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Personality attributes that predict cadet performance at West Point

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ABSTRACT

Using data from the United States Military Academy at West Point ($N = 1102$ and $N = 1049$) from two successive years, we examined psychological measures of cadets and the correlations of those measures with consequential outcomes such as cadet performance and leadership potential. We examined four broad intelligences, two of which were thing-focused (spatial and mathematical) and two people-focused (verbal and personal intelligences) and their predictions to thing- and people-centered courses (e.g., chemistry versus psychology). We found support for a thing-people differential in reasoning. The broad intelligences and the Big Five personality traits also predicted academic and other performance criteria at consequential levels.

1. Introduction

Personality can be regarded as the organization of an individual's major psychological subsystems, including intelligences, socio-emotional styles, and self-control (Funder, 2013; Larsen & Buss, 2014; Mayer, in press). Personality traits describe the functioning of those systems—and many of those traits predict important life outcomes. An individual's general mental ability predicts their school and work performance evaluations in the $r = 0.45$ to 0.55 range (Deary, 2012; Salgado, Anderson, Moscoso, Bertua, & de Fruyt, 2003; Schmidt & Hunter, 2004) and conscientiousness predicts career success at $r = 0.22$ (Barrick & Mount, 1991, p. 15; see also, Judge, Colbert, & Ilies, 2004; Judge, Klinger, & Simon, 2010; Schneider & Newman, 2015).

Personality traits often affect one another. For example, interests and intelligences may grow together, with interests guiding thoughts, and intellectual success in a specific area enhancing interest in the subject (Ackerman, 2014; Ackerman & Kanfer, 2004; Rolfhus & Ackerman, 1999). Some people are more interested in things than people, whereas other people exhibit the reverse trend. People vary markedly in their interests in things or people beginning by the third grade, and by young adulthood their interests are related to their subsequent intellectual development and occupational choices (Ackerman, 2014; Graziano, Habashi, Evangelou, & Ngambeki, 2012; Rolfhus & Ackerman, 1999). Mechanical engineers and accountants prefer to work with things; social workers and sales people, with people—and some like both—or neither (Holland, 1966; Tay, Su, & Rounds, 2011).

1.1. General intelligence and broad intelligences

Although much about intellectual ability can be characterized by general intelligence—a person's capacity to solve problems regardless of area (Gottfredson, 1997), contemporary researchers also examine a second tier of between 8 and 16 intelligences, referred to as *broad intelligences*—that exhibit partial independence from overall mental ability (Flanagan, Alfonso, Ortiz, & Dynda, 2013; McGrew, 2009; Schneider & Newman, 2015). Among these broad intelligences, several are focused on *things* and several on *people*. For example, spatial intelligence concerns reasoning about things such as objects in space; mathematical-quantitative intelligence also is concerned with the numerical qualities of objects (things). By comparison, personal intelligence, defined as the ability to reason about personality in oneself and others, is focused on people; emotional and social intelligences also are people-centered (Gardner, 1983; Mayer, 2014; Salovey & Mayer, 1990; Wong, Day, Maxwell, & Meara, 1995). Verbal intelligence is likely near the

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middle of the continuum, given that language understanding requires vocabulary and comprehension in the realms of both things and people.

In the present study, we examine the personality attributes of two successive classes of cadets at West Point with a focus on their mental ability traits and how those affect their performance. Included in our study are spatial, quantitative, verbal and personal intelligences, as well as measures of the Big Five personality traits of Extraversion, Neuroticism, Openness, Agreeableness and Conscientiousness. Among our key aims is to provide the first tests of whether personal intelligence correlates with actual coursework and other outcomes of importance among cadets. A second is to determine whether cadet intelligences, including both thing- and person-focused abilities, predict their performance in corresponding thing-versus-person-focused courses. Finally, we explore whether these associations hold after controlling for some reasonable confounds. We also will correlate Big Five traits with cadets' performance, and we hope to replicate findings that both the SAT and Conscientiousness predict school performance—helpful to reaffirm (if we can) amidst the current of uneasiness over non-replications in psychology (e.g., Pashler & Wagenmakers, 2012).

1.2. Personal intelligence as an intelligence about people

1.2.1. Overview of personal intelligence and its measurement

Many intelligences are thing related such as spatial and quantitative intelligences; other less-studied mental abilities may be more focused on people. Personal intelligence was proposed as a potentially-unmeasured and overlooked broad intelligence that involves the ability to reason about both personality and personality-relevant information in oneself and others (Mayer, 2008, 2009). More specifically, people with personal intelligence were said to solve problems that included (a) identifying personality-relevant information, (b) forming accurate models of one's own and others' personalities, (c) guiding choices using personality-relevant information and (d) systematizing one's goals accordingly.

To provide a "proof of concept" that personal intelligence exists, a *Test of Personal Intelligence* (*TOPI*) was developed consisting of approximately 120 multiple-choice questions that asked diverse types of questions about personality. For example, the following item assessed trait understanding:

> 01. A person is tactless and lacks a sense of humor. Which of the following is most likely to describe this person:
> a. disagreeable
> b. neurotic
> c. carefree
> d. desiring of attention
> (Mayer, Panter, & Caruso, 2012)

Here the answer is "a," disagreeable, because tactlessness and a lack of humor and are instances of disagreeableness, according to research on the Big Five (Goldberg & Rosolack, 1994). The TOPI items were designed to assess the four areas of problem-solving proposed by the theory. Across three earlier studies, findings indicated that the overall Test of Personal Intelligence was reliable and that personal intelligence could be modeled as a single broad intelligence, using scales reflecting the four problem-solving areas of the theory as indicator variables (Mayer et al., 2012). Personal intelligence also resembled other broad intelligences in that its test scores correlated about $r = 0.35$ with verbal intelligence and $r = 0.65$ with emotional intelligence. Recently, researchers have found that emotional intelligence (measured as a mental ability) fits well with within the broad intelligence group (Legree et al., 2014; MacCann, Joseph, Newman, & Roberts, 2014); personal intelligence, while more recently proposed and less studied to-date, also appears to be a candidate for inclusion in the group based on findings so far (Mayer, Caruso, & Salovey, 2016).

1.2.2. Predictions from personal intelligence and other broad intelligences

Little is known to-date about the relation of personal intelligence with real life phenomena: Do people with higher personal intelligence exhibit better college performance? Are they perceived differently from others? Many of the broad intelligences—particularly thing-related intelligences—predict consequential outcomes such as school and job performance (Deary, 2012; Fernández-Berrocal & Extremera, 2016; Lopes, 2016; Schmidt & Hunter, 2004). It seems reasonable that personal intelligence—as a possible broad mental ability—also would reflect such outcomes.

In our studies here, we further suppose that *thing* intelligences will correlate more highly with performance at thing-focused tasks such as those predominantly required in science and engineering courses, whereas *people*-centered intelligences will exhibit stronger relationships with courses more focused on people such as those in English, philosophy, psychology, management, and leadership, in which students must (depending upon the course) understand characters in literary works, or how people feel when being treated unethically, as well as people's varied motivations and consequent behavior. Our predictions developed from earlier findings that broad abilities are differentially predictive of targeted outcomes: Emotional intelligence is related to better interpersonal outcomes (Mayer, Roberts, & Barsade, 2008) and people high in spatial intelligence gravitate to more thing-oriented fields such as the sciences and engineering, or aspects of fields such as the arts that emphasize the visual—e.g., painting and graphic design—rather than, for example, creative writing (Wai, Lubinski, & Benbow, 2009).

1.2.3. Relations to the Big Five

Personal intelligence also may be related to people's Big Five traits. Although most intelligences are unrelated to Conscientiousness and Agreeableness, individuals with people-focused understanding better monitor their own personal strengths and weakness. They may therefore exhibit more responsibility in making and meeting commitments than others—which they may report as higher levels of Conscientiousness. Such individuals may also appreciate other people's individuality and as a consequence know how to better meet their needs (if they wish to), and therefore report higher Agreeableness—findings supported by earlier research (Joseph & Newman, 2010; Mayer et al., 2012). Like other intelligences, personal intelligence is likely also to exhibit correlations at around $r = 0.20$ with Openness (DeYoung, 2011).

2. Introduction to the present studies

To test whether (and how) intelligences correlate with performance outcomes, we will examine two classes of cadets who attended the U.S. Military Academy at West Point (hereafter, West Point), evaluating their levels of broad intelligences and comparing those with several academic and extracurricular outcomes. West Point provides a four-year college education in which cadets complete a core academic curriculum consisting of slightly more than 20 courses divided among the liberal arts, sciences, and engineering (Office of the Dean, 2014). The exact number depends on the student, as some will place out of one or more courses or begin in an advanced-level course.

Our data set will include the SAT-math as a measure of mathematical-quantitative intelligence, the Occupational