Construct Validation of the Test of Emotional Intelligence (TEMINT)

A Two-Study Investigation

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Abstract. This research seeks to further validate the Test of Emotional Intelligence (TEMINT), an ability-based measure of emotional reasoning skills that has accrued an impressive record of validating evidence. With a sample of 192 university students, Study 1 showed that TEMINT was associated most closely with the “understanding emotion” branch of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT – Mayer, Salovey, & Caruso, 2002). Study 2 was a longitudinal study with 71 employees over 2 years. TEMINT moderated both the getting-ahead motive – income relationship, and the getting-ahead motive – perceived marketability relationship, giving empirical support to the social facilitator role of emotional reasoning skills. Implications and limitations are discussed.

Keywords: Test of Emotional Intelligence (TEMINT), Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), construct validation

Introduction

In recent decades, the topic of emotional intelligence (EI) has become popular both among practitioners (Goleman, 1998) and in scientific research (Mayer, Roberts, & Barsade, 2008). EI is defined as the ability to perceive, understand, use, and manage emotions (Mayer et al., 2008). An important premise of EI research is that it has a positive impact on individual adaptation and performance in a variety of life contexts, including the workplace.

Various conceptualizations of EI have been developed over the past decade. For example, the mixed models (Bar-On, 1997) define EI as “an array of noncognitive capabilities, competencies, and skills that influence one’s ability to succeed in coping with environmental demands and pressures” (p. 14). The ability models, which are best received among researchers, define EI as an ability to carry out accurate reasoning about emotions and the ability to use emotions and emotional knowledge to enhance thought” (Mayer et al., 2008, p. 511). Mayer and colleagues (2008) have developed the now most widely used ability-based measure, the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer, Salovey, & Caruso, 2002; Mayer, Salovey, Caruso, & Sitarenios, 2003).

Meanwhile, others have taken a specific-ability approach (Mayer et al., 2008) to focus on specific components of EI, such as the level of emotional awareness (e.g., Lane, Quinlan, Schwartz, Walker, & Zeitlin, 1990), the ability to recognize facial and vocal expressions of emotions (e.g., Nowicki & Carton, 1993), and emotion appraisal and labeling (e.g., Innes-Ker & Niedenthal, 2002). Among these specific-ability measures of EI, the Test of Emotional Intelligence (TEMINT; Schmidt-Aetzert & Bühner, 2002) assesses emotional reasoning skills, one of the key components of EI (Mayer & Salovey, 1997; Mayer et al., 2008). The scale taps into the ability to employ emotional knowledge to understand and analyze emotions. Previous research has demonstrated discriminant validity of TEMINT with General Mental Ability (Amelang & Steinmayr, 2006) and Verbal Intelligence (Blickle, Kramer, & Mierke, 2010). Recently, Blickle, Momm, Kramer, Mierke, Liu, and Ferris (2009) found that TEMINT scores were related to emotion recognition ability, emotional empathy, and effective social functioning. In addition, they reported that the TEMINT scores explained additional variance in overall job performance ratings beyond general mental ability and personality traits. Thus, TEMINT has shown promising evidence for construct validity. In this paper we present two studies conducted to further validate the scale by benchmarking it with MSCEIT and its subdimensions (Study 1), and investigating its interplay with motivation and career outcomes (Study 2).
TEMINT and MSCEIT

The MSCEIT is based on Mayer and Salovey’s (1997) ability model of EI that comprises four primary components: (1) the ability to perceive emotions (perceiving emotions), (2) the ability to utilize emotions to facilitate reasoning (facilitating thoughts), (3) the capacity to understand the meaning of emotions and the information they convey (understanding emotions), and (4) the ability to effectively regulate and manage emotion (managing emotions).

As a specific-ability measure of EI, TEMINT assesses emotional reasoning skills. Specifically, it assesses such abilities as being able to understand the links between emotion-eliciting situations and emotional reactions (i.e., emotional appraisal), to accurately label and categorize feelings, and to describe one’s own and others’ emotional experiences. Thus, we expected that, among all subscales of MSCEIT, the TEMINT should be most closely associated with the understanding emotions dimension. Because TEMINT is reversed scored, we formulated the following hypotheses (1a and b):

Hypothesis 1: The understanding emotions facet of MSCEIT will (a) negatively associate with TEMINT scores and will (b) explain additional variance in TEMINT scores over and above gender, age, and the perceiving, facilitating, and managing emotions facets of MSCEIT.

TEMINT and Career Outcomes

The getting-ahead motive is one of the basic human motives (Hogan & Shelton, 1998). It is reasonable to expect that EI as an ability will be used to assist in the satisfaction of this motive. Kilduff, Chiaburu, and Menges (2010) argue that individuals high in EI are likely to draw upon their emotional skills to get ahead at work. They suggest that individuals high in EI are able to assess and control emotions in others, and thereby, realize greater interpersonal influence, and occupy more central networking positions, both of which, according to the career tournament theory (Turner, 1960) and social network theory (Burt, 1982), help them to gather resources and information necessary for performance and career progression, which further contribute to career success.

Kilduff et al. (2010) suggested a number of tactics that individuals high in EI employ to compete effectively in the workplace. In particular, they suggest that high EI individuals, because of their keen awareness of emotional conventions, rules, and norms, know when to and not to express emotions so that their emotional display are socially appropriate. Further, they are able to anticipate other people’s feelings in a given situation, and thereby control the unfolding of events and the emotions evoked, the way events and the associated feelings are interpreted, and the overall interpersonal dynamic, and do so all toward accomplishing their personal goals. All of these abilities appear to be closely associated with individuals’ emotional knowledge and ability to understand the linkage between events and emotional reactions, that is, the emotional reasoning skill. As such, we expect that TEMINT will play a moderating role in the getting-ahead motive – career outcomes relationship.

Conceptually, this speculation is consistent with Hogan and Shelton’s (1998) contention that social skill is a moderator of the relationships between the motive to get ahead and success in the workplace, an idea that has been empirically supported in a series of studies (for a summary see Blickle et al., 2011). In terms of empirical EI research, prior studies have documented significant relationships between EI and job performance (e.g., Coté & Miners, 2006; Joseph & Newman, 2010), as well as between EI and career success (e.g., Bennett, 2009). The role of EI as a social facilitator of career success, however, has not been well researched.

Career success can be defined in terms of both objective and subjective achievements that individuals have accumulated as a result of their work experiences. In the present research we focus on two important indicators of career success, namely annual income and perceived individual marketability. Because TEMINT is reversed scored, we propose the following hypotheses (2a and b):

Hypothesis 2: TEMINT scores will moderate the relationship between an employee’s getting-ahead motive and career success. Specifically, if TEMINT scores are low (i.e., high emotion understanding) the getting-ahead motive will positively predict (a) income and (b) perceived marketability after 2 years.

Study 1: Materials and Method

Participants and Procedure

Study 1 was designed to test Hypothesis 1. The study was conducted at a large university in Germany. Participants were 192 psychology students who took part in the study in partial fulfillment of their study requirements. The students completed the tests in the classroom under the direct supervision of one of the authors. No communication was allowed among the participants during the tests. Participants were provided with feedback on their results a few weeks after the tests. The mean age of the participants was 23.5 years (SD = 3.55 years). Among the participants, 50 were males and 142 were females, representing the gender composition of psychology students in the university.

Measures

TEMINT

The TEMINT was developed by Schmidt-Atzert and Bühner (2002). In the scale, situations experienced by various target persons are described, for which test takers are asked to rate the target persons’ possible emotional experiences. The situ-
ations were derived from a larger pool, from which a smaller set were selected by the authors of the scale to ensure a variety of events and emotions experienced, a balance on age and gender of the target persons, as well as a reasonable length of the scale. The target persons were asked to report their actual emotional experiences in a given situation on a scale from 0 (i.e., not at all or very weak) to 2 (strong to very strong), which were then used as the correct answers to assess the accuracy of emotional reasoning of the test takers. Based on a pilot test, the authors included only situations for which the participants and the target person reached consensus in terms of the emotional experiences.

The final scale consists of 12 situations. Respondents were asked to rate the degrees to which a target person may experience 10 different feelings in each of these hypothetical situations. The TEMINT score was calculated as the sum of the absolute differences between a test taker’s ratings and the correct estimations of various emotions across situations (i.e., ratings of the target person). As such, lower TEMINT scores indicate higher emotional reasoning skills. Schmidt-Atzert and Bühner (2002) reported a Cronbach’s α of .77.

**MSCEIT**

We administered the official German translation and adaptation of the MSCEIT V 2.0 (Steinmayr, Schütz, Hertel, & Schröder-Abé, in press) with 141 items. The original scoring key of MSCEIT was used. MSCEIT was scored using consensus scoring, which is based upon the agreement of a large number of people. In this scoring method, the answer of the majority of the sample is used as the key to the question. A high score on a test is, thus, achieved if a respondent’s answer is consistent with those of the majority of respondents in the sample; a low score on such a test is achieved by respondents who are “off” the norm.

Scores were converted to normalized standard scores with a mean of 100 and a standard deviation of 15. Seven scores were calculated: MSCEIT total score, and scores for the branches of perceiving, facilitating, understanding, and managing emotions. The so-called experiential EI score combines the two branches of perceiving and facilitating emotions. The so-called strategic EI score combines the two branches of understanding and managing emotions.

**Study 1: Result**

Table 1 reports the means, standard deviations, correlations, and coefficient α reliability estimates of all variables in Study 1. In line with Hypothesis 1a, TEMINT was negatively and significantly associated with the emotion understanding branch of MSCEIT ($r = -.34$, $p < .01$). This was the highest correlation among those that TEMINT has with all MSCEIT scores.

To test Hypotheses 1b, a hierarchical regression analysis was conducted (Cohen, Cohen, West, & Aiken, 2003). TEMINT scores were regressed in the first step on gender and age; in the second step on the perceiving, facilitating, and managing branches of the MSCEIT; and in the third

**Table 1. Descriptive statistics, correlations, and reliabilities for all variables in Study 1**

<table>
<thead>
<tr>
<th>Predictor variables</th>
<th>St. B</th>
<th>ΔR²</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>First step</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Gender</td>
<td>.07</td>
<td>.02</td>
<td>.02</td>
</tr>
<tr>
<td>- Age</td>
<td>.13</td>
<td>.02</td>
<td>.02</td>
</tr>
<tr>
<td>Second step</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Perceiving Emotions</td>
<td>.10</td>
<td>.05*</td>
<td>.07*</td>
</tr>
<tr>
<td>- Facilitating Thought</td>
<td>-.22*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Managing Emotions</td>
<td>-.07</td>
<td>.05*</td>
<td>.07*</td>
</tr>
<tr>
<td>Third step</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Understanding Emotions</td>
<td>-.32**</td>
<td>.08*</td>
<td>.16**</td>
</tr>
</tbody>
</table>

**Table 2. Hierarchical regression of TEMINT-scores on the MSCEIT branches in Study 1**

<table>
<thead>
<tr>
<th>Predictor variables</th>
<th>Criterion = TEMINT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Msceit total score</td>
<td>St. B ΔR² R²</td>
</tr>
<tr>
<td>Msceit total score</td>
<td></td>
</tr>
</tbody>
</table>

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step on the understanding branch of the MSCEIT. The perceiving, facilitating, and managing branches explained 5\% \((p < .05)\) incremental variance in TEMINT scores, while the understanding emotions branch \((St.B = −.32, p < .01)\) explained an additional 8\% \((p < .01)\) of the variance (see Table 2).

These findings contribute to the construct validation of TEMINT. The emotion understanding branch of MSCEIT had the highest zero-order correlation with TEMINT among all MSCEIT scores, and it explained additional variance in TEMINT scores above and beyond gender, age, and the perceiving, facilitating, and managing branches of MSCEIT.

**Study 2: Materials and Method**

**Participants and Procedure**

Study 2 was conducted with a time span of about 2 years involving two waves of data collection. A total of 338 business school graduates in Germany with at least 5 years of job experience were contacted by email to take part in an online test of EI (TEMINT); 206 participated. The participants who indicated that they were willing to take part in a career study were then sent a paper-and-pencil questionnaire 4 weeks later with prepaid return envelopes; 145 employees participated in this survey (Wave 1). The participants reported their current income and assessed their motives to get ahead. Two years later in Wave 2, these employees were contacted again by email and were asked to report their current income and assess their perceived marketability.

Complete data was provided by 71 participants. The mean age in Wave 1 was 35.87 years \((SD = 5.34\) years); 18 were female and 53 male. The mean income in Wave 1 was 53,113 Euro \((SD = 22.827\) Euro). We compared those taking part in both waves with those who did not take part in Wave 2. Means on TEMINT, age, income, and getting-ahead motive, as well as gender distribution did not differ significantly between the two groups.

**Measures**

**TEMINT**

As in Study 1, the ability-test of EI by Schmidt-Atzert and Bühner (TEMINT; 2002) was employed.

**Getting-Ahead Motive**

Based on the “work values as preferences” paradigm (Berings, De Fruyt, & Bowen, 2004), we consider work values as tendencies to prefer job characteristics, outcomes, or features of the work environment. The Work Value Inventory has been translated into German and adapted and validated by Seifert and Bergman (1983). From this inventory, we drew the four value scales of ascendancy, economic returns, management, and prestige to assess the getting-ahead motive. The participants were asked to indicate the relative importance of certain elements in a job. Responses were obtained on a 5-point Likert type scale with very important \((5)\) and unimportant \((1)\) as scale anchors. Sample items are: “Work in which I can get ahead” (ascendancy), “Work in which I can raise my income” (economic return), “Work in which I can tell other people what they have to do” (management), and “Work in which I can attain a respected position” (prestige).

**Perceived Marketability**

Eby, Butts, and Lockwood’s (2003) measure of perceived marketability was used. The items were: “My company views me as an asset to the organization;” “I could easily obtain a comparable job with another employer;” “Given my skills and experience, the company that I work for views me as a value-added resource;” “Given my skills and experience, other organizations view me as a value-added resource;” and “There are many opportunities available for me in my company.” A German version of the items was generated and backtranslated to American English. The backtranslation was then compared with the original items by an American professor of management. No discrepancies were detected. Items were responded to on a 5-point Likert-type agreement scale.

**Income**

Income of the respondents was measured by the yearly gross income (in Euro) at the time of the data collection.

**Control Variables**

Previous research has shown gender and age have an impact on career success (Ng, Eby, Sorensen, & Feldman, 2005). Therefore, gender and age served as control variables in the analyses.

**Study 2: Result**

Table 3 reports the means, standard deviations, correlations, and coefficient \(\alpha\) reliability estimates of all variables in Study 2. Note that in Wave 1, the mean income was 53,113 \((SD = 22.827)\) Euro, in Wave 2, after 2 years, the mean income was 60,097 \((SD = 26.402)\) Euro. Thus, employees’ income significantly increased \((p < .05)\) over the 2 years.

To test Hypothesis 2, a hierarchical moderated regression analysis was conducted (Cohen et al., 2003). In the first step,
Table 3. Means, standard deviations, reliabilities, and correlations of all variables in Study 2

<table>
<thead>
<tr>
<th>Variables</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sex</td>
<td>1.25</td>
<td>.44</td>
<td>(-)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Age</td>
<td>35.87</td>
<td>5.35</td>
<td></td>
<td>-.22</td>
<td>(-)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Getting Ahead</td>
<td>3.75</td>
<td>.61</td>
<td>-.12</td>
<td>.01</td>
<td>(.89)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. TEMINT</td>
<td>33.55</td>
<td>8.99</td>
<td>-.11</td>
<td>-.04</td>
<td>-.05</td>
<td>(.71)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Income T1</td>
<td>53,113</td>
<td>22,827</td>
<td>-.18</td>
<td>.32**</td>
<td>.21</td>
<td>.01</td>
<td>(-)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Income T2</td>
<td>60,097</td>
<td>26,402</td>
<td>-.23</td>
<td>.28*</td>
<td>-.22</td>
<td>.01</td>
<td>.93**</td>
<td>(-)</td>
<td></td>
</tr>
<tr>
<td>7. Marketability</td>
<td>3.52</td>
<td>.73</td>
<td>.00</td>
<td>-.19</td>
<td>.28*</td>
<td>.02</td>
<td>.31**</td>
<td>.34**</td>
<td>(.82)</td>
</tr>
</tbody>
</table>

Note. N = 71, *p < .05 (two-tailed), **p < .01 (two-tailed); Cronbach’s αs in the diagonal; Gender: 1 = male, 2 = female; TEMINT: A low score reflects good test performance; Scale reliability estimates are on the diagonal.

Figure 1. The getting ahead (Wave 1) – income (Wave 2) relationship moderated by TEMINT. Note. *p < .05.

Figure 2. The getting ahead (Wave 1) – marketability (Wave 2) relationship moderated by TEMINT.
income in Wave 2 and perceived marketability in Wave 2 were each regressed on gender, age, and income in Wave 1. In the second step, the getting-ahead motive and TEMINT were entered. Both scales were standardized. In the final step, the cross-product interaction term of the standardized getting-ahead and TEMINT variables was entered. As Table 4 shows both interaction terms had a significant standardized beta-weight, in line with Hypothesis 2.

The forms of the getting-ahead × TEMINT interactions according to the procedure proposed by Cohen et al. (2003) are illustrated in Figures 1 and 2. Three levels of TEMINT were plotted: at one standard deviation below the mean, at the mean, and at one standard deviation above the mean. As hypothesized, for individuals low on TEMINT (i.e., high EI), higher levels of the getting-ahead motive in Wave 1 were associated with higher levels of income (Hypothesis 2a, Figure 1) and perceived marketability in Wave 2 (Hypothesis 2b, Figure 2).

Discussion

The TEMINT seeks to measure the ability to understand the links between emotion-eliciting situations and emotional reactions (i.e., emotional appraisal), to accurately label and categorize feelings, and to describe one’s own and others’ emotional experiences. In Study 1, consistent with the above contention, we found that TEMINT had the highest zero-order correlation with the understanding emotion branch of MSCEIT among all MSCEIT scores. In Study 2, we found that for individuals low on TEMINT (i.e., high EI), higher levels of the getting-ahead motive were associated with higher levels of income and perceived individual marketability after 2 years. The findings in both studies add coherently to the existing evidence of validity of TEMINT (Blickle et al., 2009), and represent the first study that compares TEMINT with MSCEIT.

In line with a new focus of research on the relationship between EI and career outcomes (Bennett, 2009), the present findings demonstrate that various facets of EI can contribute positively to individual career success. Drawing on prior research, we argued that TEMINT assesses a social-facilitator construct leveraging career success. Indeed, we found empirical evidence that in this facilitator role TEMINT affected both subjective (perceived marketability) and objective (income) career success over a period of 2 years. Thus, the present study also echoes the call for longitudinal data in research on EI (Joseph & Newman, 2010).

No main effect of EI on career success was observed in our study. This is consistent with a prior study by Rode, Arthaud-Day, Mooney, Near, and Baldwin (2008), in which no main effect of EI was found with a sample of recent
college graduates. In contrast, in the Bennett (2009) study of senior marketing managers, high EI did demonstrate a main effect in predicting career success (i.e., becoming a member of company’s board of directors). This is likely a result of sample characteristics. It is reasonable to expect that a sample of senior marketing managers would collectively demonstrate much stronger motives to get ahead than a sample of recent college graduates among whom the strength of the motive is presumably mixed.

The present study has some limitations. We had a relatively small sample in both studies. In addition, Study 2 relied on self-reports of income instead of drawing from archival data. However, because the income information requested was very straightforward, it should be relatively easy to accurately report it. In addition, self-reports of objective data have been shown to correlate highly with archival company records in other studies (e.g., Blickle, Wendel, & Ferris, 2010; Judge, Cable, Boudreau, & Bretz, 1995).

As to future research, previous and present research have investigated the relationships between TEMINT and other ability tests of EI (e.g., Diagnostic Analysis of Nonverbal Accuracy [DANVA]; Nowicki, 2009), and a measure of emotion recognition from faces and voices (MSCEIT). Future research should also assess the relationships of TEMINT with measures of mixed models of EI (Joseph & Newman, 2010). Mixed measures have shown substantial incremental validity over cognitive ability and Big 5 personality traits in the prediction of job performance (e.g., Joseph & Newman, 2010). However, so far mixed measures of EI have not been researched in their role as social facilitator constructs.

In conclusion, the present research investigated the previously untested TEMINT-MSCEIT relationships and the moderating role of EI in leveraging career success and found support. TEMINT appears to be a valid measure of emotional reasoning skill, and the specific-ability approach of EI seems to hold promise in contributing to an enriched understanding of the EI construct. Further delineation of the social facilitator role of EI should be a promising avenue for future investigation.

Acknowledgment

We acknowledge the valuable support by Paula B. Schnei- der in the data collection process.

References


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Published online: June 20, 2011

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