures examined the

amount of social anxiety that applicants experience in their daily lives. These measures included the Public subscale of the Self-Consciousness Measure (Fenigstein, Scheier, & Buss, 1975) and the Social Confidence scale of the Jackson Personality Inventory–Revised (Jackson, 1994). The fifth and sixth measures assessed the amount of performance-related anxiety that applicants experienced. The first was the Worry dimension of the Test Attitude Inventory (Speilberger, 1980), which examines feelings of apprehension about failing when placed in test-taking situations. The second was the Anxiety scale of the Jackson Personality Inventory–Revised (Jackson, 1994). This scale focuses on individual cognitions by examining the extent to which an individual is worried or distressed in regards to daily life activities, including performance-related events. Finally, the Emotionality subscale from the Test Attitude Inventory (Spielberger, 1980) was included to assess symptoms that are consistent with activation of the autonomic nervous system (e.g., fast heartbeat, sweaty hands) when placed in test-taking situations. Each of the aforementioned scales was expected to be most strongly related to the corresponding type of job interview anxiety (e.g., general communication was expected to relate most strongly to MASI Communication Anxiety). Positive, but small relations were expected with less relevant MASI anxiety scales (e.g., general communication and MASI Social Anxiety).

The self-deception scale (Paulhus, 1991), a measure of social desirability, was used to assess the discriminant validity of the MASI. The emphasis of discriminant validity is on distinguishing one's measure from likely sources of nuisance variance (Campbell & Fiske, 1959). Social desirability is arguably one of the most pervasive sources of nuisance variance in self-report measures (Goffin & Helmes, 2000; Jackson, 1970), thus, it was logical to base our discriminant validity evaluation on such a measure. It was anticipated that the relations between the MASI scales and the self-deception scale would not be too high to call into question the distinction between the construct of interview anxiety and the construct of social desirability. However, anxiety is an inherently undesirable characteristic. As a result, small negative relations, as opposed to no relations, between MASI scales and the self-deception scale were expected.

To allow an assessment of convergent validity, job interviewers were asked to rate each interviewee's anxiety level (i.e., Observed Anxiety). It was anticipated that Observed Anxiety ratings would be most strongly influenced by the overt anxiety-related behaviors exhibited by applicants, such as perspiration, fidgeting, and trembling. Consequently, the MASI Behavioral Anxiety scale was expected to exhibit a medium sized relation with Observed Anxiety. Small positive relations were expected with the other types of interview anxiety.

Finally, two variables were included to assess the criterion-related validity of the interview anxiety scales: interviewer ratings of applicant

performance in the job interview, and applicants' post-interview self-ratings of their performance in the job interview. As previously mentioned, only three studies have assessed the link between anxiety and performance in actual job interview contexts. The first investigation found no relation ($r = -.06$) between a measure of general anxiety and interviewer ratings of job interview performance (Keenan, 1978). The second study found that individuals with high communication anxiety scores were less likely to be recommended for hiring, were perceived as less trustworthy, and were viewed as less task-oriented than individuals with low communication anxiety (Ayres & Crosby, 1995). The third study found that trait anxiety was negatively related to the number of second interviews ($r = -.21$) and the number of job offers that candidates received ($r = -.11$; Cook et al., 2000).

In addition to the aforementioned studies, there have been several investigations assessing the relation between test-taking anxiety and test performance. Seipp (1991) conducted a meta-analytic review of educational testing research and found an average correlation of $-.21$ (uncorrected) between test-taking anxiety and test performance, based on 156 independent samples. In addition, Arvey et al. (1990) examined the relation between test-taking anxiety and test performance in a personnel selection context. Consistent with findings in the educational realm, Arvey et al. found a moderate negative relation between test-taking anxiety and scores on a cognitive ability test ($r = -.35$). Thus, collectively, the relevant literature led us to anticipate small negative relations of the interview anxiety scales with interviewer- and self-ratings of interview performance. Significant multiple correlations were also anticipated between the set of five MASI dimensions and performance in the interview (interviewer-rated and self-rated).

Ultimately, assessment of the nomological network of variables surrounding job interview anxiety was extremely valuable, as it afforded an examination of the concurrent, discriminant, convergent, and criterion-related validity of the interview anxiety scales. However, it is important to acknowledge that the assessment of convergent and criterion-related validity were, of necessity, restricted by the use of single-item measures. The issues associated with this limitation are considered in the discussion section of this paper.

Phase 1: Development of the Measure of Anxiety in Selection Interviews

The first phase of this research involved generating items for the Measure of Anxiety in Selection Interviews (MASI). The development of the MASI was based on the deductive method of test development that has

been recommended by Jackson (1970, 1971) and Spector (1992). Following this technique, a clear definition of the construct was generated before items were written. To conceptualize the construct of interview anxiety, the extensive theoretical and empirical research that has been conducted on the construct of anxiety, as well as existing anxiety scales, was reviewed (see previous discussion). Ultimately, the construct of interview anxiety was defined as: feelings of nervousness or apprehension that are relatively stable within job applicants across employment interview situations and can be organized into five distinct dimensions: Communication Anxiety, Appearance Anxiety, Social Anxiety, Performance Anxiety, and Behavioral Anxiety (as previously described).

Stemming from the definitions, a total of 52 items were written for the initial item pool. As recommended by Spector (1992), efforts were made to keep the items relatively short in length, base them on concrete ideas, include only straightforward language, and ensure that each item described only one idea. A mix of positively and negatively keyed items was also included to control for acquiescent responding. However, double negatives were avoided (Spector, 1992), and this resulted in fewer negatively keyed than positively keyed items. Given that the construct of interview anxiety has an inherently undesirable connotation, consideration was also given to social desirability response bias. This was accomplished by omitting the word "anxiety" from the title of the questionnaire that applicants received and by avoiding item content that would reflect extreme (high or low) levels of desirability (Jackson, 1971). A 5-point response scale was used for each item: 1 = *strongly disagree*, to 5 = *strongly agree*.

After all items were generated, they were carefully reviewed by three independent judges (each with considerable experience in personality and test construction) in order to ensure the relevance of each item to its intended scale, an appropriate reading level, the description of only one idea, freedom from extreme levels of desirability, and appropriate language. The items were also assessed with the Flesch-Kincaid readability level index, which indicated that the readability level of the MASI was 8.61 (i.e., eighth to ninth grade reading level). As recommended by Spector (1992), the next course of action was to administer the item pool to a sample of participants to assess the psychometric properties of the scales and the need for item deletion and/or refinement.

Participants and Procedure

A total of 212 students at a large North American university completed an anonymous survey booklet. The mean age was 21.23, and 51% were male. Participants were asked to imagine that they were applying for a desirable managerial job at a large telecommunications company and

would be undergoing a job interview the next morning. This target job represented a position that many university graduates would be qualified to fill and eager to obtain.

Measures

The survey booklet contained two main sections. The first section assessed demographic information (i.e., age, year of university, and number of previous interviews). The second section contained 52 items from the MASI item pool and 18 items from the Self-Deception scale of the BIDR (Paulhus, 1991). The Self-Deception scale measures the extent to which individuals unintentionally respond in a socially desirable fashion and was included to enable an assessment of the social desirability contamination in each item. The internal consistency reliability of the Self-Deception scale has been found to be between .68 and .80 (Paulhus, 1991). All items were presented in a randomized order.

Phase 1 Results

Psychometric Properties of the Item Pool

The psychometric properties of the MASI item pool are presented in the upper portion of Table 1. As illustrated, internal consistency reliabilities for the five MASI scales were acceptable ($r = .72$ to $.83$; Murphy & Davidshofer, 2001) and mean corrected item-total correlations with the respective MASI subscales were good ($r = .42$ to $.51$). In addition, all items exhibited a higher mean item-total correlation with their keyed scale than with the Self-Deception scale. Finally, correlations among the five scales were medium to large in magnitude ($r = .47$ to $.72$). Consequently, a MASI composite was created by unit-weighting and combining the five MASI scales.

Confirmatory Factor Analysis

The dimensionality of the MASI was assessed by conducting confirmatory factor analyses using Amos 4.10 (Arbuckle, 1999). Maximum likelihood estimation was used, and five fit indices were employed: the chi-square index, the relative noncentrality index (RNI, Goffin, 1993; McDonald & Marsh, 1990), the normed fit index (NFI, Bentler & Bonnett, 1980), the standardized root mean residual (SRMR, Hu & Bentler, 1998), and the root mean square error of approximation (RMSEA, Steiger, 1989). For the RNI and NFI, values approaching 1.0 indicate good fit. In the case of the SRMR and RMSEA, values approaching 0 indicate a good

TABLE 1

Psychometric Properties of the MASI Item Pool and the Final MASI

Scales	M	SD	α	$r_{(iI)}$	$r_{(iD)}$	Scale intercorrelations				
						1	2	3	4	5
Phase 1: MASI Item Pool (N = 203)										
1. Communication	2.57	.57	.82	.48	−.17	—				
2. Appearance	2.59	.65	.72	.44	−.18	.47	—			
3. Social	2.62	.57	.77	.42	−.17	.71	.56	—		
4. Performance	2.64	.64	.83	.51	−.17	.72	.58	.72	—	
5. Behavioral	2.34	.58	.82	.47	−.21	.70	.50	.64	.62	—
6. MASI Composite	2.55	.50	.94	.47	−.17	.85	.76	.86	.88	.82
Phase 2: Final MASI (N = 270)										
1. Communication	2.52	.73	.79	.56	−.19	—				
2. Appearance	2.24	.61	.69	.42	−.11	.37	—			
3. Social	2.42	.71	.79	.55	−.20	.59	.61	—		
4. Performance	2.64	.79	.83	.61	−.20	.66	.44	.65	—	
5. Behavioral	2.47	.69	.73	.47	−.16	.50	.35	.53	.59	—
6. MASI Composite	2.46	.56	.92	.48	−.18	.80	.68	.86	.86	.75

Note. MASI Composite = Communication Anxiety + Appearance Anxiety + Social Anxiety + Performance Anxiety + Behavioral Anxiety. Item scores ranged from 1 to 5. M = average item mean; SD = average item standard deviation; $r_{(iI)}$ = mean corrected correlation of each item with its own MASI facet subscale; $r_{(iD)}$ = mean item-total correlation of each item with the Self-Deception scale; Fisher's r to z transformation was used for computing mean item-total correlations.

All correlations are significant at $p < .01$.

fit. Factors were allowed to correlate, as the dimensions of MASI were expected to be related.

As described, interview anxiety was expected to be a multidimensional construct that includes five dimensions. In addition to the five-factor model, one-factor and two-factor models were assessed. The one-factor model was tested to examine the possibility that interview anxiety is a unidimensional construct. The two-factor model was based on aforementioned research suggesting that test-related anxiety consists of two dimensions: Performance Anxiety (i.e., Worry) and Behavioral Anxiety (i.e., Emotionality; Spielberger, 1980). To assess the two-factor model, items reflecting Performance Anxiety were grouped together, and items reflecting Behavioral Anxiety were grouped together. Three- and four-factor models were not examined because there was no a priori rationale for testing these structures.

Results of the confirmatory factor analyses are presented in the top portion of Table 2. As illustrated, the five-factor model demonstrated the

TABLE 2

Confirmatory Factor Analysis of the MASI Item Pool and the Final MASI

Model	df	chi-square	RNI	NFI	SRMR	RMSEA
Phase 1: MASI item pool ($N = 203$)						
1-factor	1274	2213.97***	.96	.91	.07	.060
2-factor	1273	2155.77***	.96	.92	.07	.058
5-factor	1264	2064.00***	.97	.92	.07	.056
Phase 2: Final MASI ($N = 270$)						
1-factor	405	1113.68***	.96	.94	.07	.081
2-factor	404	1049.13***	.97	.94	.07	.077
5-factor	395	792.26***	.98	.96	.06	.061

Note. RNI = Relative Noncentrality Index; NFI = Normative Fit Index; SRMR = Standardized Root Mean Residual; RMSEA = Root Mean Square Error of Approximation.
*** $p < .001$.

best fit to the data. Although the chi-Square was significant, the RNI and NFI indices were highest for the five-factor model. In addition, the SRMR and RMSEA estimates suggested that the five-factor model was superior and was a reasonable fit to the data. Further support for the five-factor model was obtained from chi-squared difference tests, which resulted in significant differences between the one- and five-factor model ($\chi^2_{(10)} = 149.97$, $p < .001$), and the two- and five-factor model ($\chi^2_{(9)} = 91.77$, $p < .001$). Finally, with the exception of three items, all standardized loadings for the five-factor model were greater than .30 (average = .52), and were significantly different from zero.

Revision of the MASI

A comprehensive series of item-level analyses, confirmatory factor analyses and an expert sorting task were considered when making decisions on whether item deletion and/or rewording would be advantageous. Revisions were based on several criteria: (a) items with small standard deviations or extreme means, (b) items exhibiting high correlations with the Self-Deception scale, (c) items with particularly low corrected item-total correlations (d) items correlating substantially less with their own scale than with the other MASI scales, (e) items exhibiting particularly low factor loadings, and (f) items identified as problematic in the expert sorting task. Ultimately, the six items from each scale that demonstrated the strongest psychometric properties were retained. Minor wording changes were made to 14 of the retained items. Consequently, the

final version of the MASI contained 30 items (five 6-item scales, see Appendix A).

Phase 2: Field Evaluation of the Measure of Anxiety in Selection Interviews

The second phase of this research involved determining the psychometric properties of the final MASI, assessing the dimensionality of interview anxiety, and exploring a portion of the nomological network of variables surrounding interview anxiety using actual job applicants.

Participants and Procedure

The initial sample consisted of 514 applicants to a wide range of managerial and professional positions in several different medium-to-large organizations. Employment interviews had been organized through the career services division at a large North American university and were conducted in a campus building. When applicants arrived for their interviews, they were provided with a summary of this study and a questionnaire package. If they chose to participate, they were asked to complete the questionnaire after they had finished their job interview. A total of 276 completed questionnaires were obtained, resulting in a response rate of 54%. The mean age of job applicants was 24.8, and 164 (60.7%) were male. Company data revealed that the majority of applicants (approximately 90%) were administered a structured job interview. The remaining 10% were unstructured.

In the final step, interviewers completed ratings of applicant performance and anxiety in the interview. Interviewers were not informed of the true goals of the study in order to avoid biasing the results. Ultimately, 182 interviewers (82% male) provided ratings of the candidates. Earlier discussions with interviewers underlined the importance of keeping the interviewers' ratings strictly confidential. It was also clear that many interviewers had a compressed schedule of interviews to administer and would forego participation in this study if the time required to participate was not minimized. Thus, we did not collect complete demographic information from the interviewers for the dual purposes of ensuring confidentiality of the sensitive interview ratings they provided and reducing their time commitment. Nonetheless, conversations with, and observations of, the interviewers suggested that the typical age of interviewers was between 35 and 50, and that the majority had a great deal of experience conducting job interviews.

Measures Administered to Interviewees

A questionnaire package containing four sections was administered to each job applicant. The items were presented in a randomized order within sections and two different orders of presentation were used to control for order effects. Section I requested demographic information (i.e., age, number of previous interviews). Section II contained the 30 MASI items (Appendix A) and employed the 5-point response scale described in Phase 1. Section III asked applicants to rate their performance in the interview with the item: "How would you describe your level of performance in the job interview you just had?" (1 = *very poor* to 5 = *excellent*). Section IV contained scales used for assessment of concurrent and discriminant validity of the MASI. A total of eight scales were included in this section: the Dyadic Communication dimension of the Communication Apprehension Scale (6 items; McCroskey, 1982); the Physical Appearance scale of the Reasons for Stage Fright Questionnaire (4 items; Bippus & Daly, 1999); the Social Confidence scale of the Jackson Personality Inventory–Revised (12 items; Jackson, 1994); the Public subscale of the Self-Consciousness Measure (7 items; Fenigstein et al., 1975); the Worry and Emotionality subscales from the Test Attitude Inventory (8 items each; Spielberger, 1980); the Anxiety subscale of the Jackson Personality Inventory–Revised (12 items; Jackson, 1994); and the Self-Deception scale of the Balanced Inventory of Desirable Responding (18 items; Paulhus, 1991). It is noteworthy that the Physical Appearance scale was originally designed to measure stage fright and the Worry and Emotionality scales were originally designed to measure test-taking anxiety. However, general measures of Appearance, Performance, and Behavioral Anxiety could not be found. Therefore, items from these scales were adapted in order to ensure that they would apply to a more general context. The same 5-point format that was used for the MASI was used for these scales. As illustrated in Table 3, each of these measures exhibited adequate internal consistency reliability.

Measures Administered to Interviewers

Job interviewers rated the interviewees using two items: "Please indicate the applicant's overall performance in the job interview," and "Please indicate the applicant's level of anxiety in the job interview." Ratings were based on the Relative Percentile Method (RPM; Goffin, Gellatly, Paunonen, Jackson, & Meyer, 1996). Following standard RPM instructions, ratings were made on a 0-100 scale where 50 represented the *average* performance/anxiety of the applicant's peer group. The RPM technique was selected to facilitate accurate discrimination among the applicants (see Goffin et al., 1996; Wagner & Goffin, 1997).

TABLE 3

Means, Standard Deviations, Internal Consistency Reliabilities, and Intercorrelations of Phase 2 Variables

Variables	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Interview Anxiety Scales																			
1. MASI Communication Anxiety	2.52	.73	.79																
2. MASI Appearance Anxiety	2.24	.61	.37	.69															
3. MASI Social Anxiety	2.42	.71	.59	.61	.79														
4. MASI Performance Anxiety	2.64	.79	.66	.44	.65	.83													
5. MASI Behavioral Anxiety	2.47	.69	.50	.35	.53	.59	.73												
6. MASI Composite	2.46	.59	.80	.68	.86	.86	.75	.92											
Construct Validity Scales																			
7. Dyadic Communication	2.38	.63	**.54**	.30	.39	.40	.37	.51	.79										
8. Physical Appearance	2.56	.82	.24	**.40**	.44	.36	.21	.41	.31	.75									
9. Public Self-Consciousness	3.22	.56	.03	.36	**.36**	.23	.10	.27	-.07	.46	.65								
10. Social Confidence[a]	3.40	.47	.39	.20	**.29**	.24	.24	.35	.68	.34	.04	.74							
11. JPI General Anxiety	2.31	.75	.22	.24	.31	**.42**	.35	.40	.15	.35	.32	.09	.87						
12. Worry	3.04	.43	.32	.28	.27	**.46**	.35	.43	.27	.35	.11	.20	.45	.60					
13. Emotionality	2.71	.80	.30	.31	.38	.52	**.52**	.52	.31	.38	.25	.20	.57	.74	.88				
14. Self-Deception	3.25	.36	-.26	-.24	-.28	-.26	-.24	-.32	-.29	-.20	-.12	-.21	-.16	-.23	-.23	.62			
15. Observed Anxiety	2.13	1.12	.23	.00	.02	.03	**-.01**	.09	.25	.00	-.05	.30	-.16	.03	-.11	.06	–		
16. Interviewer-Rated Interview Performance	3.07	1.04	-.28	-.20	-.11	-.10	-.07	-.19	-.28	-.08	.02	-.31	.15	-.07	-.04	.08	-.49	–	
17. Self-Rated Interview Performance	3.57	.91	-.49	-.15	-.33	-.42	-.16	-.41	-.27	-.15	.03	-.32	-.19	-.25	-.16	.25	-.16	-.49	.24

Note. N = 182 to 270. MASI Composite = Communication Anxiety + Appearance Anxiety + Performance Anxiety + Social Anxiety + Behavioral Anxiety. Item scores ranged from 1–5. Internal consistency reliabilities are on the diagonal. Boldface values equal correlations that were expected to be medium to large. Correlations ≥.15 are significant at *p* < .05; correlations ≥.19 are significant at *p* < .01.
[a]The Social Confidence scale was reverse-keyed.

Phase 2 Results

Psychometric Properties of the MASI

The psychometric properties of the final MASI items are presented in the lower portion of Table 1. As illustrated, internal consistency reliabilities for the five MASI scales were acceptable (.69 to .83). In addition, corrected item-total correlations were good (mean $r = .42$ to .61) and were uniformly higher than the respective correlations with the Self-Deception scale. Finally, correlations among the five scales were medium to large in magnitude ($r = .35$ to .66). Consequently, a MASI composite was formed by unit-weighting and combining the five MASI scales. When compared to the psychometric properties of the initial MASI item pool, the final MASI scales were found to be equal, or superior.

Dimensionality of the MASI

In the next step, the dimensionality of the MASI was assessed by conducting confirmatory factor analyses on the variance-covariance matrix using Amos 4.10 (Arbuckle, 1999). As illustrated in the lower portion of Table 2, the five-factor model demonstrated the strongest fit to the data. Although the chi-square index was significant, the RNI was highest for the five-factor model (RNI = .98). In addition, the RMSEA for the five-factor model suggested that this model was a fair fit to the data (RMSEA = .06). Further support for the five-factor model was obtained from a chi-squared difference test, which resulted in a significant difference between the one- and five-factor models ($\chi^2_{(10)} = 321.42$, $p < .001$), as well as a significant difference between the two- and five-factor models ($\chi^2_{(9)} = 256.87$, $p < .001$). Finally, all standardized factor loadings for the five-factor model were greater than .40 (average loading = .60) were significantly different from zero. Combined, these analyses indicated that the five-factor model evidenced a fit that was superior to that of the one-factor and two-factor models.

Construct Validity of the MASI

To allow an evaluation of the construct validity of the MASI, specific hypotheses about the relations between interview anxiety and 11 variables in the surrounding nomological network were made (see previous discussion).

Concurrent validity. Consistent with predictions, the seven variables that were included to assess concurrent validity generally evidenced significant positive relations with the five dimensions of interview

anxiety (Table 3). Two exceptions were the relation between Public Self-Consciousness and MASI Communication Anxiety ($r = .03$) the relation between Public Self-Consciousness and MASI Behavioral Anxiety ($r = .10$). Support was also obtained for the majority of specific predictions. To be precise, in 21 of 28 comparisons, the concurrent validity scale was more strongly correlated with the relevant MASI scale than with the remaining MASI scales. For example, the Dyadic Communication scale evidenced a significantly stronger correlation with the MASI Communication scale than with the MASI Appearance scale. In six of the remaining cases, the relation between the concurrent validity scale and the relevant MASI scale was not significantly higher than the relation with a nonrelevant MASI scale. For example, the relation between Public Self-Consciousness and MASI Social Anxiety was not significantly different than the relation between Public Self-Consciousness and MASI Appearance Anxiety. Finally, there was only one case where the MASI was more strongly correlated with the wrong dimension—the Social Confidence scale was more strongly correlated with the MASI Communication scale than with the MASI Social scale. In retrospect, this finding is not surprising, as four of the items from the Social Confidence scale were directly related to the assessment of verbal communication.

Discriminant validity. As illustrated in Table 3, support was obtained for the discriminant validity of all five MASI dimensions. As predicted, the relations between the Self-Deception scale and the five MASI dimensions were negative and small ($r = -.24$ to $-.28$).

Convergent validity. Interviewer ratings of anxiety (i.e., Observed Anxiety) were expected to demonstrate small positive relations with each dimension of the MASI. One exception was the relation between Observed Anxiety and the MASI Behavioral Anxiety scale, which was expected to be medium in magnitude. These predictions were not supported—Observed Anxiety demonstrated a significant relation with only the MASI Communication Anxiety scale (Table 3).

Criterion-related validity. Small negative relations were anticipated between the two interview performance measures and the five MASI dimensions. This prediction was generally supported for the relations between the MASI and interviewer-rated interview performance—correlations ranged from $-.07$ to $-.28$. The relations between self-rated interview performance and the five MASI scales were somewhat higher, ranging from $-.15$ to $-.49$. It is also interesting to note that the relation between interviewer-rated applicant anxiety and interviewer-rated interview performance was $-.46$, $p < .01$.

In the next step, an assessment of how well the five dimensions of the MASI, as a set, predicted interviewer performance was conducted.

Findings indicated that the five MASI dimensions, as a set, predicted a significant amount of variance in both interviewer-rated interview performance ($R = .34$; $R^2_{(adj)} = .09$; $p < .01$) and self-rated interview performance ($R = .54$; $R^2_{(adj)} = .28$; $p < .01$).

Context specificity. In the final step of construct validation, a comparison between the validity of context-specific (i.e., interview anxiety as measured by the MASI), and noncontext specific (i.e., general anxiety) measures was conducted. These analyses were deemed important, as past research has suggested that the use of context-specific items provides individuals with a common frame of reference, and serves to increase the criterion-related validity of the scale (Schmit et al., 1995). To this end, hierarchical regression analyses were used to assess the extent to which the MASI predicts interviewer-rated interview performance above and beyond that of the seven general anxiety scales discussed in the concurrent validity section. The extent to which the general measures of anxiety account for variance in interviewer-rated interview performance above and beyond that of the MASI was also examined. Consistent with Schmit et al. (1995), it was anticipated that the MASI would provide incremental validity in the prediction of interview performance above that obtained by the general measures of anxiety but that the general measures would not provide incremental validity over and above that obtained by the MASI.

The first set of regressions (Table 4, rows 1–7) assessed which, if any, general anxiety scales added to prediction beyond the five MASI scales (and vice-versa). The interpretation of findings was based on the adjusted R^2 values, which act to statistically control for the bias introduced by the number of predictors in the analyses (i.e., five MASI predictors vs. a single general anxiety scale). In general, the adjusted ΔR^2 values indicated that the general anxiety scales added little or nothing to the prediction of interview performance beyond that which was obtained using the MASI ($\Delta R^2_{(adj)} = .00$ to $.03$). In contrast, the MASI significantly added to the prediction of interview performance that was obtained by the general anxiety scales in every case ($\Delta R^2_{(adj)} = .03$ to $.11$). Combined, these analyses suggest that although little or no incremental validity is obtained by adding general anxiety scales to the MASI, the MASI provides a small degree of incremental validity above that obtained by the majority of general measures.

The second set of regressions (Table 4, row 8) assessed the extent to which the context-specific MASI adds to the prediction of interview performance obtained by a noncontextualized conglomerate measure of general anxiety (and vice-versa). The general anxiety conglomerate included the five relevant dimensions of interview anxiety but as experienced in general

TABLE 4

Validity of the MASI and the General Anxiety Scales in Predicting Interviewer-Rated Interview Performance

General anxiety scale	Squared multiple correlations				
	MASI[a]	General anxiety scale[b]	MASI and general anxiety scale[c]	$\Delta R^2_{\text{general anxiety}}$[d]	ΔR^2_{MASI}[e]
1. JPI Anxiety	.12** (.09)	.02* (.02)	.15** (.12)	.04** (.03)	.13** (.11)
2. Dyadic Communication	.12** (.09)	.08** (.08)	.14** (.11)	.03* (.02)	.06* (.03)
3. Physical Appearance	.12** (.09)	.01 (.00)	.12** (.09)	.00 (.00)	.11** (.08)
4. Social Confidence	.12** (.09)	.10** (.09)	.16** (.13)	.04** (.03)	.06* (.03)
5. Public Self-Consciousness	.12** (.09)	.00 (.00)	.12** (.09)	.00 (.00)	.12** (.10)
6. Worry	.12** (.09)	.01 (.00)	.12** (.09)	.00 (.00)	.11** (.08)
7. Behavioral	.12** (.09)	.00 (.00)	.12** (.09)	.00 (.00)	.11** (.08)
8. General Anxiety Conglomerate	.12** (.09)	.10** (.06)	.15** (.10)	.04 (.01)	.06* (.03)

Note. $N = 182$.

[a]R^2 resulting from regressing interview performance onto the MASI.

[b]R^2 resulting from regressing interview performance onto each General Anxiety Scale.

[c]R^2 resulting from regressing interview performance onto the MASI and each General Anxiety Scale.

[d]change in R^2 from adding each measure of General Anxiety to the equation that contains the MASI.

[e]change in R^2 from adding the MASI to the equation that contains the respective General Anxiety scale. Adjusted R^2 are in brackets.

$*p < .05$ $**p < .01$.

life situations: Dyadic Communication (McCroskey, 1982), Physical Appearance (Bippus & Daly, 1999), Public Self-Consciousness (Fenigstein et al., 1975), Worry (Spielberger, 1980), and Emotionality (Spielberger, 1980). As a result, the composite scale applies to several evaluative situations, including job interviews, selection tests, and performance appraisals. The predictiveness of the conglomerate was assessed by entering the five scales as a set in the multiple regression analyses. Regressions involving the general anxiety conglomerate allowed a fair test of the superiority of context-specific (MASI) versus noncontext-specific instruments, as both measures were comprised of similar dimensions. Results indicated that the conglomerate did not significantly predict interview performance above and beyond the MASI ($\Delta R^2_{(adj)} = .01$, ns). However, the MASI did provide a slight improvement in prediction above and beyond the conglomerate ($\Delta R^2_{(adj)} = .03$, $p < .05$). Combined, the aforementioned findings suggest that there may be a predictive advantage associated with using the MASI in interview anxiety research.

Discussion

Although the employment interview often elicits feelings of anxiety among job applicants, little research has explored the role of anxiety in job interview contexts. This study fills this void by providing a theoretical basis for the construct of job interview anxiety. It also advances a psychometrically sound measure of job interview anxiety, called the Measure of Anxiety in Selection Interviews (MASI). This practical assessment tool goes beyond the measurement of "weak knees" and "sweaty palms" by providing an assessment of five distinct interview anxiety dimensions. In doing so, it represents a significant contribution to the field, as it can serve as the foundation for future research into interview anxiety. The MASI also has the potential to guide interview anxiety treatment programs, as well as promote the enhancement of interview validity.

Main Findings

Three main findings can be drawn from the results of this research. First, support was obtained for the validity and reliability of the MASI in a field setting. All five dimensions demonstrated acceptable means, standard deviations, minimum and maximum values, and internal consistency reliabilities. In addition, confirmatory factor analyses provided support for the a priori five-factor structure. Finally, evidence for the construct validity of the MASI was obtained. To be specific, concurrent, discriminant, and criterion-related validity estimates were generally consistent

with a priori predictions. In contrast, evidence of convergent validity was lower than expected—only the MASI Communication Anxiety scale evidenced a significant relation with Observed Anxiety as rated by job interviewers.

There are at least two explanations for the low relations between self-ratings and interviewer ratings of anxiety. From a statistical perspective, the small relations may be due to the potentially low level of reliability associated with the single-item measure of interviewer rated anxiety. Assuming these results are not artifactual, however, they could be due to interviewers' inability to detect applicant anxiety. Indeed, several investigations have found that observers experience difficulty judging internally oriented psychological traits (e.g., emotional stability; Hayes & Dunning, 1997). The corresponding implication is that highly anxious interviewees could be counselled to take comfort in the fact that their self-reported anxiety does not relate strongly to interviewers' perceptions of anxiety. Ultimately, future research examining interviewers' ability to detect applicant anxiety would be advantageous.

The second main finding of this research was that, consistent with predictions, all five MASI dimensions exhibited negative correlations with interview performance. Findings also revealed that the overall MASI demonstrated a *multiple correlation* of −.34 with interview performance as rated by the interviewer. This figure is impressive, as the general anxiety literature has reported meta-analytic estimates in the range of −.21 for the relation between anxiety and performance (Seipp, 1991). These findings are also congruent with research demonstrating that high levels of anxiety are negatively linked to interview performance (e.g., Ayres & Crosby, 1995; Cook et al., 2000). Finally, the results of this study are consistent with the fact that applicants with high levels of social anxiety are perceived as less socially attractive (Hawkins & Steward, 1991), and less intelligent (Richmond, Beatty, & Dyba, 1985).

The third main finding of the current program of research was that the context-specific MASI was more predictive than the noncontextualized general anxiety scales. Indeed, findings indicated that the MASI provided incremental validity in the prediction of interview performance above several general measures of anxiety. Similarly, the MASI significantly added to the prediction obtained by a general anxiety conglomerate. Thus, not only did the MASI achieve prediction that was slightly superior to that afforded by the available collection of scales, it did so without the inconvenience of having to assemble instruments from a diversity of sources and tailor the items to the job interview context. These findings further substantiate the value of the MASI, which was designed as a situation-specific measure of job interview anxiety. They are also consistent with evidence that that situation-specific personality items may be associated

with less error variance and higher levels of predictive validity (Robie, Schmit, Ryan, & Zickar, 2000; Schmit et al., 1995). Nevertheless, the current assessment of criterion-related and incremental validity was limited to a narrow range of criterion variables. Future research is needed in order to study the potential advantages of using the MASI to predict a myriad of other relevant criteria (e.g., job performance, organizational attractiveness, physiological indicators of interview stress).

Strengths and Limitations

This research is characterized by several notable strengths, as well as certain limitations. First, consistent with the deductive approach to scale development, the MASI was based on an a priori definition of interview anxiety that contained five underlying dimensions. In addition, separate samples were used for development and validation purposes. This allowed extensive improvements to the initial item pool and ensured that the final estimates of reliability and validity were not upwardly biased (Cureton, 1978). Furthermore, several key variables in the surrounding nomological network were examined, enabling an assessment of concurrent, convergent, discriminant, and criterion-related validity. Ultimately, this systematic scale-development process proved advantageous, as findings provided considerable evidence for the reliability and validity of the MASI. However, given that construct validation is a neverending process (Schwab, 1980), it would be advantageous for future research to examine additional measures in the nomological network surrounding interview anxiety. These may include, for example, physiological measures of anxiety (i.e., galvanic skin resistance, heart rate), objective measures of interview performance (i.e., number of errors, quality of answers), measures of applicant reactions (i.e., motivation, perceptions of justice), and performance on the job.

A second notable strength is that this program of research included data from multiple sources. As mentioned, separate groups of participants were used for the development and validation of the MASI. Participants in Phase 1 included a large sample of students, who were asked to imagine that they were applying for a job interview. Although the use of student samples for initial scale development is consistent with recommended procedures (Spector, 1992), generalizability may be an issue. For this reason, Phase 2 contained a large number of actual job applicants, as well as interviewers from a variety of different organizations. This increased the generalizability of findings, as a wide range of interviewers, job applicants, organizations, and job positions were examined. It was also consistent with the purpose of this study—to develop a measure of job interview anxiety that would be suitable for different organizations, applicants, and jobs.

The corresponding limitation, however, was a reduction in the specificity of findings. To this end, an important step for future research would be to examine the MASI with more defined populations (i.e., blue-collar vs. white-collar positions), and types of interviews (i.e., panel vs. individual). It would also be advantageous for future research to assess applicants with longer work histories. Although participants in Phase 2 of this research were real job applicants, they were also graduating university students.

A third strength of this work is that it examined the nomological network surrounding job interview anxiety using a combined lab–field approach. This methodology afforded an examination of the concurrent, discriminant, convergent, and criterion-related validity of the interview anxiety scales. Although this information was extremely valuable, it is important to note that the least compelling analyses from the nomological network were the correlations with the single-item scales (i.e., interviewer ratings of applicant anxiety, interviewer ratings of applicant performance, self-ratings of applicant performance). The use of single-item scales was deemed necessary, as it minimized the amount of work required by each interviewer and helped to ensure organizational participation. Moreover, we used a single-item format, called the Relative Percentile Method, which has been shown to have advantages in past research (Goffin et al., 1996; Goffin & Jelley, 2003; McCarthy & Goffin, 2001; Wagner & Goffin, 1997). Nevertheless, internal consistency reliability for these scales may have been limited, suggesting that current findings may be underestimates of true relations. Future research would clearly benefit from the use of multi-item criterion scale ratings. This is a particularly important consideration for future studies that may include job offers or ratings of on-the-job performance as criterion variables.

Finally, interviewee and interviewer responses to the MASI scales, the convergent validity scales, and the interview performance scales were for research purposes only. This is advantageous because it is likely to engender less dissimulation on the part of the interviewees and more accurate ratings by interviewers (McIntyre, Smith, & Hassett, 1984). In addition, all measures were administered *after* the job interviews were complete. This strategy was deemed essential because if candidates were asked to complete the questionnaire package immediately before their interviews, then applicant anxiety might be artificially increased. Moreover, the MASI was designed to assess the amount of anxiety experienced by applicants during job interview situations. Having applicants respond to the MASI after their job interview was complete provided a recent frame of reference and helped to ensure a vivid recollection of the amount of anxiety experienced during job interview situations.

Although administration of the MASI *after* the interviews were complete made intuitive sense, it introduced the potential for applicants' perceptions of their performance in the interview to have an effect on their self-reported MASI scores. However, supplementary analyses showed that the MASI predicted interviewer ratings of interview performance above and beyond the prediction obtained by applicants' self-perceptions of interview performance ($\Delta R^2 = .07$; $\Delta R^2_{(adj)} = .05$; $p < .05$). This finding is equivalent to a multiple correlation of .26, and suggests that interview anxiety has an effect on interview performance that is independent of interviewees' perceptions of how well they performed in the interview. Nevertheless, additional research, possibly using time series and/or experimental designs, is required to explore the directionality of this relation.

Future Directions

Given that the study of job interview anxiety is a relatively new realm, there are several important avenues for future research. In particular, it would be advantageous for future research to examine the links between applicant anxiety, interview performance, hiring decisions, and job performance. This would enable an assessment of whether job interview anxiety masks an applicants' true likelihood of success on the job and ultimately results in the selection of less promising candidates. Indeed, the observed negative relation between the MASI scales and interview performance in this research suggests that anxiety *may* introduce irrelevant variance into interview scores, which could result in a less accurate prediction of job performance. This may lead to a particularly disadvantageous situation for the more anxious individuals, as high levels of job interview anxiety may lower interviewer ratings of interview performance even though these high levels are unlikely to have a direct influence on job performance in the types of positions for which current applicants were competing (i.e., managerial and professional positions). In those situations where withstanding job interview anxiety *is* believed to be a key competency of the job, more focused measurement techniques, such as work sample tests, could be incorporated into personnel selection procedures.

Although the potential for predictive bias stemming exclusively from interview anxiety has yet to be examined, Schmit and Ryan (1992) found evidence of predictive bias in standardized selection tests. Schmit and Ryan assessed whether a composite measure of test-taking attitudes moderated the relations between selection instruments and job performance. Results indicated that applicants' test-taking attitudes (i.e., high motivation, low

anxiety) moderated the validity of a cognitive ability test, as well as a personality test. In particular, the criterion-related validity of a cognitive ability test was stronger for participants with more positive test-taking attitudes. Additional work along these lines is clearly needed.

Implications

Several meaningful implications for organizations, career counselors, and job applicants can be derived from the findings of this investigation. Most important, the results attest to the potential value of reducing interview anxiety among job applicants, as MASI scores were negatively linked to interview performance. Although the causality of this relation was not directly assessed, findings suggested that interview anxiety has a negative relation with interviewer ratings of interview performance. Techniques to reduce applicant anxiety may therefore increase the comfort level, as well as interview performance, of job candidates. The reduction of applicant anxiety may also benefit organizations because, as previously discussed, interview anxiety may reduce the predictive validity of the interview.

From an organizational perspective, the reduction of applicant anxiety could be accomplished by developing training programs that are specifically aimed at reducing interview anxiety. Although a large number of studies have examined the effects of interviewee training on interview performance (Arvey & Campion, 1982), the majority have focused on specialized populations, including substance abusers, psychiatric patients, and prison inmates (Palmer, Campion, & Green, 1999). Moreover, existing programs have focused almost exclusively on increasing applicants' interviewing skills (i.e., verbal communication) and have failed to incorporate anxiety-reduction techniques into their agendas (Palmer et al., 1999). This is surprising, as anxiety-based programs may improve applicants' ability to process information during the interview and are likely to reduce the amount of error inherent in the interview process. Although interview anxiety workshops have yet to be developed, several anxiety-reducing techniques and coping strategies have been developed in the realm of clinical psychology (e.g., relaxation training, cognitive behavioral therapy) and may provide the basis for programs aimed at reducing interview anxiety among job applicants. Ultimately, applicant training sessions that combine anxiety management techniques (i.e., relaxation therapy) with the improvement of interview skills (i.e., verbal communication) are likely to prove advantageous (Sackett, Burris, & Ryan, 1989).

Finally, programs tailored to the individual needs of job applicants may prove to be valuable. Findings of the current investigation indicated

that there are five main dimensions of interview anxiety, suggesting that the MASI could be used to generate individualized job interview anxiety profiles. Not only would this provide counselors with a comprehensive picture of an applicant's anxiety levels, but it would also offer insight on how treatment should proceed.

Conclusion

The purpose of this study was to examine the role of applicant anxiety in job interview contexts. Its primary contribution to the field of industrial-organizational psychology was the development of the MASI, which is a concise and practical measurement tool that comprehensively assesses multiple aspects of job interview anxiety. Not only does this instrument fulfill the recent call for measurement of job applicant reactions (McCarthy & Goffin, 2003; Ryan & Ployhart, 2000), but it may also provide the foundation for interview anxiety treatment programs and the enhancement of interview predictive validity. This research also provided some initial insight into the links between job interview anxiety and several variables in the surrounding nomological network. In addition, findings generated several important avenues for future research. It is hoped that the current work, and the MASI in particular, will serve as a catalyst for additional research in the realm of job interview anxiety.

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APPENDIX A

Items for the Measure of Anxiety in Selection Interviews (MASI)

Scale

Communication Anxiety

I become so apprehensive in job interviews that I am unable to express my thoughts clearly.

I get so anxious while taking job interviews that I have trouble answering questions that I know.

During job interviews, I often can't think of a thing to say.

I feel that my verbal communication skills are strong.[*]

During job interviews I find it hard to understand what the interviewer is asking me.

I find it easy to communicate my personal accomplishments during a job interview.[*]

Appearance Anxiety

I often feel uneasy about my appearance when I am being interviewed for a job.

Before a job interview I am so nervous that I spend an excessive amount of time on my appearance.

In job interviews, I worry that the interviewer will focus on what I consider to be my least attractive physical features.

If I do not look my absolute best in a job interview, I find it very hard to be relaxed.

I feel uneasy if my hair is not perfect when I walk into a job interview.

During a job interview, I worry about whether I have dressed appropriately.

Social Anxiety

While taking a job interview, I become concerned that the interviewer will perceive me as socially awkward.

I become very uptight about having to socially interact with a job interviewer.

I get afraid about what kind of personal impression I am making on job interviewers.

During a job interview, I worry that my actions will not be considered socially appropriate.

I worry about whether job interviewers will like me as a person.

When meeting a job interviewer, I worry that my handshake will not be correct.

Performance Anxiety

In job interviews, I get very nervous about whether my performance is good enough.

I am overwhelmed by thoughts of doing poorly when I am in job interview situations.

I worry that my job interview performance will be lower than that of other applicants.

During a job interview, I am so troubled by thoughts of failing that my performance is reduced.

During a job interview, I worry about what will happen if I don't get the job.

While taking a job interview, I worry about whether I am a good candidate for the job.

Behavioral Anxiety

During job interviews, my hands shake.

My heartbeat is faster than usual during job interviews.

It is hard for me to avoid fidgeting during a job interview.

Job interviews often make me perspire (e.g., sweaty palms and underarms).

My mouth gets very dry during job interviews.

I often feel sick to my stomach when I am interviewed for a job.

Note. [*]indicates a negatively keyed item. Items are rated on a 5-point response scale: 1 = *strongly disagree,* 2 = *disagree*, 3 = *feel neutral*, 4 = *agree*, 5 = *strongly agree*.