ABSTRACT

Personality, Emotional Intelligence, and Skill in Service Encounters: Exploring the Role of Prosocial Knowledge as a Mediator

by

Michelle P. Martin

Emotional intelligence has become a very popular topic in organizational research (Joseph & Newman, 2010; Mayer, Roberts, & Barsade, 2008), partly as a response to contentions that emotional intelligence predicts job performance as robustly as cognitive ability does (Goleman, 1995). The majority of previous research on the relationship between emotional intelligence and job performance has examined emotional intelligence as an individual difference construct that acts as a direct determinant of job performance (e.g. Carmeli & Josman, 2006). However, research has suggested job-relevant knowledge and skill are direct determinants of job performance and that individual differences in abilities and traits are antecedents of job knowledge (Campbell, Gasser, & Oswald, 1996; Motowidlo, Borman, & Schmit, 1997). Consequently, according to this rationale, emotional intelligence may only affect job performance through its effect on knowledge. This investigation examined whether prosocial knowledge mediates the relationship between emotional intelligence and prosocial skill in role-play simulations of service encounters in medicine using a sample of 199 undergraduate students. Secondary purposes were to replicate results from earlier work demonstrating personality traits affect skill primarily through their effects on knowledge and to explore the construct and predictive validity of job knowledge further. Individual tests of hypotheses were conducted and the overall pattern of relations among study variables is summarized by a
path analytic model. Analyses revealed that prosocial knowledge measured by a single-response situational judgment test mediated the effects of agreeableness, conscientiousness, and emotion management on prosocial skill displayed in role-play simulations. Emotion understanding was causally related to emotion management as theorized by hierarchical models of emotional intelligence (Joseph & Newman, 2010), but unexpectedly, emotional stability was not. Results clarify the role of emotional intelligence as a distal antecedent of job performance rather than a more proximal performance determinant.
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CHAPTER 1

Introduction

Emotional intelligence has become a very popular topic in organizational research (Grandey, 2000; Joseph & Newman, 2010; Mayer, Roberts, & Barsade, 2008) and has been gaining momentum in recent years (Kim & Agrusa, 2011; Lievens, Klehe, & Libbrecht, 2011), partly as a reaction to claims that emotional intelligence predicts job performance as strongly as cognitive ability does (Goleman, 1995). There has been enthusiasm in the applied psychological community surrounding emotional intelligence’s lower adverse impact on minority groups as compared to cognitive ability (Van Rooy, Alonso, & Viswesveran, 2003), and its appeal as a human ability beyond “traditional” conceptions of intelligence (Zeidner, Matthews, & Roberts, 2004). Empirical investigations of the validity of emotional intelligence in predicting job performance, however, have produced conflicting results (Rode et al., 2006). Consequently, critics remain skeptical about how emotional intelligence is defined and measured, and doubt whether emotional intelligence accounts for incremental validity in the prediction of job performance beyond that provided by personality traits and cognitive ability (Landy, 2005; Locke, 2005).

The bulk of previous research on the relationship between emotional intelligence and job performance has examined emotional intelligence as an individual difference that serves as a direct determinant of job performance (e.g. Carmeli & Josman, 2006; Deeter-Schmelz & Sojka, 2003; Lam & Kirby, 2002). Findings from a recent meta-analysis (Joseph & Newman, 2010) show the overall correlation between ability-based emotional
intelligence and supervisory ratings of job performance is $r = .16$ (Newman, Joseph, & MacCann, 2010).

However, several researchers have proposed theories to suggest there are other variables that intervene in the relationship between individual difference variables, such as ability, and job performance. Some have suggested knowledge and skill are direct determinants of job performance and that individual differences in abilities and traits are antecedents of job knowledge (Campbell, McCloy, Oppler, & Sager, 1993; Campbell, Gasser, & Oswald, 1996; Motowidlo, Borman, & Schmit, 1997). More recently, Motowidlo and colleagues (Motowidlo, Martin, & Crook, in press) have gone one step further to argue that individual differences in ability and personality affect job performance primarily through their effects on knowledge and skill. Consequently, according to this rationale, emotional intelligence may only affect job performance through its effect on knowledge.

The primary purpose of the current investigation is to test whether prosocial knowledge mediates the relationship between emotional intelligence and prosocial skill in role-play simulations of service encounters in medicine. A secondary purpose is to a) replicate findings from prior work showing personality traits affect skill primarily through their effects on knowledge and to b) explore the construct and predictive validity of job knowledge in greater depth.
CHAPTER 2

Literature Review

While several researchers have examined moderators of the emotional intelligence-performance relationship, empirical work has not yet investigated whether this positive relationship is in fact mediated by another, intervening variable. A growing body of work (Campbell et al., 1996; Campbell et al., 1993; Hunter, 1983; Schmidt, Hunter, & Outerbridge, 1986; Motowidlo et al., 1997; Motowidlo et al., in press) suggests that individual differences positively affect job performance primarily through their effects on knowledge and skill.

Antecedents of Knowledge and Skill in Models of Job Performance

The strong predictive validity of traditional measures of cognitive ability in predicting technical performance has been well established (Hunter, 1983; Schmidt & Hunter, 1998; Schmidt et al., 1986). In their seminal meta-analysis, Schmidt & Hunter (1998) argued that cognitive ability is strongly related to job performance because high-aptitude individuals acquire job knowledge more rapidly and comprehensively than low-aptitude individuals. Because interpersonal encounters are rich in emotional cues (Barsade & Gibson, 2007), the same causal mechanism can explain why emotional intelligence should affect the acquisition of job knowledge when the job domain requires a great deal of interpersonal interaction.

Hunter’s (1983) study reports a path analysis using data from both civilian and military samples to examine the relations between cognitive ability, job knowledge, skill, and supervisory ratings of overall job performance. The results of the analysis revealed that job knowledge was more highly correlated with overall performance ratings than
skill was, and that cognitive ability was indirectly related to job performance ratings, through its direct effect on job knowledge.

Borman, White, Pulakos, and Oppler (1991) extended Hunter’s (1983) work using data collected from Project A. They retested Hunter’s path analysis using an additional set of predictor variables, including the ratee’s achievement orientation, dependability, disciplinary record, and awards. The results of this analysis support a model in which ability directly affects job knowledge, job knowledge directly affects skill, and skill directly affects job performance ratings.

Campbell, McCloy, Oppler, & Sager (1993) also extended Hunter’s (1983) work by introducing new variables to the performance model. They proposed that personality traits act as antecedents of knowledge and skill, which are in turn determinants of job performance. In this framework, individual difference variables like personality traits interact with situational variables to influence the determinants of job performance. According to this rationale, individual difference constructs are considered distal antecedents of more proximal performance determinants, and exert only indirect effects on job performance because their effects are mediated by knowledge and skill (Motowidlo, 2003; Motowidlo et al., in press).

Campbell and colleagues (Campbell et al., 1993) have proposed that procedural knowledge acts as a determinant of skill because it is necessary for one to know how a task should be carried out in order to display skill. As job simulations are measures of skill (Campbell et al., 1996), knowledge about how to behave in a situation encountered in a simulation should causally predict behavior in a simulation. Knowledge is distinguished from skill such that knowledge entails recognizing the proper actions to be
taken, while skill requires that one actually be able to carry the actions out (Motowidlo et al., in press). Consequently, it is possible to have knowledge about how to behave effectively in a given domain, but lack the skill necessary for effective performance. (Motowidlo et al., in press).

Motowidlo and colleagues (Motowidlo, 2003; Motowidlo, Hooper, & Jackson, 2006; Schmit, Motowidlo, DeGroot, Cross, & Kiker, 1996) have focused their efforts on explaining the causal relations between personality, procedural knowledge about interpersonal interaction in work contexts, skill in interpersonal interactions, and non-technical elements of job performance. Schmit, Motowidlo, DeGroot, Cross, and Kiker (1996) examined the relations between customer service knowledge, customer service performance, and extraversion in a sample of sales associates working in a retail organization. Findings indicated that although extraversion correlated with customer service performance, customer service knowledge accounted for more incremental variance in predicting customer service performance than extraversion provided beyond knowledge. Additional supporting evidence for the idea that knowledge mediates the relationship between personality and performance comes from a study conducted by Motowidlo, Brownlee, and Schmitt (1998). These authors included measures of personality and cognitive ability as predictor variables and measured customer service skill through role-play simulations. Their findings from a series of hierarchical multiple regression analyses suggested that a) ability and extraversion predicted knowledge, b) ability, emotional stability, and knowledge predicted skill, and c) skill predicted customer service performance. Taken together, these two studies show that basic traits affect job
performance, at least in part, through their effects on job knowledge. Figure 1 displays this causal argument.
Figure 1. Causal model of antecedents and determinants of job performance
Emotional Intelligence

Part of the reason emotional intelligence has been a hotly debated topic in psychological research is that consensus on how emotional intelligence is defined and measured has not yet been reached (Joseph & Newman, 2010). The two most popular models of emotional intelligence define the construct as either a) an ability or aptitude or b) a combination of both traits and abilities (or “mixed” model) (Mayer, Salovey, & Caruso, 2000). Mixed models posit that emotional intelligence is not merely one type of intelligence, but rather, a combination of aptitude and various other personality and affect constructs (Petrides & Furnham, 2001). The majority of criticism toward emotional intelligence from the scientific community has been directed at this particular model for two reasons. First, it defines emotional intelligence as an amalgam of non-cognitive abilities, competencies, and skills that can include nearly any advantageous construct apart from straightforward cognitive ability (Locke, 2005; Joseph & Newman, 2010). Second, mixed models of emotional intelligence have considerable overlap with personality traits, making them questionable as a unique construct (Van Rooy, Dilchert, Viswesvaran, & Ones, 2006).

Ability models of emotional intelligence posit that because emotional intelligence is a particular type of intellectual ability, the construct should overlap with cognitive ability to some extent (Mayer et al., 2000). According to ability-based models, emotional intelligence can be defined as “the 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). Both because ability-based models of emotional intelligence are more theoretically sound than mixed models and because the role of personality traits in
affecting knowledge and skill will already be examined as part of this investigation, I will focus exclusively on emotional intelligence as an ability construct.

Ability models define emotional intelligence as a combination of four emotion-related abilities: the perception of emotions, the integration of emotions through thought processes, the understanding of relations between emotions and circumstances, and the regulation of emotions, also called emotion management (Mayer et al., 2000). These abilities are positioned hierarchically, with emotion perception placed at the bottom of the hierarchy and emotion management at the top. Emotion perception and emotion integration form the experiential area of emotional intelligence, while emotion understanding and emotion management comprise what is called the strategic area (Mayer, Salovey, Caruso, & Sitarenios, 2001).

According to what is called the cascading model of emotional intelligence (see Figure 2; Joseph & Newman, 2010), emotion understanding is causally related to emotion management, and is considered to be a more distal predictor of job performance than emotion management, which is thought to be more proximally related to performance. Emotion management is most strongly related to job performance for two reasons. First, emotion management allows individuals to create and maintain positive affective states, which facilitate behavioral flexibility and improve job performance (Frederickson, 2001; George, 1991). Second, individuals low in emotion management are more likely to suppress their moods and to refrain from expressing their emotions, which can reduce cognitive resources that could be otherwise contribute to effective job performance (Butler et al., 2003).
Figure 2. Cascading Model of emotional intelligence (adapted from Joseph & Newman, 2010).
Recently, some research on emotional intelligence has focused on examining the boundary conditions of the emotional intelligence-performance relationship. There has been some evidence to suggest that emotional intelligence is most strongly predictive of job performance in work contexts that require a high level of emotional labor (Joseph & Newman, 2010). Meta-analytic findings have shown that emotional intelligence is positively related to job performance for high emotional labor jobs but is negatively related to performance for jobs low in emotional labor (Joseph & Newman, 2010). In addition, a study conducted by Farh and colleagues (Farh, Seo, & Tesluk, 2012) used a trait activation framework (Tett & Burnett, 2003) to explore the boundary conditions of the emotional intelligence-performance relationship specifically in the context of teams. They found that emotional intelligence was more strongly related to team effectiveness when the job was filled with many salient emotional cues. Consequently, to ensure that emotional intelligence will be relevant for the work context examined in this investigation, I will explore the relationship between emotional intelligence, knowledge, and skill in service encounters using the profession of a physician. Because physicians provide a service to patients who may experience a broad range of strong emotions in response to their health condition, the job of a physician can be characterized as being both high in emotional labor and rife with emotionally salient cues (Hochschild, 1983).
Personality

Ever since Barrick and Mount’s (1991) influential meta-analysis revealed that personality traits successfully predict dimensions of job performance, there has been a resurgence of personality research in organizational literature (e.g. Dudley, Orvis, Lebiecki, & Cortina, 2006; Tett & Burnett, 2003). Much of this work has shown that conscientiousness is consistently related to job performance (Barrick & Mount, 1991). Meta-analytic findings reveal that conscientiousness demonstrated the highest validity in predicting performance in all job families examined, with corrected mean correlations ranging from .20 in professional occupations to .23 in sales occupations (Barrick & Mount, 1991). Some researchers (Viswesvaran, Schmidt, & Ones, 2005) have even gone as far as to postulate that the conscientiousness of performers is part of a general factor that contributes to all supervisory ratings of job performance.

Many researchers have proposed theories to explain why the positive relationship between personality and job performance occurs (Ackerman, 1996; Motowidlo, 2003; Motowidlo & Beier, 2010; Motowidlo et al., 2006). One of these theories concerns the notion of dispositional fit (Motowidlo, 2003), which suggests that people hold beliefs about effective approaches to handling interpersonal situations and that these beliefs are generally consistent with their standing on a personality trait. When an individual has a belief about how to behave in a particular situation that is actually correct (that is, aligned with the judgment of experts), then that individual has knowledge about how to behave effectively in that work context. According to this theory, personality traits are directly related to beliefs about behavioral effectiveness in interpersonal situations at work. When an individual possesses a personality trait that is particularly effective when expressed in
certain work situations, he or she is more likely to have knowledge about how to behave in those situations.

Motowidlo, Hooper, and Jackson (2006) recently updated the theory of dispositional fit by proposing a causal mechanism to explain why people in the possession of a basic personality trait are more likely to believe expressing their basic trait is effective. This theory, about what are called *implicit trait policies* (ITPs), proposes that ITPs represent beliefs about the relationship between expressions of personality traits and effective performance in a given job. According to ITP theory, basic personality traits are not the only factor affecting an individual’s beliefs about trait effectiveness, as is the case with dispositional fit. In ITP theory, basic traits interact with a person’s experiences to shape beliefs about effective trait expression, such that a person may learn over time that expressing his or her basic traits can be effective (or ineffective) in some situations. Consequently, an individual’s traits and personal experiences both causally affect his or her ITPs for a given personality trait. People have different life experiences that teach them about the effectiveness and utility of expressing certain personality traits in certain situations, whether these are in the form of work experiences or social interactions that occur outside of work. For instance, someone who is naturally disagreeable may learn over time that expressing disagreeableness when trying to convince someone to do a favor may not be the most effective course of action in that particular situation. In this way, ITPs can represent knowledge about effective trait expression when they are aligned with the beliefs of experts. Thus, individuals with more knowledge about effective trait expression can recognize when situations call for the expression of a particular trait.
This notion of situational specificity is consistent with Tett and Burnett’s trait activation theory (TAT; 2003), which suggests that situations differ according to the personality trait expressions they demand. However, TAT focuses on characteristics of the situation to explain why basic personality traits are not equally predictive of job performance across situations, while ITP theory focuses on characteristics of the person (knowledge about effective trait expression) to explain why basic personality traits are not equally predictive of job performance across situations.

Because conscientious individuals are higher in self-discipline, persistence, and achievement-striving (Busato, Prins, Elshout, & Hamakjer, 2000), they are more likely to invest time in learning. There has been empirical support for a positive relationship between conscientiousness and knowledge (Furnham & Chamorro-Premuzic, 2006; Motowidlo, Crook, Kell, & Naemi, 2009). For instance, research has shown that conscientiousness predicts the acquisition of academic knowledge (Beier, Campbell, & Crook, 2010; Chamorro-Premuzic & Furnham, 2004; 2005). Moreover, conscientiousness has been associated with knowledge about how to behave effectively in interpersonal situations for volunteers (Motowidlo et al., in press).

Agreeable people are generally empathetic and have a tendency to get along with others (Digman & Takemoto-Chock, 1981; Graziano & Eisenberg, 1997). Consequently, in jobs that involve interpersonal encounters, agreeableness should be positively related to job performance. Meta-analytic research (Hurtz & Donovan, 2000) has supported this claim by showing that when performance criteria were divided according to whether they represented task or contextual performance dimensions, agreeableness was related to the “interpersonal facilitation” dimension under the umbrella of contextual performance.
There is also evidence to suggest that agreeableness is specifically related to a tendency to engage in volunteer behaviors (Carlo, Okun, Knight, Rosario, & Guzman, 2005).

Emotional stability, although inconsistently predictive of job performance (Barrick & Mount, 1991), is positively related to emotion management (Joseph & Newman, 2010). Research on effective emotion management strategies indicates that emotionally stable individuals engage in effective emotion management strategies, such as cognitive reappraisal, more often than neurotic individuals do (Gross & John, 2003).
CHAPTER 3

The Current Investigation

The aim of the current study is to examine the associations between emotional intelligence, personality, and prosocial skill and to examine the role of prosocial knowledge as a mediator of this relationship. Figure 2 depicts the pattern of relations I expect to observe.
Figure 3. Hypothesized model of construct relationships featuring prosocial knowledge as a mediator of the relationship between individual differences and prosocial skill.
Measuring Skill in Medical Service Encounters

The non-technical side of medicine associated with professionalism and the quality of service delivery has recently received attention in the medical community (Hafferty, 2004; Stevens, 2001). The American Association of Medical Colleges (AAMC) and the National Board of Medical Examiners (NBME) met to develop several categories of medical professionalism that exemplify types of professional and unprofessional behavior among physicians. In this study I will focus on two of these categories that are especially pertinent to prosocial behavior for physicians: caring and compassion, and respect. Behavioral descriptors of these dimensions of medical professionalism are displayed in Table 1.

Previous research on the antecedents of prosocial knowledge, skill, and job performance for medical students by Martin, Kell, & Motowidlo (2011) measured prosocial skill in the medical domain by having participants engage in a series of role-play simulations that cast the actor in the role of a Pat Duncan, a physician. The same role-play scenarios will be used in this investigation. Each scenario involves an interaction with someone with whom the physician interacts with, such as a nurse, patient, or patient’s family member.
Table 1. Medical professionalism dimensions and behavioral descriptors from the AAMC/NBME (2002) conference report.

<table>
<thead>
<tr>
<th>Caring and Compassion</th>
<th>Respect</th>
</tr>
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<tbody>
<tr>
<td>• Treats the patient as an individual, taking into account lifestyle, beliefs, personal idiosyncrasies, and support system</td>
<td>• Respects patient rights/dignity (privacy, confidentiality, consent), knocks on door, introduces self, drapes patients appropriately, and shows respect for patient privacy needs</td>
</tr>
<tr>
<td>• Communicates bad news with sincerity and compassion</td>
<td>• Demonstrates tolerance to a range of behaviors and beliefs</td>
</tr>
</tbody>
</table>
Measuring Prosocial Knowledge about how to Behave in Service Encounters

In this investigation I plan to use a single-response situational judgment test (SJT) to measure knowledge about behaving prosocially in patient-physician interactions. Results from a meta-analysis suggest that SJTs have validity in predicting job performance ($\rho = .26$) and account for incremental validity in prediction beyond what is accounted for by cognitive ability and personality (McDaniel, Hartman, Whetzel, & Grubb, 2007). This incremental validity may stem from the possibility that SJTs measure job-relevant knowledge, as several researchers have argued (Crook et al., 2011; Schmitt & Chan, 2006; Motowidlo & Beier, 2010; Motowidlo et al., 2006). If SJTs measure knowledge and knowledge is a more proximal determinant of job performance than personality and ability constructs (Campbell et al., 1993), then it is no wonder SJTs account for incremental validity in predicting job performance above and beyond these measures.

Traditional SJTs are constructed using critical incidents and are typically comprised of multiple-choice items that present respondents with a situation, and ask them to choose a behavioral response option that represents the most effective course of action in that situation. Single-response SJTs, which have been recently introduced (Motowidlo et al., 2009), differ from multiple-response SJTs in that they present test-takers with edited critical incidents that have had the outcome of the action being described removed. Single-response SJTs contain no response options; they simply ask test-takers to read over the action described in the incident and evaluate the action according to its effectiveness using a Likert scale. Participants’ effectiveness ratings can then be compared to experts’ effectiveness ratings for scoring purposes. This relatively
new format has proven valid in predicting performance across a few different occupations, such as those of human factors professionals (Martin & Motowidlo, 2010), physicians (Kell, Martin, & Motowidlo, 2011), and volunteers (Motowidlo et al., 2009; Crook et al., 2011).

One feature of single-response SJTs that differentiates them from multiple-response formats is that each item can be characterized as being either particularly effective or particularly ineffective according to subject matter experts’ ratings of the items. This allows for participants’ scores to be computed for effective items and ineffective items separately, which cannot be done using a multiple-response SJT, because each item contains response options that are both effective and ineffective. There has been some evidence, although sparse, to suggest that these two classes of knowledge are not strongly correlated, and consequently, may be considered distinct constructs as opposed to two facets of one construct. This goes against the grain in SJT research, which has traditionally characterized knowledge of behavioral effectiveness as one, unidimensional construct, as when respondents are asked to choose both the best and worst course on action in a traditional SJT (Crook et al., 2011). As a result, researchers have been able to examine knowledge about effective and ineffective job behaviors separately to examine if they differentially relate to job performance and have different antecedents (Crook et al, 2011; Motowidlo et al., in press). Because research on knowledge of effective and ineffective behavior is thus far quite limited, I plan to investigate differential relations among overall knowledge, knowledge of effective behavior, knowledge of ineffective behavior, individual difference constructs, and skill in an exploratory fashion.
Hypotheses

According to the ability model of emotional intelligence presented by Mayer, Salovey, and colleagues (Mayer et al., 2000; Mayer & Salovey, 1997), emotion understanding causally precedes emotion management. Consequently, I predict that:

*Hypothesis 1: Emotion understanding will be positively related to emotion management.*

Recent work (Gross & John, 2003; Joseph & Newman, 2010) demonstrates that neurotic individuals are less likely to engage in effective emotion management strategies (i.e., reappraisal) than emotionally stable individuals. However, there is no reason to suspect that emotional stability should have a direct effect on knowledge. Rather, emotion management should mediate any effects emotional stability will have on knowledge. Thus, I expect that:

*Hypothesis 2a: Emotional stability will be positively related to emotion management.*

Hypothesis 2b: *Emotion management will mediate the effects of emotional stability on prosocial knowledge.*

As strategic emotional intelligence is the competency to recognize the causes of emotions and to identify effective strategies for applying emotions to help achieve a goal, I predict that the strategic component of emotional intelligence should be positively related skill in medical service encounters. Recent meta-analytic findings suggest that emotion management is associated with improved job performance (Joseph & Newman, 2010). Accordingly, I hypothesize that:

*Hypothesis 3: Emotion management will be positively related to prosocial skill.*
When the job requires that individuals interact with others interpersonally, the ability to manage one’s own emotions will enable individuals high in emotion management to acquire prosocial knowledge more effectively than individuals low in emotion management in the same way that cognitive ability enables individuals to accrue technical job knowledge (Hunter, 1983; Schmidt & Hunter, 1998). Thus, according to this rationale:

*Hypothesis 4: Emotion management will be positively related to prosocial knowledge.*

In addition, Joseph and Newman’s recent meta-analysis (2010) demonstrated support for a cascading model of emotional intelligence in which the relationship between emotion understanding and job performance is mediated by emotion management. By extension, because emotion understanding is more distally related to job performance than emotion management, and because prosocial knowledge is more proximally related to prosocial skill than emotion management, emotion management should mediate the relationship between emotion understanding and prosocial knowledge.

*Hypothesis 5: Emotion management will mediate the relationship between emotion understanding and prosocial knowledge.*

Several studies (Campbell et al., 1993; Hunter, 1983) have demonstrated that individual difference variables, such as ability, affect job performance primarily through their effects on performance determinants, such as knowledge and skill. According to this rationale, individual difference constructs are considered distal antecedents of more proximal performance determinants, and exert only indirect effects on job performance.
because their effects are mediated by knowledge (Motowidlo, 2003; Motowidlo et al., in press). As a result, I predict that:

_Hypothesis 6: Prosocial knowledge will mediate the relationship between emotion management and prosocial skill._

Previous research has shown that agreeableness (Martin et al., 2011) and conscientiousness (Kell, Motowidlo, & Martin, 2013) are positively related to prosocial behavior in the medical domain. Further, in keeping with the causal relations proposed in Campbell (1993) and colleagues' (Campbell et al., 1996) model of direct and indirect determinants of job performance, personality traits should predict knowledge, and knowledge should predict skill. Consequently, I expect that:

_Hypothesis 7a: Conscientiousness will be positively related to prosocial knowledge._

_Hypothesis 7b: Prosocial knowledge will mediate the relationship between conscientiousness and prosocial skill._

_Hypothesis 8a: Agreeableness will be positively related to prosocial knowledge._

_Hypothesis 8b: Prosocial knowledge will mediate the relationship between agreeableness and prosocial skill._
CHAPTER 4

Method

Sample

One-hundred and ninety-nine undergraduate students at a private university in the Southeastern United States participated in the investigation in return for course credit. Participants ranged in age from 18 to 24 ($M = 19.1$, $SD = 1.15$). Table 2 displays additional demographic and descriptive information for participants.
Table 2. Participant demographics.

<table>
<thead>
<tr>
<th>Category</th>
<th>N</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>136</td>
<td>68.3</td>
</tr>
<tr>
<td>Male</td>
<td>63</td>
<td>31.7</td>
</tr>
<tr>
<td>Year in College</td>
<td></td>
<td></td>
</tr>
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<td>54.8</td>
</tr>
<tr>
<td>Sophomore</td>
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<td>25.4</td>
</tr>
<tr>
<td>Junior</td>
<td>29</td>
<td>14.7</td>
</tr>
<tr>
<td>Senior</td>
<td>10</td>
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<tr>
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</tr>
<tr>
<td>Hispanic</td>
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<tr>
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<td>0</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
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<td>42.7</td>
</tr>
<tr>
<td>Other</td>
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<td>2.5</td>
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<tr>
<td>Major in College</td>
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<td></td>
</tr>
<tr>
<td>Pre-medical track</td>
<td>61</td>
<td>30.7</td>
</tr>
<tr>
<td>Other</td>
<td>138</td>
<td>69.3</td>
</tr>
</tbody>
</table>
Measures

**Personality (IPIP; Goldberg, 1999).** Participants completed Goldberg’s (1999) 50-item International Personality Item Pool (IPIP), a broad bandwidth measure available to the public via the internet, to measure the Big Five personality traits. Participants were asked to rate how accurately each item describes themselves using a seven-point Likert scale where 1 = very inaccurately and 7 = very accurately. Reliability estimates using Cronbach’s alpha, displayed on the diagonal of Table 4 are .81 for agreeableness, .92 for extraversion, .84 for conscientiousness, .88 for emotional stability, and .79 for openness to experience.

**Emotional Understanding (STEU; MacCann & Roberts, 2008).** Due to time constraints, participants were asked to complete a short form of the STEU, a 25-item multiple-choice measure of emotional understanding. To create the short form of the STEU, the best 25 items were selected from Study 1 of the authors’ original publication of the measure. A one-factor exploratory factor analysis was conducted on all 42 original items of the STEU and the 25 items with the largest factor loadings were retained. Across two different samples, reliability estimates for the STEU as reported by the authors ranged from .68 to .81. The STEU was scored dichotomously according to Roseman’s (2001) appraisal theory (for more information, see MacCann & Roberts, 2008) and contains a combination of context-reduced items, items with a personal-life context, and items with a workplace context. Total scores were computed by summing all of the items. Cronbach’s alpha for the short form of the STEU, displayed on the diagonal of Table 4, is .54. An example item appears in Panel B of Table 3.
Table 3. Example items from the single-response situational judgment test created for volunteers, STEU, and STEM.

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A patient found dead at home was taken to the ER. The physician spent 25 minutes with the family explaining what efforts were made to revive the patient after he was admitted to the ER and answering their questions about the patient's pain and final moments.</td>
<td>Xavier completes a difficult task on time and under budget. Xavier is most likely to feel? (a) Surprise (b) Pride (c) Relief (d) Hope (e) Joy</td>
<td>Pete has specific skills that his coworkers do not and he feels that his workload is higher because of it. What action would be the most effective for Pete? (a) Speak to his boss about this. (b) Start looking for a new job. (c) Be very proud of his unique skills. (d) Speak to his coworkers about this.</td>
</tr>
<tr>
<td>When a patient's nurse neglected to bring an advanced knee-rehabilitation machine into the room as this physician had asked, the physician slammed the nurse up against the wall in front of the patient and reprimanded her.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Emotional Management (STEM; MacCann & Roberts, 2008).** Participants also completed a short form of the STEM, a 20-item multiple-choice measure of emotional management built using the traditional SJT paradigm. Each item represents one of three emotions (anger, sadness, and fear) and is framed in either a personal-life or workplace context. To create the short form of the STEM, MacCann and Roberts (2008) selected the best 20 items from Study 1 of their original publication of the test by conducting a one-factor exploratory factor analysis on all 44 original STEM items. The STEM items were scored by awarding a numerical value to each response option that is equal to the proportion of the experts who endorse that particular option in the development stage of the instrument (for more information, see MacCann & Roberts, 2008). Participants’ total scores were computed by combining item totals to compute a summed score. Cronbach’s alpha for the short form of the STEM in the investigation, displayed on the diagonal of Table 4, is .68. An example item appears in Panel C of Table 3.

**Prosocial Knowledge.** This study used a previously validated single-response SJT called the Opinions about Physicians’ Interactions with Patients (OPIP) as the measure of prosocial, procedural knowledge. This tool assesses knowledge of behaviors that are effective or ineffective for physicians who regularly interact with patients, patients’ family members, and nurses (Martin et al., 2011, Kell et al., 2011; Kell et al., under review). The items in the measure describe physicians interacting interpersonally with others in ways that were either effective or ineffective, and contain no organization-specific detail. Items in the measure were adapted from critical incidents that were collected by asking nurses to provide examples of occasions when they witnessed a
physician interact with nurses, patients, or patients’ family members in ways that were either particularly effective or particularly ineffective.

The knowledge measure contains a total of 40 brief items (20 representing knowledge of ineffective behavior and 20 representing knowledge of effective behavior). Participants were asked to rate each item for its overall effectiveness using a scale with anchors ranging from 1 = very ineffective to 7 = very effective. Two example items appear in Panel A of Table 3.

Prosocial knowledge scores were calculated by computing the mean of the respondent’s effectiveness ratings for items determined effective by experts and a separate average for items determined ineffective by experts. These scores were then combined to form another average representing a respondent’s overall score. It is important to note that subject matter expert ratings of effectiveness tended to be either very high or very low for most items, because items were adapted from critical incidents representing the extreme ends of the effectiveness distribution. According to this scoring scheme, the higher an individual’s ratings are for effective actions and the lower an individual’s ratings are for the ineffective actions, the more overall job knowledge the individual has. See Motowidlo et al. (2009) for more information about scoring single-response SJTs.

Cronbach’s alpha for the overall knowledge score comprised of all 40 items is .86, and is displayed on the diagonal of Table 4. For knowledge of effective behavior, the reliability estimate computed using Cronbach’s alpha is .80 and for knowledge of ineffective behavior, it is .84.

Prosocial Skill. The simulation used in the study cast participants in the role of Pat Duncan, a physician. It included nine role-play exercises that involved an interaction
with someone with whom the physician interacts with, such as a nurse, patient, or patient’s family member. These role-play exercises contained three items from each of three performance dimensions described above. Each role-play was to last approximately one minute. After research participants were introduced to their role and told that they would be video-taped for the duration of the nine role-play exercises, they read along while a brief description of the circumstances describing the first role-play exercise was read aloud by the research assistant. When participants signaled that they were ready to begin the exercise, the research assistant asked if they had any questions and answered the questions, if there were any. Then, the research assistant began the role-play. This procedure was repeated for the next eight role-play situations. The same research assistant played the role of the other person for each participant in all of the role-play exercises. Four different research assistants, who were all females, played this role for different participants. See Appendix A for the nine prompts used in the role-play simulations.

Six doctoral students in Industrial/Organizational psychology served as raters of prosocial skill exhibited in the role-play performances. Three raters rated all participants’ role-play performances for the extent to which they displayed caring and compassion, and the other three raters rated all participants’ role-play performances for the extent to which they displayed respect. Raters watched the video-taped role-plays individually and made independent and separate ratings.

To ensure that raters properly and fully understood how to evaluate participants’ role-play performances using the two performance dimensions, raters participated in a brief, 30-minute training session. The three raters evaluating participants for their caring
and compassion were shown a detailed description of the performance dimension and were shown the anchors they would use to generate their evaluations, ranging from 1 = very harsh and indifferent to 7 = very caring and compassionate. In addition, they were shown video-taped examples of responses to the same role-play prompt that depicted very high and very low levels of caring and compassion according to rater means from a previous study using the same role-play prompts (see Martin et al., 2011 for more information). Finally, raters were briefed about avoiding halo errors and rating participants solely in terms of the caring and compassion they displayed in their responses, as opposed to evaluating general effectiveness. The same procedure was repeated for the other set of raters assessing participants’ respect demonstrated in the role-plays. For the dimension of respect, anchors ranged from 1 = very disrespectful to 7 = very respectful.

The sum of these six ratings constituted the overall measure of prosocial skill demonstrated in the role-play simulation. I computed the sum of the ratings provided by each rater across all nine of the recorded role-play performances that were available for each participant. Because three raters evaluated participants on the dimension of caring and compassion and the other three raters evaluated participants on the dimension of respect, each participant had two scores for their skill in the role-play simulations. These were computed by summing across the three raters who provided them to form two scores. The average correlation between the three raters who rated participants on caring and compassion was .60, which, according to the Spearman–Brown prophesy formula, yields an inter-rater reliability estimate of .81. The average correlation between the three raters who rated participants on the dimension of respect was .64, and according to the
Spearman–Brown prophesy formula, the inter-rater reliability estimate produced is also .81. The scale score for ratings of Caring and Compassion correlates .73 ($p < .001$) with the scale score for ratings of Respect. Ratings for caring and compassion were added to ratings for respect to compute a total summed score for prosocial skill. When the Spearman-Brown prophesy formula is again applied using the correlation between the two skill dimension ratings, the reliability estimate produced for the combined skill score is .84.

**Procedure**

Participants completed a brief demographics form, the 40-item OPIP, and then completed the 50-item personality measure (IPIP). They then engaged in a role-play simulation designed to elicit nine demonstrations of their prosocial skill in the medical domain. It took participants approximately one hour to complete the study. In exchange for their participation, they received credit in an undergraduate psychology course.
CHAPTER 5

Results

Individual Tests of Hypotheses

Descriptive statistics and zero-order correlations among all predictor variables and the criterion are displayed in Table 4. Table 5 displays beta weights showing the unique contribution of predictor variables in explaining variance in prosocial knowledge and skill. Reliability estimates for each measure are shown in the diagonal. As predicted in Hypothesis 1, emotion understanding scores were significantly correlated with emotion management scores \( (r = .41, p < .01) \). This finding provides support for the theory that emotion understanding and emotion management related components of the strategic area of emotional intelligence.

Hypothesis 2a, which stated that emotional stability would be significantly correlated with emotion management, was not supported. The correlation between these two variables was .05 \( (p = .45) \). Hypothesis 2b stated that emotion management will mediate the effects of emotional stability on prosocial knowledge. Results of a hierarchical regression of prosocial knowledge on emotional stability at step one, and both emotional stability and emotion management at step two, are displayed in Table 6. This analysis also shows that emotional stability does not significantly predict prosocial knowledge scores. However, it is not always necessary for an independent variable to exert a significant direct effect on an independent variable for mediation to occur (MacKinnon & Fairchild, 2009). Consequently, I then more rigorously tested the indirect effect of emotional stability on prosocial knowledge scores by using a modification to the increasingly popular Sobel test (Sobel, 1982). A problematic feature of the Sobel test is
that it assumes that the indirect effect is normally distributed, which is often untrue (Stone & Sobel, 1990). Alternatively, the non-parametric bootstrapping technique (Hayes, 2009) can be employed to avoid the assumption of normality. This procedure assumes the study sample is representative of the entire population and resamples with replacement numerous times. Estimates of path coefficients $a$, $b$, and their product, are produced by resampling from the data with replacement $k$ times. Then, the magnitude of the indirect effect can be evaluated using the confidence intervals produced by the bootstrapping technique. If the 95% percent confidence interval for the indirect effect does not include the value of zero this indicates that the indirect effect is significant at the $p < .05$ level. All tests for mediation with bootstrapping were conducted using Preacher and Hayes’ (2004) macro for SPSS where $k$ was specified at 5000.

The bootstrap results of the indirect effect of emotional stability on prosocial knowledge scores produced confidence intervals that include zero (95% CI [-.05, .15]), and consequently, do not reach statistical significance. Hypothesis 2b is therefore unsupported.

Hypothesis 3 was tested by correlating scores on emotion management with ratings of skill in the role-play simulations. Emotion management correlated .12 ($p = .10$) with ratings of prosocial skill. Thus, although this correlation is in the right direction, the magnitude of the relationship does not reach statistical significance.

I then tested Hypothesis 4 by correlating knowledge scores with emotion management scores. As predicted, emotion management was indeed significantly related to prosocial knowledge scores ($r = .41, p < .01$). Table 5 shows the unique effects of predictor variables on the prediction of prosocial knowledge and skill.
knowledge scores are regressed on all of the predictor variables, emotion management ($\beta = .27, p < .01$) still accounts for a significant amount of variance. Thus, emotion management predicts unique variance in prosocial skill.
Table 4. Means, standard deviations, and correlations between study variables ($N = 189 - 197$).

<table>
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<tr>
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<th>$M$</th>
<th>$SD$</th>
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<th>2.</th>
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<th>6.</th>
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<th>8.</th>
<th>9.</th>
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<td>2. Conscientiousness</td>
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</tr>
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<td>3. Agreeableness</td>
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<td>4. Openness</td>
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<td>.06</td>
<td>.33**</td>
<td>.29**</td>
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<td>6. Emotion Understanding</td>
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<td>.00</td>
<td>.41**</td>
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<td>8. Prosocial Knowledge</td>
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<td>.41**</td>
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<td>9. Prosocial Skill</td>
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<td>.16*</td>
<td>.08</td>
<td>.12</td>
<td>.21**</td>
<td>.84</td>
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</tbody>
</table>

Note: *$p < .05$, **$p < .01$* two-tailed tests. Reliability estimates for prosocial skill were computed using the Spearman-Brown prophesy formula.
Table 5. Standardized beta weights and variance accounted for in prediction of prosocial knowledge and skill ($N = 189 - 197$).

<table>
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<td>Emotion Management</td>
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<td>.00</td>
</tr>
<tr>
<td>Prosocial Knowledge</td>
<td>--</td>
<td>.18*</td>
</tr>
</tbody>
</table>

$R^2$ .19 .10

Note: *$p < .05$, **$p < .01$, two-tailed tests.
Hypothesis 5 states that emotion management mediates the relationship between emotion understanding and prosocial knowledge. To test this prediction, I performed a hierarchical regression analysis with prosocial knowledge scores as the dependent variable. At step one, I entered emotion understanding scores as the independent variable and found that emotion understanding scores predict prosocial knowledge ($\beta = .22, p < .01$). At step two I entered emotion management scores into the regression analyses. The addition of emotion management scores into the model ($\beta = .39, p < .001$) renders the beta weight associated with emotion understanding scores insignificant ($\beta = .06, p = .46$). Results of hierarchical regressions with prosocial knowledge as the dependent variable (tests of Hypotheses 2b and 5) are displayed in Table 6.
Table 6. Hierarchical regressions of prosocial knowledge on emotional stability, emotion understanding, and emotion management.

<table>
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<tr>
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</tr>
<tr>
<td>$F$</td>
<td>.97**</td>
<td>9.70**</td>
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</tr>
<tr>
<td>$\beta$</td>
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<td>$\beta$</td>
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<tr>
<td>Emotional Stability</td>
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<table>
<thead>
<tr>
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<th>$R^2_{\text{change}}$</th>
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<tr>
<td>$F_{\text{change}}$</td>
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<td>27.66**</td>
<td></td>
</tr>
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<td>$\beta$</td>
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<td>$\beta$</td>
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</tr>
<tr>
<td>Emotional Stability</td>
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<table>
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Note: *$p < .05$, **$p < .01$, two-tailed tests. All beta weights are standardized.*
The bootstrap results of the indirect effect of emotion understanding on prosocial knowledge scores were statistically significant (95% CI [.48, 1.67]). Thus, Hypothesis 5 is fully supported.

Hypothesis 6 predicted that prosocial knowledge would mediate the relationship between emotion management and prosocial skill in the role-play simulations. I again performed a hierarchical regression analysis with prosocial skill as the dependent variable. At step one, I entered emotion management scores as the independent variable and found that they do not significantly predict prosocial skill ($\beta = .12, p = .011$). Results of hierarchical regressions of prosocial skill on personality traits, emotion management, and prosocial knowledge are displayed in Table 7.
Table 7. Hierarchical regressions of prosocial skill on agreeableness, conscientiousness, emotion management, and prosocial knowledge.

<table>
<thead>
<tr>
<th>Step</th>
<th>Step</th>
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<tr>
<td>First</td>
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<td>Second</td>
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</tr>
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<td>F change</td>
<td>F change</td>
</tr>
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<td>179</td>
<td>180</td>
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</table>

Note: *p < .05, **p < .01, two-tailed tests. All beta weights are standardized.
I then conducted a more rigorous test of the indirect effect of emotion management on prosocial skill scores using the bootstrapping technique. The bootstrap results of the indirect effect of emotion management on prosocial skill ratings produced confidence intervals that do not include zero (95% CI [.10, 1.37]), and consequently, reach statistical significance. Hypothesis 6 is therefore supported, suggesting that prosocial knowledge mediates the effects of emotion management on prosocial skill.

Hypotheses 7 through 8 concern relations between personality traits, prosocial knowledge, and prosocial skill. As Table 4 shows, conscientiousness is significantly correlated with prosocial knowledge ($r = .20, p < .01$), lending support for Hypothesis 7a. Hypothesis 7b predicted that prosocial knowledge mediates the relationship between conscientiousness and prosocial skill. As shown in Table 7, when prosocial skill is regressed on conscientiousness, the beta weight produced is .19 ($p < .01$). However, when a prosocial knowledge is added in as a predictor in the hierarchical regression ($\beta = .18, p < .05$), the beta weight for conscientiousness remains significant ($\beta = .16, p < .05$). Tests for mediation with bootstrapping were performed to more rigorously examine these results, and revealed that the indirect effect of conscientiousness on prosocial skill was significant (95% CI [.02, .28]). Consequently, Hypothesis 7b is also supported, suggesting the prosocial knowledge mediates the relationship between conscientiousness and prosocial skill.

Hypothesis 8a stated that agreeableness would be positively related to knowledge scores. As shown in Table 4, this hypothesis is supported ($r = .27, p < .01$). To test whether prosocial knowledge mediates the relationship between agreeableness and
prosocial skill (Hypothesis 8b), prosocial skill was regressed on agreeableness. However, the beta weight for the effects of agreeableness in predicting prosocial skill is insignificant ($\beta = .14, p = .07$). Nonetheless, because it is not always necessary for an independent variable to exert a significant direct effect on an independent variable for mediation to occur (MacKinnon & Fairchild, 2009), I once again tested for mediation with bootstrapping to examine the significance of the indirect effect of agreeableness on prosocial skill. Results indeed support Hypothesis 8b (95% CI [.09, .62]) and suggest that prosocial knowledge indeed mediates the relationship between agreeableness and prosocial skill.

I then conducted another hierarchical regression in which emotion management, conscientiousness, and agreeableness were entered in as predictors of prosocial skill at step one. This allows for the covariance between predictor variables to be taken into account so that only their unique effects on skill through knowledge are examined. Then, at step two, prosocial knowledge was added into the model. At step one, the only variable that significantly predicted skill in the role-plays was conscientiousness ($\beta = .16, < .05$). Agreeableness ($\beta = .09, p = .27$) and emotion management scores ($\beta = .07, p = .39$) were not predictive. The addition of job knowledge scores into the analysis at the second step produced a significant beta weight ($\beta = .18, p < .05$), but the beta weight associated with conscientiousness was still significant ($\beta = .15, p < .05$). Consequently, when the covariance between emotion management, conscientiousness, and agreeableness is taken into account, prosocial knowledge does not fully mediate the relations between these individual differences and prosocial skill, as conscientiousness continues to exert a direct effect on prosocial skill displayed in the role-play simulations.
Testing the Full Model

In addition to testing Hypotheses 1 through 8 in pieces by computing zero-order correlations, hierarchical regressions, and significance tests of indirect effects in mediation, I also conducted a path analysis to test the full hypothesized model of relationships between emotional intelligence, personality, prosocial knowledge, and prosocial skill. Power analysis prior to data collection revealed a power of .42 to find close fit (RMSEA between .00 and .05) and a power of .91 to find acceptable fit (RMSEA between .05 and .08) with a sample of 200, 22 degrees of freedom (7 variables and 8 paths), and $\alpha = .05$ (MacCallum, Browne, & Sugawara, 1996). Thus, power is adequate for the detection of acceptable, but not close, fit.

The results of the path analysis, which allows for the relations between study variables to be estimated simultaneously, are displayed in Figure 3. Path coefficients are standardized beta weights. Overall, fit for the full hypothesized model is somewhere between mediocre and good ($df = 9, \chi^2 = 21.33 \,[p < .05]$). The model has an RMSEA of .09, which MacCallum and colleagues (MacCallum et al., 1996) argue suggests mediocre fit. However, SRMR for the model (.07) is under .08, which is generally indicates good fit (Hu & Bentler, 1999). Finally CFI falls below the .90 cutoff for acceptable model fit (Hu & Bentler, 1999) at .84.

As expected in Hypotheses 6 and 8b, prosocial knowledge acts as a mediator in the relationship between a) agreeableness and prosocial skill ($\beta = .22, \, p < .01$), and b) emotion management and prosocial skill ($\beta = .29, \, p < .01$). Hypotheses 7a and 7b were not supported in the path model, however, as conscientiousness does not significantly predict prosocial knowledge scores ($\beta = .08, \, p = .25$). Finally, emotion management is
predicted by emotion understanding ($\beta = .39, p < .01$), but not by emotional stability ($\beta = .05, p = .50$). Consequently, path analytic evidence provides support for Hypothesis 1, but not for Hypothesis 2b.
Figure 4. Path analysis of full hypothesized model.

Note: Coefficients are standardized weights. Model fit statistics: df = 9, $\chi^2 = 21.33$, RMSEA = .09, SRMR = .07, CFI = .84.

**$p < .01$, two-tailed tests**
Exploratory Analyses of Knowledge of Effective and Ineffective Behavior

In this section I will explore a) the extent to which knowledge of effective behavior and knowledge of ineffective behavior correlate with one another and with the overall knowledge composite, b) the extent to which each type of knowledge is related to individual difference variables examined in this study, and c) the extent to which knowledge types differentially predict prosocial skill. Knowledge of ineffective behavior has been reverse scored so that higher scores signify greater knowledge.

The items from the prosocial knowledge measure that were deemed effective by subject matter experts correlated .34 (p < .001) with ineffective items. This finding is line with that of previous work (Crook et al., 2011) that has found the magnitude of the correlations between these two types of knowledge to considerably smaller than that of their respective reliability estimates. The overall knowledge composite correlates .84 (p < .001) with knowledge of effective behavior and .80 (p < .001) with knowledge of ineffective behavior.

Zero-order correlations between distal predictors, the two knowledge scores, and prosocial skill are presented in Table 8. The table shows that conscientiousness, agreeableness, emotion understanding, and emotion management yield significant correlations with both knowledge of effective behavior and knowledge of ineffective behavior. These findings are consistent with the pattern of relations expected for overall knowledge scores.
Table 8. Zero order correlations between distal predictors, knowledge of effective and ineffective behavior, and prosocial skill (N = 183-194).

<table>
<thead>
<tr>
<th></th>
<th>Knowledge of Effective Behavior</th>
<th>Knowledge of Ineffective Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional Stability</td>
<td>.03</td>
<td>.08</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>.17*</td>
<td>.16*</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>.17*</td>
<td>.30**</td>
</tr>
<tr>
<td>Openness</td>
<td>.07</td>
<td>.17*</td>
</tr>
<tr>
<td>Extraversion</td>
<td>.00</td>
<td>.09</td>
</tr>
<tr>
<td>Emotion Understanding</td>
<td>.21**</td>
<td>.15*</td>
</tr>
<tr>
<td>Emotion Management</td>
<td>.26**</td>
<td>.40**</td>
</tr>
<tr>
<td>Prosocial Skill</td>
<td>.09</td>
<td>.26**</td>
</tr>
</tbody>
</table>

Note: *p < .05, **p < .01, two-tailed tests.
However, openness to experience was simply significantly related to knowledge of ineffective behavior. When the correlation between openness and knowledge of effective behavior was compared to the correlation between openness and knowledge of ineffective behavior using the Hotellings-Williams test advocated by Steiger (1980), the two correlations are not significantly different from one another ($t = 1.21(188), p = .23$). Thus, I cannot conclude that openness is related only to knowledge of ineffective behavior.

Finally, only knowledge of ineffective behavior was significantly related to ratings of prosocial skill in the role-play simulations. When using the Hotellings-Williams test advocated by Steiger (1980), the correlation between knowledge of ineffective behavior and prosocial skill is compared to the correlation between knowledge of effective behavior and prosocial skill, the two correlations are statistically significant from one another ($t = 2.05(180), p < .05$). Consequently, in this study, knowledge of ineffective behavior is more predictive of prosocial skill than knowledge of effective behavior.

When scores for each knowledge type were regressed on personality and emotional intelligence variables (see Table 9), no individual predictor accounted for a significant amount of unique variance in knowledge of effective behavior. However, both agreeableness ($\beta = .23, p < .01$) and emotion management ($\beta = .30, p < .01$) uniquely predicted variance in scores for knowledge of ineffective behavior.
Table 9. Multiple regression showing unique effects of distal predictor variables on knowledge of effective and ineffective behavior

\( (N = 176-178) \).

<table>
<thead>
<tr>
<th></th>
<th>Knowledge of Effective Behavior</th>
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<tbody>
<tr>
<td>Emotional Stability</td>
<td>.02</td>
<td>.00</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>.11</td>
<td>.06</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>.12</td>
<td>.23**</td>
</tr>
<tr>
<td>Openness</td>
<td>.01</td>
<td>.03</td>
</tr>
<tr>
<td>Extraversion</td>
<td>-.04</td>
<td>.06</td>
</tr>
<tr>
<td>Emotion Understanding</td>
<td>.12</td>
<td>.03</td>
</tr>
<tr>
<td>Emotion Management</td>
<td>.13</td>
<td>.30**</td>
</tr>
</tbody>
</table>

\( R^2 \)                     | .09                             | .21                               |

Note: **\( p < .01 \), two-tailed tests.
CHAPTER 6

Discussion

The primary focus of the current investigation was to explore the possibility that job knowledge mediates the relationship between emotional intelligence and job performance. I aimed to inform a) existing theories of job performance that do not currently take emotional intelligence into account as an ability antecedent of knowledge (e.g. Campbell et al., 1993) and b) research on emotional intelligence that has primarily investigated the construct as a direct determinant of job performance (Joseph & Newman, 2010). I also planned to further explore the different antecedents and predictive validity of knowledge of effective and ineffective behavior.

Emotional Intelligence

Work on the relationship between emotional intelligence and job performance has yielded inconclusive results, due in part to criticism of the so-called "fadification of emotional intelligence" (Murphy & Sideman, 2006) produced by exaggerated claims of the strength of the relationship between emotional intelligence and job performance. The study proposed here intends to clarify the role of emotional intelligence in job performance models by situating the construct as a distal predictor of job knowledge, a more proximal and job-related determinant of job performance. The position of emotional intelligence in the model of construct relations tested in this report is a departure from the more common approach of examining emotional intelligence as a direct determinant of job performance (Goleman, 1995; 1998). The role of emotional intelligence as an antecedent of job-relevant knowledge had not yet been empirically explored prior to this
study, and results suggest emotional intelligence is a significant predictor of prosocial knowledge about how to behave in service encounters.

Additionally, findings from this study yield additional support for the hierarchical nature of emotional intelligence (Joseph & Newman, 2010; Mayer et al., 2000; Mayer et al., 2008), as emotion understanding was indeed related to emotion management. Furthermore, emotion management mediated the relationship between emotion understanding and prosocial knowledge. These results provide further confirmation that emotion understanding and emotion management are related components of the strategic area of emotional intelligence. Additionally, they corroborate the assertion that emotion understanding is a more distal antecedent of performance than emotion management, which carries the effects of emotion understanding on knowledge in this study.

However, emotional stability was not predictive of emotion management, as was predicted. This result is surprising, as previous research (e.g. Joseph & Newman, 2010) has supported a link between these two emotionally-relevant constructs.

Emotion management, although not directly related to prosocial skill in this investigation, was significantly correlated with prosocial knowledge scores. Moreover, emotion management accounts for a significant portion of unique variance in prosocial knowledge, even when covariance with other predictor variables is controlled. This finding is important, as it expands current theory on the antecedents of prosocial knowledge and behavior. Work on prosocial behavior and its antecedents has largely focused on the role of affect (e.g. George, 1991) or personality (e.g. Motowidlo et al., in press) in shaping prosocial action in the workplace. This study provides evidence to suggest that individuals who are better able to manage their emotions and the emotions of
others are more likely to recognize and value prosocial behaviors that are considered effective in service-oriented professions. As physicians regularly provide a service to individuals experiencing heightened emotions in regard to their health, possessing the ability to recognize effective strategies for managing these emotions may enable physicians to more successfully identify effective prosocial approaches to dealing with patients, family members, and nurses.

**Personality**

Replicating findings from several other studies (Crook et al., 2011; Motowidlo et al., 2009; Motowidlo et al., in press), personality traits were again shown to be important antecedents of prosocial knowledge measured by situational judgment tests in this study. Both conscientiousness and agreeableness were significantly related to prosocial knowledge. This pattern of relationships supports the predictions made by the theory of dispositional fit (Motowidlo, 2003) and ITP theory (Motowidlo et al., 2006) in showing that despite being non-cognitive traits, personality factors are related to knowledge about effective and ineffective interpersonal interaction in the workplace.

What is more, prosocial knowledge carried the effects of both conscientiousness and agreeableness on prosocial skill in this study. This finding is similar to results from other studies (e.g. Crook et al., 2011) that have shown knowledge is more proximally related to job performance than personality traits are.

**Prosocial knowledge**

Analyses revealed that prosocial knowledge mediates the relationship between emotion management and prosocial skill displayed in the role-play simulations. This finding is in keeping with prominent theories of job performance (Campbell et al., 1993,
that suggest individual differences such as ability and personality are distal antecedents of more proximal performance determinants such as knowledge and skill. Further, this result broadens the understanding of the way emotional intelligence is thought to influence job performance. Researchers have examined emotional intelligence as a direct determinant of job performance (e.g. Goleman, 1995; Joseph & Newman, 2010), but have not explored whether this construct influences performance indirectly through its effects on knowledge and skill. Although job performance was not measured in this investigation, previous work (Kell et al., 2013) has shown that the prosocial knowledge measure used in this study successfully predicts medical students’ job performance in primary care clerkship rotations ($\beta = .14, p < .05$).

Moreover, discovering that prosocial knowledge indeed mediates the relationship between emotional management and prosocial skill adds to a growing mass of work suggesting individual difference constructs such as personality and ability affect job performance primarily through their effects on knowledge (Borman et al., 1991; Crook et al., 2011; Schmidt & Hunter, 1998; Motowidlo et al., in press). This existing work has principally focused on straightforward measures of cognitive ability (Borman et al., 1991; Schmidt & Hunter, 1998) and personality traits (Crook et al., 2011; Motowidlo et al., in press; Motowidlo & Beier, 2010) as antecedents of knowledge. The current study extends this work by introducing emotional intelligence as an ability antecedent of job knowledge.

Contrary to expectations, the full path model of hypothesized relations between study variables did not yield excellent fit. Firstly, emotional stability did not predict emotion management in this sample, which was unexpected. Secondly, when relations
between variables were simultaneously estimated in the full path model, conscientiousness did not have a significant effect on prosocial knowledge. Although conscientiousness has been shown to predict prosocial knowledge measured by single-response SJTs ($r = .27, p < .01$; Crook et al., 2011), prior work in the profession of a physician has documented non-significant correlations between conscientiousness and SJT scores (Kell et al., under review; Martin et al., 2011). Consequently, though conscientiousness may be related to prosocial knowledge about how to behave in some occupations, agreeableness may be more closely tied to effectiveness in the medical domain, where displays of warmth and sympathy may be especially valued.

Through exploring the nature of the knowledge domain as both a unitary and two-dimensional construct, results from this investigation shed light on the predictive validity of these two characterizations of job knowledge. Unexpectedly, only knowledge of ineffective behavior was significantly related to ratings of prosocial skill in the role-play performances. One previous set of studies (Crook et al., 2011) examined the differential criterion validity of knowledge of effective and ineffective behavior. The first study measured prosocial knowledge and job performance in a sample of museum tour guides and found that both knowledge of effective behavior and ineffective behavior each correlated $.27 (p < .05)$ with job performance. However, the second study on volunteers working in a service organization found that knowledge of effective behavior was unrelated to job performance ($r = .00$) while knowledge of ineffective behavior was significantly correlated $.30 (p < .01)$. In another set of studies (Motowidlo et al., in press), only knowledge of effective behavior significantly correlated with simulated role-play performances in the profession of a human factor professional ($r = .29, p < .01$). In the
second study from this report, this pattern was repeated, as only knowledge of effective behavior correlated significantly \( r = .26, p < .05 \) with the performance dimension of work effort in a sample of volunteers. Consequently, it seems findings are somewhat mixed, and further investigation of the differential predictive validity of each class of knowledge is warranted.

Furthermore, this study has added to existing, although admittedly sparse, evidence in support of the usefulness of single-response SJTs for predicting job-relevant behavior. Because single-response SJTs are quite new (Motowidlo et al., 2009; Crook et al., 2011) this study provides an important replication of the test's validity in predicting skill. The process for developing single-response SJTs is much simpler and less expensive than that used to develop multiple-response versions (Motowidlo et al., 2009) because single-response SJTs eliminate the step in test construction where subject matter experts generate and rate multiple response options. Thus, one practical implication of the work reported here is that results encourage the use of this test format, which can be developed more quickly and less expensively than multiple-response versions.

**Limitations and future directions**

One of the limitations of this study is the use of undergraduate students as participants in a laboratory setting. Ideally, job performance data would be collected from individuals who would have been able to assess a sample of physicians acting prosocially while interacting with nurses, patients, and family members. However, using role-play performances in the laboratory as our criterion measure allowed for more experimental control than would have been obtained had used real-world ratings of job performance been used. Future research examining the pattern of relations among personality,
emotional intelligence, prosocial knowledge and skill on job performance in real-world service settings is necessary.
References


doi:10.5465/AMP.2007.24286163


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European Journal of Personality, 17, 39–57. doi:10.1002/per.466


Appendix A

Role-play Prompts for Measure of Prosocial Skill

1. You are seeing a pregnant woman with a serious medical condition that needs to be monitored. You placed her on bed rest several weeks ago. She has just told you that she wants to leave the hospital because she is tired of lying down and not doing anything. The medical condition she has is very dangerous for her baby. You respond to her by saying…

2. A patient has come to see you because she thinks that there is something wrong with her arm. You determine that the lump on her arm is cancerous. You have not been medically trained to deal with such cancers. You respond to the patient by saying…

3. You are going to check on a patient that you last saw two days ago. The last time you saw this patient, you instructed the patient’s nurse to order some lab tests. When you look at the patient’s chart, you see that the lab tests have not been completed. The nurse is in the patient’s room with you now. You say to the nurse…

4. A teenage patient with cancer has come to see you. She is going to have ports inserted into her skin in order to undergo chemotherapy. She tells you that her junior prom is coming up and she is concerned the ports will show because of the cut of her dress. You respond to her by saying…

5. You are seeing one of your long-time patients in the hospital. You walk into the room and see the patient’s family. The family tells you that they are not
happy with the patient’s progress and that they want a new physician assigned to the case. You respond to the family by saying…

6. A 13 year-old girl has come with her mother to see you for a check-up. You need to ask her about some potentially sensitive matters such as whether she smokes, or uses alcohol or drugs. However, you are concerned that the patient may not respond truthfully in front of her mother. You handle the situation by saying…

7. You are seeing one of your patients and his family in the hospital. This patient has just suffered from respiratory arrest and died. You know that there is no way to revive this patient. You say to the family…

8. It is a weekend and you are off-duty and off-call. You receive a phone call from one of your patients. This patient has a history of high blood pressure and sporadic heart rate. He has called you in a panic over his condition and asks if you can treat him. You respond to this patient by saying…

9. The patient you are about to see previously cancelled her last two appointments with you at the very last minute because of work conflicts. When you see her you say…