ARTICLES

Does Personal Intelligence Exist? Evidence From a New Ability-Based Measure

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Personal intelligence has been defined as the ability to reason about personality and personality-relevant information and to use that information to guide one's actions and more generally, one's life. We constructed an initial version of an ability-based measure to test whether personal intelligence can be measured and whether it exists as a unitary intelligence. In 3 studies (N = 241, 308, and 385), we administered this Test of Personal Intelligence (TOPI), composed of 4 sections, to undergraduates along with criterion measures. Results suggested that a personal intelligence can be measured, that it might exist as a unified area of mental abilities, and that it represents psychological qualities that have intriguing predictive aspects.

Do some people possess a heightened ability to understand personalities—their own and those of others? If so, such individuals could conceivably use such knowledge to make better choices for themselves, to more adeptly manage their lives, and to better communicate about personality with those around them (e.g., Funder, 2001; Pillemer, 2003; Vazire & Mehl, 2008; Vogt & Colvin, 2005). For example, a young person might choose to engage in a prosocial purpose he finds especially interesting (Moran, 2009), a soccer coach might expertly motivate herself by recalling a past losing season she hopes to avoid (Pillemer, 1998), and an actor might be especially skilled at understanding others' motivations and representing them onstage (Goldstein, Wu, & Winner, 2009).

A recent theory characterizes such skills as part of *personal intelligence* (Mayer, 2008, 2009), an ability to reason about personality and its processes, as applied to oneself and others. (This could also be called a personality intelligence, although we prefer the term personal intelligence.) Were personal intelligence (PI) to exist, it likely would be an example of a hot intelligence, as opposed to a cool one. Cool intelligences, such as verbal comprehension and perceptual-organization, involve reasoning about relatively neutral and impersonal information such as vocabulary, sentence meanings, and abstract patterns. Hot intelligences such as the emotional, social, and practical, by contrast, involve reasoning about information that is personally relevant and that often elicits painful or positive reactions (Mayer, Salovey, & Caruso, 2004). Emotional intelligence, for example, concerns perceiving and reasoning about emotions and emotional information (Mayer, Roberts, & Barsade, 2008; Mayer & Salovey, 1997). The reason PI is likely to be a hot

intelligence is that it concerns reasoning about how to live one's life and make decisions. Because PI addresses such questions as "Who am I?" and "Who are you?," it might arguably be the *sine qua non* of the hot intelligences.

Personality itself can be defined as the organized, developing system within each of us that represents the collective action of our psychological processes such as our motives, emotions, social planning, and self-regulation (cf. Mayer, 2005, p. 296). Information that is "personality relevant" describes our own and others' motives, depicts ways to think about our selves and others, and specifies how people are similar to one another or how they differ. PI involves the capacity to reason about personality and personality-related information so as to enhance one's thoughts, plans, and life experience (Mayer, 2008)—but can such an intelligence be measured using rigorous psychometric criteria?

The research in this article focuses on the initial tests of whether PI exists as a mental ability. Contemporary philosophy of science speaks generally of accruing evidence for a theory or failing to do so (Smith, 2005) and the gold standard for measuring a mental ability such as PI is ability testing. Such an approach involves asking a participant to answer questions, and then comparing the participant's answers to a criterion of correctness (Carroll, 1993). The range and scope of PI-related abilities likely span such diverse areas as perceiving others' personality traits accurately (Funder, 2001), knowing which traits cooccur (Costa & McCrae, 1992; Goldberg, 1993), and setting goals that are mostly consistent with one another (Emmons & King, 1988).

In this article, we report three studies that examine the core claim that PI exists. We have created and administered a set of items that measure diverse problem solving in the PI domain and that we refer to collectively as the Test of Personal Intelligence (TOPI; Mayer, Caruso, & Panter, 2011b). Our aim was to determine if there is any evidence for a PI, specifically, whether the

TOPI assessed reliable individual differences, whether the test described a unitary domain of abilities, and whether the TOPI's scores correlated with various criterion measures in hypothesized ways. If PI does not exist, then our participants would not exhibit individual differences in the tested-for abilities. They would not recognize, for example, that "liveliness and sociability" go together more often than "liveliness and agreeableness," but rather, see illusory correlations and neglect real-life covariances (Fiedler, Freytag, & Meiser, 2009). If PI does not exist, then skills measured in one section of the test would not correlate with skills measured by another, and we would have assessed fragments of other intelligences or talents rather than a unified intelligence. And even if a reliable, cohesive PI emerged, it might be undermined if it overlapped highly with, say, unrelated nonability attributes such as one or two of the Big Five personality traits (Goodwin & Leech, 2003).

Recent research indicates that intelligences such as emotional and social intelligence are associated with important life outcomes beyond what can be predicted from cool intelligences alone (Mayer, Salovey, & Caruso, 2008; Sternberg, 1999; Wagner, 2000; Zeidner, Roberts, & Matthews, 2008). PI, too, may be associated with important life outcomes. Before any such associations can be determined, however, evidence first must be gathered for whether a PI exists in the sense that it can be reliably measured.

TOWARD A MEASURE OF PERSONAL INTELLIGENCE

Intelligences Hot and Cool

Considerable research throughout the 20th century has focused on cool intelligences—intelligences that deal with information that is relatively impersonal in relation to the individual (Abelson, 1963; Mayer & Mitchell, 1998). Cool intelligences include verbal-comprehension intelligence that deals with understanding words, sentences, and logical propositions, and includes perceptual-organizational intelligence, which deals with understanding visual patterns, their meanings, and how they fit together (e.g., Wechsler, 1997). One comprehensive model of such intelligences arranges them hierarchically into three strata from general intelligence or *g* to more specific abilities such as crystallized intelligence, long-term memory, auditory intelligence, and general speed of processing (Carroll, 1993).

As the cool intelligences became better understood toward the end of the 20th century, there emerged a movement to widen intelligence research so as to include more varied abilities (Gardner, 1983; Sternberg, 1985). Part of that broadening movement included a fresh look at social intelligence, an intelligence that had been somewhat discredited in the mid-20th century due to the belief that it was insufficiently distinct from general intelligence (Ford & Tisak, 1983; Kihlstrom & Cantor, 2000). A new intelligence, emotional intelligence, also was introduced (Mayer, DiPaolo, & Salovey, 1990; Salovey & Mayer, 1990).

More recently, social and emotional intelligences have been grouped together in a "hot intelligence" group, so called because they concern the degree to which a person can reason about hot information: information that is especially personally relevant, and consequently, can trigger a person's mental pleasure and pain (Abelson, 1963; Mayer & Mitchell, 1998; Mayer et al., 2004). Other intelligences might be members of this group as well. Wagner and Sternberg's practical intelligence, for example, concerns the ability to understand and learn unspoken so-

cial rules (Wagner, 2000). Wagner and Sternberg (1985) found, for example, that in universities in the 1970s, professors who were productive in their research were more highly regarded by other faculty than those who taught well in the classroom but lacked such research programs. This preference for research activity was communicated privately, however. Faculty members who missed the subtle signals about research productivity—and some did—were regarded as lower in practical intelligence.

Brief Definition and Reasons for the Delay in the Study of Personal Intelligence

The group of intelligences including the emotional, social, and practical increasingly is a topic of research study. Yet these intelligences exclude any mention of PI—reasoning about one's own and others' personalities. There are several possible reasons that interest in PI was delayed in its development. Most important, for much of the 20th century the personality system was viewed as a relatively inconsequential mental influence, hence understanding it seemed unlikely to yield much advantage to a person (Cunningham, 2005; Kenrick & Funder, 1988; Mischel, 1968). Recent research, however, has provided firmer evidence that personality—including traits, self-control, and other qualities—is indeed consequential in its effects on a person's life, and is of greater importance to understand than has sometimes been acknowledged in the past (Baumeister & Tice, 1996; Funder, 2001; Kenrick & Funder, 1988; Mayer, 2005; McAdams & Pals, 2006; Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007).

A second factor discouraging interest in PI was the frequent association of thinking about oneself and one's personality, on the one hand, with a self-involved or egotistical self-involvement, on the other. The association between a "Generation Me" self-involvement and more useful self-reflection, whether real or not, might have discouraged some researchers from becoming involved in the area (Baumeister & Tice, 1996; Funder, 2001; Kenrick & Dantchik, 1983; Mayer, 2005; McAdams & Pals, 2006). Yet accurate self-reflection is as likely to discourage over-self-involvement as to encourage it. For example, because personal intelligence is related to accurate self- and other understanding, it could buffer against the inflated self-regard that is a hallmark of narcissism (Mayer, 2008, 2009).

The third factor forestalling the study of PI had to do with the challenges to measuring it. The idea of assessing an intelligence about the self often focuses on accurate self-knowledge. Gardner's intrapersonal intelligence, for example, is a diverse blend of emotional, social, and personal abilities, with the personal part chiefly involving self-knowledge (Gardner, 1983). Self-knowledge about a specific individual is difficult to assess, however, despite hard-won progress in self-knowledge studies (e.g., McCallum & Piper, 1990; Vazire & Mehl, 2008; Vogt & Colvin, 2005). Several issues are involved.

First, evaluating self-knowledge across individuals requires different answer keys for each person because, to take the example of sociability, the answer "I am sociable" will be correct for some people but incorrect for others. Because the correct answer to a test question changes from person to person, and because a person who is extreme on a trait (e.g., agreeableness) might find it easier to notice than someone more moderate on it, measurement errors and biases will be introduced.

Next, determining the correct answer for a given person is potentially challenging as well. Consider the question, "Are you fearful?" Researchers can induce fear experimentally by telling laboratory participants that they will shortly receive a painful electric shock or by other means. Among participants who exhibit fear physiologically—elevated heart rate, galvanic skin response—only some acknowledge *feeling* fear (e.g., Weinberger, Schwartz, & Davidson, 1979). Is it fair to say that a participant who denies any fear really feels it—even if all the physiological indicators are present? Only the individual has access to his or her inner experience, after all (e.g., Nagel et al., 1992). In addition, there are multiple areas of the self to understand: actual selves, ideal selves, selves we remember, selves we experience consciously, and so on (Bornholt, 2005; Lieberman, Jarcho, & Satpute, 2004; Neisser, 1988), and these different selves make it challenging to sample self-knowledge.

Together, issues of having different correct answers for different people, the problem of objective standards, and the scope of the self present measurement challenges. Nonetheless, painstaking efforts by researchers have yielded important advances in the area (Robins & John, 1997; Wilson, 2009). Some researchers, for example, have compared reports from target individuals, from observers, and from other sources to understand what information sources are useful in a practical sense for a specific purpose (Funder, 1995; Vazire & Mehl, 2008; Vogt & Colvin, 2005). Experimental work also has revealed key processes that promote and limit self-knowledge (Dunning, 2005; Wilson & Dunn, 2004). Nonetheless, an approach complementary to studying self-knowledge might also be of value, and that approach is taken here: to study large groups of people as to their understanding of personality in general.

The theory of PI shifts the emphasis from *self*-understanding to *personality* understanding. Rather than ask about the unique self, the test questions we examine here pertain to the rules of personality and individual variation in general. Defining PI as centered on the universals and common individual forms of personality potentially allows for asking questions with objective answers. The TOPI questions and answers are based on the idea that each person is in certain respects like all others, in certain respects like some others, and in still other respects, a unique individual (Kluckhohn & Murray, 1953, p. 53). For example, all people use mental defenses, and yet some are more defensive than others. If PI exists, it concerns an individual's acuity at understanding personality at this general level. This understanding is likely to be related to self-knowledge, but PI involves a conceptual shift that leads to a new approach to the measurement of such qualities.

Measurement Approaches to Personal Intelligence

Our measurement of PI is based on determining how well individuals understand personality and its principles in a general sense. For example, to test someone's understanding of what he or she and others are like, one can ask questions about which traits go together most commonly: (a) dutifulness and promptness, or (b) dutifulness and sociability. Respondents who better understand traits will realize that "a" is the correct answer, and this answer can be verified against objective criteria (e.g., Goldberg & Rosolack, 1994). As a second example, one can ask which goal is more realistic to attain: (a) to make a new friend in a year, or (b) to be all things to all people one meets. People

higher in PI ought to understand that the first goal (a) will raise fewer complications than the second (Emmons & King, 1988). However, whether individual differences exist in such an understanding, or whether they form a coherent intelligence, is as yet unknown. In three studies, we administer the TOPI (Mayer et al., 2011b) to test whether such an intelligence might exist.

OVERVIEW OF THE PRESENT STUDIES

Scale Organization

The theory of PI views the proposed mental abilities studied here as forming a hierarchy in which overall PI can be divided into four general areas (Mayer, 2008). These capacities include:

(a) to recognize personally relevant information from introspection and from observing oneself and others, (b) to form that information into accurate models of personality, (c) to guide one's choices by using personality information where relevant, and (d) to systematize one's goals, plans, and life stories for good outcomes. (Mayer, 2008, p. 215)

For convenience, we refer to those four areas as (a) Recognizing Information, (b) Forming Models, (c) Guiding Choices, and (d) Systematizing Plans. Each can be conceived of, in turn, as composed of still more specific types of problem solving.

Across Studies 1, 2, and 3, of this article, we employed three versions of the TOPI: 1.0, 1.1, and 1.2. The overall scale organization of the most advanced version, TOPI 1.2, is presented in Table 1. The prior versions are similar to TOPI 1.2 and form the bases for it. Each version of the TOPI has four sections, corresponding to the four areas of the theory: Recognizing Information, Forming Models, Guiding Choices, and Systemizing Plans (see Table 1). Each test section included three to seven item clusters that sampled an area of PI, where an item cluster was defined as a small group of similarly phrased items. For example, the Forming Models section of the TOPI was measured with four clusters in the TOPI 1.2; TOPI versions 1.0 and 1.1 used three such clusters.

Table 1 provides the first item from each cluster, along with its correct answer. Each multiple-choice item had four options of the convergent-response type (e.g., participants were asked to converge to a correct answer; Mayer, 2004). We wrote items so that correct answers could be identified by referring to specific research articles or other criteria for a clear answer. Our goal was a veridical scoring system for a PI test; that is, one in which the correctness of an item could be defined by scientific standards.

Scale Development and Data Analytic Plan

As mentioned, we evaluated the TOPI with three independent samples (Study 1, $N = 241$; Study 2, $N = 308$; Study 3, $N = 385$) and followed the same general data analytic procedure across studies. For each one, we first ensured that each content cluster was unifactorial and reliable by conducting exploratory factor analyses, examining factor loadings relative to their standard errors, and inspecting item–total correlations at the level of the cluster. Next, we combined the item clusters into their a priori assigned test section. Combining items in this way yielded four section scores. We then tested the degree to which each of the TOPI sections represented overall PI using confirmatory factor analysis. We then correlated the TOPI scores with criterion measures of interest.

TABLE 1.—The Test of Personal Intelligence (TOPI 1.2): Sections, clusters, and sample items.

Cluster (Order of Administration)	Final Items	Sample Items (Abbreviated)[a]
Section 1: Recognizing Personality-Relevant Information – Pictorial and Verbal[b]		
Recognizing inner motives (1)	10	If a person feels a dry throat, they are most likely going to: a. drink, b. eat . . .
Recognizing states of consciousness (6)	7	If a person's mind wanders, they feel impatient, and distracted, their mental state is one of: a. boredom, b. between sleep and waking . . .
Observing other's comments and reactions (11)	4	Someone who you don't get along with at work mentions you completed a project very well, then asks for a favor – why? a. said positive things to persuade you to grant the favor, b. wants you to turn down the favor to prove you are no good . . .
Observing action-to-inner feeling patterns (16)	4	When a person puts his/her best foot forward, often he/she: a. feels worried about being "found out," b. views him or herself as better than before . . .
Faces[c] (2)	12[d]	{Picture of a face}. a. cheerful, enthusiastic, energetic; b. disorderly and operates on own schedule . . .
Spaces[c] (7)	7[d]	{Picture of a person's space} a. feels an exaggerated sense of self-importance, b. is conventional and unquestioning . . .
Pets[c] (12)	11[d]	{Picture of a pet} a. inactive, low-energy; b. reliable, easily trained . . .
Section 2: Forming Accurate Models of Personality		
Related traits with opposite distractors, personified (3)	5	If a person is depressed and self-conscious . . . she is also likely: a. calm and even-tempered, b. self-controlled . . .
Related traits with unrelated distractors, personified (8)	8	A person is self-conscious and impulsive . . . [and] could be described as: a. angry and vulnerable, b. warm and active . . .
Same-group, trait centered (13)	6	Which personality characteristics go with one another? a. hostile, unfriendly, distant; b. orderly, serious, moody . . .
Integrating models[c] (17)	9	*Given that:* A student believes he understands the material for an upcoming math exam, and his teacher, who likes him, says the student doesn't understand it well enough to do well . . . and his friend is not sure who is right. Then: a. His teacher might be right and he doesn't know as much as he thought he did. b. He is unlikable given that is friend is so unhelpful . . .
Section 3: Guiding Choices With Personality-Relevant Information		
Trait inferences – Forward reasoning (4)	8	Ned's boss, Alan, is highly conscientious and orderly. When Alan finds out Ned was late for work, Alan likely: a. won't care, b. will . . . make a note of it . . .
Trait inferences – Backward reasoning (9)	8	A college student returned to his room and noticed a scratch on his desk he never had seen before. He immediately suspected his roommate. The student's reaction makes sense if his roommate is: a. rigid, b. careless . . .
From memories to motivation (14)	9	When younger, Sam remembered being cut from his baseball team and the humiliation he felt, and how he wondered if he had practiced enough. Sam used this memory to help himself: a. work harder to achieve a goal, b. recall that self-doubt isn't helpful . . .
Self-models and choices (18)	7	Sally wants to become good at the violin; how could she see herself in a way that would help the most? a. happily married—to have a stable family, b. carrying through on practicing violin each day . . .
Section 4: Systematizing Goals, Plans, and Life Stories		
Goal alignment – Simple correspondence (5)	7	A person wants "to perform at work with excellence." A good goal would be: a. to be a good leader, b. to take a training course to learn the job better . . .
Problematic goals (10)	6	A person wants to make friends. Which goal might cause problems when he pursues this? a. be a good friend to his friends, b. to be all things to all people . . .
Goal conflicts (15)	6	Which goals below could cause an individual some conflict? a. to be all things to all people, b. to better myself . . .

[a]The sample item is always the first from a given cluster. [b]Two clusters were deleted from this section: B. Recognizing inner motives—Emotion patterns, and Observing changing or discrepant behavior. [c]Task is new to the last version of the TOPI (1.2). [d]Pictorial stimuli were divided into parcels: six faces with three items each; four spaces with three items each; six pets with two items each.

STUDY 1

The purpose of Study 1 was to test the central claims of the theory of PI: People reliably differ in their understanding of personality and personality-related information, these differences form a coherent group of skills or intelligence, and the overall construct bears relations to earlier studied personality dimensions consistent with the theory. The TOPI 1.0 was administered to a sample to examine the following hypotheses:

Hypothesis 1: It is possible to construct reliable measures of problem-solving skills related to PI.

Hypothesis 2: The four TOPI sections will be strong indicators of an underlying PI factor.

We test whether PI is a unitary ability by conducting a confirmatory factor analysis in which each of the four test sections is treated as an indicator of a single broad PI area. Because this approach simplifies our theory a bit (by omitting tests of indicators of specific areas themselves), we expect only an approximate fit to the data. We evaluate the fit using standard reporting criteria including a chi-square test, and the comparative fit Index (CFI) and Tucker–Lewis index (TLI), as well as the root mean square error of approximation (RMSEA; Boomsma, 2000; Boomsma, Hoyle, & Panter, in press; Hoyle & Panter, 1995). We expect a significant chi-square in all tests as even small residual variance found in larger samples will lead to significant discrepancies from a model. We follow recommended acceptance criteria for the CFI and TLI of "close to" .95 or higher, and for the RMSEA of "close to" .06 or lower (Hu & Bentler, 1999, p. 27). We also test whether each section of the TOPI loads significantly and substantially (e.g., a factor loading greater than +.50 and statistically significant) on the general PI factor we hope to obtain. That finding will indicate that each test section measures something in common with the underlying concept of PI.

Hypothesis 3: PI will be related to other psychological measures in ways that are consistent with PI theory. For example, the TOPI-1.0 should be moderately correlated in test-to-test terms (e.g., $r = .25$ to $.55$) with verbal intelligence, because it is a hypothesized intelligence, and with psychological mindedness, because an interest in psychological processes is likely to be correlated with the ability to recognize and understand such processes. Beyond that, PI ought to be generally independent in test-to-test terms (e.g., $-.30 < r < +.30$) of other commonly measured personality dimensions such as those of the Big Five so as to exhibit some promise in identifying new important correlates.

Method

Participants. Study 1 participants were 241 students (82.9% women; 17.1% men) who were drawn from the University of New Hampshire psychology participant pool. They were predominately White (92.7%) and in their first or second year of college (92.1%).

Measures. The TOPI 1.0 was administered concurrently with several criterion scales.

Demographic Information. Participants indicated their gender, race or ethnicity, year in college, and their intended college major.

Test of Personal Intelligence—Form 1.0. The TOPI 1.0 (Mayer et al., 2011b) measures personal intelligence across its four sections, as seen in Table 1: (a) Recognizing Information, (b) Forming Models, (c) Guiding Choices, and (d) Systematizing Plans. Each multiple-choice item had one correct answer (scored 1) and three distractors (scored 0). For example, in the Forming Models section, a content cluster was "Related Traits, Opposite Distractors." An item from this content cluster was as follows:

If a person is depressed and self-conscious, most likely, she also could be described as:

   a.   calm and even-tempered
   b.   self-controlled
   c.   anxious and impulsive
   d.   fairly thick-skinned

Correct answers for items within a content cluster were identified by referring to specific research findings. For example, the correct descriptions of internal states such as impatience and distraction were identified by reference to research on those inner states (e.g, Csikszentimihalyi, 1990; Murray, 1938; Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). Similarly, decisions as to which traits cooccur were decided by referring to research on the Big Five and related traits (e.g., Goldberg & Rosolack, 1994). Answers to goals and goal-conflict questions were matched to criteria established by Emmons and King (1988), and answers addressing motivational recollections were referenced to Pillemer (2003).

Criterion measures.

Big Five Inventory–44: The Big Five Inventory (BFI–44; John, Donahue, & Kentle, 1991), a 44-item measure of the Big Five personality traits, asks test-takers to self-judge themselves on five scales. Items assessing Extraversion include "is talkative" and "has an assertive personality," and for Agreeableness, "likes to cooperate with others." The other dimensions measured were Conscientiousness ("does a thorough job"), Neuroticism ("gets nervous easily"), and Openness ("has an active imagination"). Participants rated themselves on each phrase using a 5-point Likert-type scale ranging from 1 (*disagree strongly*) to 5 (*agree strongly*). The BFI converges with other measures of the Big Five and its scales have reported reliabilities of between $\alpha = .81$ and $.88$ (Soto & John, 2009).

Psychological Mindedness: Psychological Mindedness (Conte, Plutchik, Jung, & Picard, 1990) is a 45-item self-judgment scale that asks the test-taker to estimate how interested he or she is in the meanings and purposes of mental life. Five subscales scored from Shill and Lumley (2002; 21 items) indicate specific interests in Discussing Problems (e.g., "Talking about your worries to another person helps you to understand problems better"), Figuring Out Others (e.g., "I really enjoy trying figure other people out") and three other scales including Accessing Feelings, Understanding Behaviors, and Changing Oneself (e.g., "I am willing to change old habits to try a new way of doing things"). Participants responded to the questions on a 4-point scale ranging from 1 (*strongly agree*) to 4 (*strongly disagree*), depending on how descriptive the item was of their qualities. The overall test has a reliability of $\alpha = .87$.

Self-Monitoring Scale: The Self-Monitoring Scale (Snyder, 1974), a 25-item true–false self-judgment scale, captures the degree to which an individual monitors his or her social behavior. Items include "I probably would make a good actor," and "I am not particularly good at making other people like me" (reversed), with a reported Kuder–Richardson 20 coefficient of $r = .70$.

Modified Vocabulary Scale: The Modified Vocabulary Scale (Pucci & Viard, 1995), a brief vocabulary test, served as a marker for verbal intelligence (Bornstein & Haynes, 1998; Uttl & Van Alstine, 2003). The 30-item vocabulary scale was adapted in part from the Army Alpha test of intelligence (e.g., "dilapidated," "stave"; Yerkes, 1921, pp. 181–182). Each vocabulary word was followed by four response options including one correct answer and three distractors (e.g., "Reply: (1) make, (2) do, (3) answer, (4) come"). It has a reported reliability of $\alpha = .88$ (Mayer & Caruso, 1999). One item for which there was no correct answer was dropped in Study 1 and then corrected and reinstated for subsequent studies.

Procedure

Undergraduate psychology students participated in an online study called Personality Assessment for credit toward the research participation component of their course. Students expressing interest in the study were e-mailed a unique identifier and link to the study. Once they clicked on the link, they were directed to the online administration of the survey. The first study screen was a consent form. After reading the screen, respondents could elect either to continue or to terminate the study. Once those individuals who continued with the study completed it and submitted their responses, a trigger e-mail was sent to the experimenters, who then e-mailed the participant a debriefing form and assigned participation credit.

Results of Study 1

Item and cluster analyses. We first examined the items of the TOPI to identify those that were extremely easy, extremely difficult, or mis-scored. Mis-scored items were corrected, and those that were too hard or easy were flagged for future revision. For example, we checked for any items answered correctly 90% or more of the time, or 30% or less, on a cluster-by-cluster basis. Highly skewed items can form spurious factors unrelated to the to-be-measured construct (McDonald & Ahlawat, 1974). Our analyses of the TOPI 1.0 items identified 50 out of a total of 115 items as being in need of revision (e.g., undesirably easy, too difficult, or insufficiently clear in specifying a correct answer). The most troublesome test items were in the Recognizing Information section (18 items), followed by Forming Models (16 items), Guiding Choices (10 items), and Systematizing Plans (6 items).

Next, we conducted analyses of each content cluster individually. Each cluster contained items that shared the same question-and-answer format and therefore could be regarded as an instance of an item parcel (T. D. Little, Cunningham, Shahar, & Widaman, 2002). Exploratory factor analysis first was used to identify a single general factor likely to represent its specific element of PI. Because TOPI items are dichotomous (correct–incorrect), we used M*plus* 5.1's weighted least squares estimation, designed for such items (WLSMV; Muthén & Muthén, 1998–2007). We were able to identify a dominant factor in every case. In some instances, we discarded one or two items that appeared to load on different factors. Next, we conducted a reliability analysis of each cluster to screen out items that, although they loaded on the factor, failed to add sufficiently to the cluster's reliability. If a given item underperformed relative to other items it was discarded. Table 2 lists the number of items included for analysis under the Study 1 columns.

Descriptive statistics of the TOPI 1.0. After the item selection phase, we next computed four TOPI section scores based on the mean of the items across the content clusters in that section. Means, standard deviations, average item intercorrelations and reliability coefficients for each of the four sections are given in the Study 1 columns of Table 2. The reliabilities of the TOPI sections were calculated at the item level and varied from $\alpha = .53$ to 81.

Factor structure of the TOPI 1.0 and total score. Our theory states that PI is a hierarchical intelligence. If so, the TOPI sections should be indicators of that overall PI factor. It is also possible, however, that because each section has different content, the sections measured unrelated skills. Regarding the content, Section 1 asked about inner experiences and observations of one's own and others' behaviors. Section 2 asked exclusively about the relationships among personality traits (e.g., from the Big Five), such as which traits went together and which were different. Section 3 required sometimes complex reasoning as to one's own or another person's future behavior and motivations. Section 4 asked about such matters as conflicting or congruent goals and motives.

We hypothesized that each section would be somewhat distinct, but would also reflect an interrelated and perhaps unitary skill group that was intelligence-like. Initial support for this hypothesis came from the correlations among sections, which all were positive and strong (Table 3). We further tested whether a one-factor model would fit the data reasonably closely using M*plus*. The overall fit of the model is shown in Table 3 and was within or near the boundaries of good fit: $\chi^2(2, N = 241) = 5.96$, $p > .05$; CFI = .99; TLI = .97; RMSEA = .091. In addition, each section individually loaded on the overall PI factor to a statistically significant level, with standardized coefficients ranging from .59 (Recognizing Information) to .91 (Guiding Choices). These findings are consistent with the theory that the skills measured all were part of a PI and justifies the creation of an overall TOPI total score. The TOPI 1.0 total score's mean, standard deviation, and overall $\alpha = .90$ (the latter calculated at the item level) are shown in Table 2.

Evidence for TOPI validity from criterion correlations. Treatments of test validity argue that a new test must measure qualities that are both (a) independent of conceptually unrelated measures, and yet (b) exhibit correlations that one might expect of the new concept (Clark & Watson, 1995; Smith, Fischer, & Fister, 2003). We next explored how the TOPI 1.0 total score

TABLE 2.—Means, standard deviations, and reliabilities for the Test of Personal Intelligence (TOPI), across Studies 1, 2, and 3, corresponding to TOPI versions 1.0, 1.1, and 1.2.

	Test Clusters Study			Final Items Included Study			M (SD) Study			Average Interitem Correlations Study			α Study		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
TOPI[a] overall	16	14	18	83	94	134	.82 (.12)	.78 (.12)	.72 (.11)	.09	.09	.07	.88	.89	.90
Recognizing personality-relevant information	6	4	7	22	24	55	.80 (.11)	.74 (.12)	.64 (.09)	—	—	.03	.53	.52	.61
Verbal only	6	4	4	22	24	25	.80 (.11)	.74 (.12)	.76 (.12)	.05	.04	.06	.53	.52	.60
Visual only (new)	—	—	3	—	—	30	—	—	.54(.11)	—	—	.03	—	—	.51
Forming accurate models of personality	3	3	4	15	19	28	.89(.14)	.78(.17)	.77(.15)	.16	.12	.12	.70	.67	.76
Guiding choices with personality-relevant information	4	4	4	31	32	32	.81(.15)	.81(.16)	.80(.16)	.14	.16	.15	.81	.84	.84
Systematizing goals, plans, and life stories	3	3	3	15	19	19	.78(.17)	.78(.17)	.74(.17)	.12	.16	.13	.65	.75	.70

[a]The Final Items Included column reflects the number of items retained after item analyses. Means, standard deviations, reliabilities, and other statistics pertaining to the TOPI and its subareas are based on those retained items only.

TABLE 3.—Correlations among Test of Personal Intelligence (TOPI) subscales and total, factor loadings, and fit statistics for a one-factor model of personal intelligence across studies.

	Correlations Among TOPI Subscales and Total					Loadings on General Factor
	RI	FM	GC	SG	Total	
TOPI 1.0 area scales (Study 1)						
Recognizing Information	—				.72*	.59*
Forming Models	.49*	—			.81*	.77*
Guiding Choices	.52*	.71*	—		.93*	.91*
Systematizing Plans	.47*	.52*	.67*	—	.80*	.73*
Fit statistics: $\chi^2(2, N = 241) = 5.96$, $p > .05$; CFI = .99, TLI = .97, RMSEA = .09, 90% CI [.00, .18]						
TOPI 1.1 area scales (Study 2)						
Recognizing Information	—				.64*	.47*
Forming Models	.48*	—			.78*	.67*
Guiding Choices	.36*	.55*	—		.89*	.85*
Systematizing Plans	.36*	.55*	.73*	—	.84*	.84*
Fit statistics: $\chi^2(2, N = 308) = 24.74$, $p < .01$; CFI = .95, TLI = .85, RMSEA = .19, 90% CI [.13, .26]						
TOPI 1.2 area scales (Study 3)[a]						
Recognizing Information	—				.78*	
Verbal only	.75*				.77*	.72*
Visual only	.80*				.46*	.31*
Forming Models	.59*	—			.89*	.87*
Guiding Choices	.58*	.80*	—		.92*	.91*
Systematizing Plans	.55*	.68*	.72*	—	.83*	.79*
Fit statistics: $\chi^2(2, N = 382) = 3.11$, $p > .05$; CFI = 1.00, TLI = 1.00, RMSEA = .04, 90% CI [.00, .12]; for Visual and Verbal Scales entered separately: $\chi^2(5, N = 382) = 4.69$, $p > .05$; CFI = 1.00, TLI = 1.00, RMSEA < .01, 90% CI [.00, .07].						

Note. RI = Recognizing Information; FM = Forming Models; GC = Guiding Choices; SP = Systematizing Plans; CFI = comparative fit index; TLI = Tucker–Lewis index; RMSEA = root mean square error of approximation; CI = confidence interval.

[a]Two analyses are reported: one with Recognizing Information as a single indicator, and the other with verbal and visual areas as separate indicators.

*$p < .01$.

and section scores correlated with other indexes of individual differences and personality. The descriptive statistics for the criterion measures are shown in Table 4 (Study 1 columns). The correlations between the TOPI and the criteria appear in Table 5. We expected PI, as a hypothesized intelligence, would correlate with verbal intelligence, as assessed by the vocabulary test. PI had a correlation of $r = .41$, $p < .01$ with the vocabulary scale, with subscales ranging from $r = .27$ for Recognizing Information to $r = .39$ for Guiding Choices. The Big Five dimension of Openness also is often modestly related to intelligence, and here it correlates $r = .16$, $p < .05$ with PI. Finally, PI correlated with overall Psychological Mindedness $r = .32$, $p < .01$, and more specifically with the Discussing Problems, Understanding Behaviors, and Changing Oneself subscales, $r = .34, .27$, and $.13$, ps $< .01$.

Discussion of Study 1

The Study 1 results provided some evidence for reliable individual differences in PI. The test sections were mostly reliable, although there was some variability among them. There was evidence as well that PI is a unitary domain, in that a one-factor model of the four TOPI sections fit well. Finally, there was evidence that PI was somewhat independent of preexisting measures: It correlated moderately with Vocabulary and Psychological Mindedness, but not so highly as to be redundant with them, and significantly but at lower levels with Big Five Openness.

That said, some further explorations seemed warranted. A number of TOPI 1.0 items were either too easy or too hard. These items were especially prevalent in the first section, Recognizing Information. For that reason, in Study 2, we administered a slightly rewritten version of the TOPI, called the TOPI 1.1. For it, we rewrote 50 of the possibly problematic items identified in Study 1 so that the easy items were more difficult, and the overly difficult items were easier or clearer. We next conducted item analyses based on both samples and attempted to replicate earlier findings concerning factor structures and test validity.

STUDY 2

The purpose of Study 2 was to obtain further evidence for PI by advancing scale development in the area. This involved reworking a number of TOPI items. Our hope was that such work would improve the overall performance of the test. In addition, we attempted to replicate the correlations of the TOPI with criterion measures.

TABLE 4.—Criterion measures administered over Studies 1 to 3: Means and standard deviations.

Criterion Scales[a]	Items	Study 1			Study 2			Study 3		
		M	SD	α	M	SD	α	M	SD	α
Vocabulary	29–30[b]	18.43	4.27	.75	20.13	4.41	.78	20.18	4.41	.77
Big Five Inventory–44										
Extraversion	8	3.46	.76	.88	3.29	.81	.89	3.39	.77	.88
Agreeableness	9	3.86	.54	.78	3.71	.62	.82	3.80	.60	.81
Conscientiousness	9	3.67	.57	.78	3.58	.57	.77	3.57	.63	.82
Emotional Stability	8	2.93	.68	.80	2.96	.76	.85	2.81	.76	.84
Openness to Experience	10	3.55	.55	.77	3.59	.63	.82	3.52	.63	.81
Psychological Mindedness (Overall)	45[c]	3.58	.40	.89	3.52	.36	.86	3.51	.39	.88
Discussing Problems	7	4.05	.64	.84	3.91	.67	.85	3.93	.69	.86
Accessing Feelings	4	3.54	.78	.77	3.51	.79	.79	3.51	.74	.76
Figuring Out Others	3	3.06	.89	.61	2.91	.89	.61	2.94	.88	.59
Understanding Behaviors	3	4.18	.60	.64	4.13	.62	.60	4.05	.71	.69
Changing Oneself	4	3.61	.55	.60	3.53	.57	.58	3.56	.60	.61
Self-Monitoring	25	12.42	3.65	.62	13.05	3.81	.65	—[d]	—[d]	—[d]

[a]The scales are Vocabulary, adapted (see text); the Big Five Inventory (John et al., 1991); Psychological Mindedness scale (Conte et al., 1990). [b]One of the Vocabulary test items was in error in Study 1, it was corrected for Studies 2 and 3, changing the number of items included from 29 to 30. [c]The Psychological Mindedness subscale items are from Shill & Lumley (2002); the total score included all 45 items, reversed scored as indicated in Conte, et al. (1990). [d]The Self-Monitoring scale was no longer administered after the second study.

TABLE 5.—Correlations between Test of Personal Intelligence (TOPI) subscales and total scores with the criterion measures used across Study 1 ($N = 241$), Study 2 ($N = 308$), and Study 3 ($N = 352$).

Validity Measures	Recognizing Information Study			Forming Models Study			Guiding Choices Study			Systematizing Plans Study			Total TOPI Study		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Vocabulary	.27**	.26**	.25**	.28**	.31**	.34**	.39**	.43**	.37**	.36**	.40**	.37**	.41**	.45**	.39**
The Big Five Traits															
Extraversion	−.03	.09	−.06	−.10	−.02	−.01	−.07	−.05	−.03	−.05	−.14*	−.04	−.08	−.06	−.04
Agreeableness	.00	−.01	.20**	−.02	.06	.12*	.01	.07	.16**	.13*	.16**	.14**	.03	.10	.18**
Conscientiousness	−.04	.06	.18**	.01	.03	.18**	.00	.11	.18**	.02	.15*	.18**	−.01	.11	.21**
Neuroticism	.02	−.04	−.05	.05	−.07	−.03	.07	−.03	−.02	−.05	−.04	−.05	.04	−.05	−.05
Openness to Experience	.07	−.02	.12*	.09	−.01	.08	.17**	−.01	.11	.18**	−.02	.04	.16*	−.02	.11*
Psychological Mindedness	.19**	.11*	.31**	.20**	.19**	.33**	.29**	.26**	.34**	.33**	.26**	.33**	.32**	.27**	.38**
Discussing Problems	.21**	.10	.27**	.23**	.17**	.29**	.32**	.21**	.33**	.34**	.24**	.29**	.34**	.23**	.34**
Accessing Feelings	.01	−.03	.14*	.07	.11	.16**	.06	.05	.19*	.07	.06	.16**	.07	.06	.19**
Figuring Out Others	.06	−.06	.16**	.07	.01	.10	.11	.01	.10*	.18**	.05	.10	.13*	.01	.15**
Understanding Behaviors	.17**	.20**	.20**	.19**	.31**	.32**	.26**	.38**	.24**	.25**	.36**	.32**	.27**	.41**	.28**
Changing Oneself	.03	−.02	.15**	.04	.05	.11*	.14*	.07	.11*	.19**	.04	.11*	.13*	.13*	.14**
Self-Monitoring	.11	.11	—	−.04	.04	—	−.03	.06	—	.01	−.03	—	.00	.04	—

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

Hypothesis 1: We expected that the four sections of the TOPI 1.1 and the overall test would once again exhibit adequate reliability.

Hypothesis 2: We hypothesized that we would be able to confirm once again that the four TOPI sections measured an overall PI factor and that each section would load significantly on that overall factor.

Hypothesis 3: We also tested whether it was possible to replicate the general set of relations between the TOPI and several criteria indicative of its validity.

Method

Participants. Participants were 308 students (57.2% women, 42.8% men) enrolled in an introductory psychology course at the University of North Carolina. All participated for partial credit for a course research requirement. The students were drawn from African American/Black (9.3%), Asian/Pacific Islander (8.6%), Hispanic/Latino (4.3%), multiracial (3.1%), and White (73.5%) groups. They were generally in their first or second year of college (87.3%).

Measures and procedures. Except for the item rewrites made to the TOPI 1.1 on the basis of Study 1 findings, the measures administered in the online format were identical to Study 1. Study procedures involved for completing the online study were also identical, except for the presentation of an institution-specific consent form.

Results of Study 2

Content cluster revisions. Based on Study 1's analysis of the TOPI 1.0 scale, we had edited approximately 50 items for inclusion in Study 2 to attempt to make the easiest items more challenging and the most challenging somewhat easier. Once again, our analyses began at the item level. As in Study 1, we identified items that were too difficult or too easy and flagged them for reworking in the future. Next, we examined the first factor of each TOPI content cluster with a new set of factor analyses, again using WLSMV in M*plus,* a method appropriate for dichotomously scored items. Our procedure then diverged slightly from that employed in Study 1, to take advantage of the results from the two independent administrations of the test. In selecting the final 96 items used in the TOPI 1.1, we applied the following rules: We (a) retained items from Study 2 with statistically significant loading on their clusters in Study 2 (most of which also had been significant in Study 1), (b) discarded items carried over from Study 1 that failed to exhibit significant loadings on their cluster a second time, and (c) also retained any too-easy or too-hard items only if they demonstrated statistically significant factor loadings on their specified cluster in both samples. Next, we combined all items within a section to create section scales. The total TOPI score was also computed.

TOPI 1.1 reliabilities, section correlations, and factor structure. Table 2 (Study 2 columns) shows that the reliabilities for three of the four sections of the TOPI 1.1 ranged from $r = .67$ to $r = .84$, with the remaining section (Recognizing Information) lower at $r = .52$. Correlations among the four subareas ranged from $r = .36$ to $r = .73$ (Table 3). We again tested whether the four test sections could be modeled as part of a broader intelligence. Each section served as an indicator of overall PI in a confirmatory factor model evaluated in M*plus.* The model fit indexes were $\chi^2(2, N = 308) = 24.74$, $p < .01$; CFI $= .95$; TLI $= .85$; RMSEA $= .192$ (Table 3). The fit was somewhat less than ideal owing to high correlations, particularly among Guiding Choices and Systematizing Plans (Table 3). Although we could substantially improve the fit by allowing for correlated errors, we did not include the correlated error. Instead, we noted that all four test sections loaded significantly in this model on overall PI, with standardized coefficients ranging from .47 to .85, $ps < .001$. Thus, it is reasonable to combine TOPI 1.1 section scores into a total score (with a resulting $\alpha = .89$ for the overall scale; Table 2).

Whereas the Study 1 sample gender balance did not allow for a study of mean sections by gender, the Study 2 sample distribution by gender was more balanced. A comparison of section means and the TOPI 1.1 total score by gender showed no statistically significant effects, $t(302) = .131$, $p > .05$, Cohen's $d = .015$ (with $M = .783$ and $M = .781$, for men and women, respectively).

Relations with criterion measures. Table 5 shows the relations among the TOPI sections, the overall TOPI score, and the validity measures. As before, PI was related in particular to Vocabulary and to overall Psychological Mindedness, $r = .45$ and $r = .27$ (ps $< .01$), respectively, and was less related to the scales of the Big Five.

Discussion of Study 2

The Study 2 results indicated that we were again able to measure PI. In Study 2, we employed fewer items but attained about the same reliability of the four sections as before, although the reliabilities still were low for the first section (Recognizing Information). In addition, the study provided a replication of many Study 1 findings regarding criterion measures (Table 5, Study 2 columns), including moderate relationships between TOPI and Vocabulary ($r = .41$ and $r = .45$, ps $< .01$) across both studies and between the TOPI and Psychological Mindedness ($r = .32$ and $r = .27$, ps $< .01$). Some relationships did vary; for example, the TOPI correlation with Big Five Openness was statistically significant in Study 1 and no longer significant in Study 2 ($r = .16$ to $r = −.02$), raising the question of whether item rewrites might have had an effect on criterion predictions. Arguing against that possibility was that the Systematizing Plans section of the TOPI, which was mostly unchanged across versions, showed equivalent or more variation in regard to its criterion correlations than did the Recognizing Information section of the TOPI, which had been most rewritten. Such a pattern suggests that the differing levels of correlations represented expected sample-to-sample variation. A number of additional issues and questions remained. These ranged from whether we might further enhance the sections of the TOPI to the broader validity question of what else the TOPI might predict.

STUDY 3

In Study 3 we added several more content clusters to the TOPI as well as more criterion measures to help further define the TOPI's validity. In the TOPI 1.2 revision, we added three new clusters to the Recognizing Information section that contained 20 visual stimuli. Contemporary research indicates that some judgments of personality can be made from a person's face, a person's living or working space, and even from looking at animals (Brackett & Mayer, 2007; Freeman & Gosling, 2010; Gosling, Ko, Mannarelli, & Morris, 2002; A. C. Little & Perrett, 2007; Naumann, Vazire, Rentfrow, & Gosling, 2009). The visual stimuli included pictures of a person's face, of an area of the individual's dormitory room or apartment (a "space"), and pets. Each face or space picture was followed by multiple-choice questions as to the personality of the individual whose face or space it was. The pictures of pets were followed by questions inquiring as to the personality of the dog or cat. New questions also were added to two verbal clusters in the Recognizing Information section of the TOPI to bolster its reliability. In addition, we expanded the Forming Models section by adding a new content cluster, Integrating Information, in which the test taker must integrate information from different sources about a person. Sample items of each of these new clusters can be found in Table 1, under the relevant section headings.

In addition to the revision of the TOPI, Study 3 added criterion measures beyond those earlier employed in Studies 1 and 2, to

test new hypotheses concerning what the test does and does not predict.

Hypothesis 1: PI intelligence will be moderately correlated with indexes of general intelligence such as vocabulary, as before, and comparatively more highly correlated with measures of hot intelligences such as emotional intelligence. To test this hypothesis, we retained the vocabulary scale from before, and added a new measure of emotional intelligence (MSCEIT; Mayer, Salovey, & Caruso, 2002a), as well as a measure of skill at perceiving inner mental states by looking at a person's eyes, the Reading the Mind in the Eyes test (Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001), and a measure of social skills, the Interpersonal Competence Questionnaire (ICQ; Buhrmester, Furman, Wittenberg, & Reis, 1988), which unlike the first two ability measures, was a self-report survey. Higher PI was predicted to correlate with higher scores on these scales.

Hypothesis 2: PI will correlate negatively with measures of certain forms of psychiatric symptomatology such as narcissism and overdependency. To test this hypothesis, newly added scales included two indexes of narcissistic grandiosity associated with narcissistic personality disorder (Ames, Rose, & Anderson, 2006; Rosenthal, Hooley, & Steshenko, 2007). A third measure of hyperagreeableness was added that is related to dependent personality disorder (Haigler & Widiger, 2001). Hyperagreeableness describes a pathological willingness to do what others say, perhaps owing to a lack of understanding of one's own needs and desires. These scales each reflect deficits in self-understanding and were predicted to be negatively correlated with TOPI scores.

Hypothesis 3: PI will be moderately correlated with lifespace scale factors that represent prosocial and adaptive behaviors. To test this hypothesis, we added a lifespace scale—a measure of a person's activities, possessions, and behaviors—that was especially designed to index life expressions related to PI (Mayer, Caruso, & Panter, 2011a).

Method

Participants. Participants were 385 undergraduate students from the University of North Carolina; consenting students completed the scale online. More people clicked into the survey than took it. For that reason, the sample was defined as those who completed the TOPI, most of whom also completed the remaining scales. This included 385 participants (52.8% women, 47.2% men), who described themselves as ethnically diverse, including Asian/Pacific Islanders (7.3%), Black (13.8%), Hispanic/Latino (8.1%), multiracial (1.6%), Native American (1.6%), and White (73.2%); a participant could endorse more than one category and so the numbers sum to slightly more than 100%.

The TOPI 1.2. The TOPI 1.2 included several new scales added to measure visual perception of personality in the first section (Recognizing Information) from faces (e.g., A. C. Little & Perrett, 2007; Naumann et al., 2009; Zebrowitz, 2006), spaces (e.g., Brackett & Mayer, 2007; Gosling et al., 2002), and pets (e.g., Zeigler-Hill & Highfill, 2010). We also added items to the verbal perception area and an additional content cluster in the second section (Forming Models). These modifications were described in the introduction to Study 3 and are reflected in Table 1. Correct answers in perceiving personality from visual stimuli were identified by comparing each trait attribute (e.g., extraversion) of a person to the self- and other-ratings of the individual we collected beforehand. If the attribute chosen was not clearly present (e.g., $< .5$ *SD* above the mean), it was scored 0; if

it was from .5 to 1.0 *SD* above the mean, it was scored .5 points; and if it was greater than 1.0 *SD* above the mean, it was scored 1 point. If items were negative (e.g., introversion), the same procedure was employed except using negative deviations. Correct answers for the dogs and cats were scored similarly except for matching them to ratings of the pets by their caretakers.

Criterion scales. The following scales were administered as part of the first block of tests.

The Personal Intelligence Lifespace Index: The Personal Intelligence Lifespace Index (Mayer et al., 2011a) is an exploratory scale that consists of 70 items phrased to capture overt, verifiable behaviors, possessions, and group memberships of an individual (cf. Brackett & Mayer, 2007; Mayer, Carlsmith, & Chabot, 1998). In its initial format, the scale yielded four factor-based scales: People Pleasing, which included "asking [others] for feedback" and seeking inspirational models among historical figures, but few inner-directed reflections. The Rational Coaching factor reflected giving advice to others by evaluating the alternatives and telling the person "which alternative was probably best" (i.e., without explicitly taking the other person's interests into account). High scorers on the third Confirmed Controllers "imitate[d] someone . . . to make a point about the person," felt confirmed when they "turned down the right roommate," and had explained to someone else that they (the test-takers) were not "interested in understanding themselves." Factor 4 was a Books Read factor that simply measured the number of books a person had read.

The Mayer–Salovey–Caruso Emotional Intelligence Test (MSCEIT) Strategic Scales: The MSCEIT (Mayer, Salovey, & Caruso, 2002b) is an ability measure of emotional intelligence that divides into two areas—the experiential and strategic—and two branches within each area. The strategic area was administered for this study. It includes 61 of the 141 MSCEIT items (56 of which are actually scored), including the Changes task (20 items), Blends (12 items), Emotion Management (20 items), and Emotional Relations (9 items). Item response varies across scales and includes both multiple-choice and Likert scale responding. Alpha reliability for the strategic Emotional Intelligence score employed in this study is .86, and the MSCEIT is correlated with measures of relationship quality and interpersonal skills, among others (Mayer, Roberts, et al., 2008).

Reading the Mind in the Eyes Test: The Reading the Mind in the Eyes Test (Baron-Cohen et al., 2001) was designed to assess subtle deficits in social understanding as communicated in faces, a skill that might be related to PI. This test consists of 36 visual images of a person's upper face, centered on a person's eyes and cropped approximately at the brow line (above) and the bridge of the nose (below). Each image is followed by a multiple-choice item with four alternatives asking what inner state is conveyed by the expression (e.g., sadness or thoughtfulness). The test-taker's job is to select the option that reflects what the person is thinking or feeling based on the visual image. For example, the target feeling might be "serious," and the distracters might be "ashamed," "alarmed," and "bewildered."

Demographic Information: Participants were asked to indicate their age, gender, ethnicity, years of education and (intended) college major.

The following scales were administered as part of the second block of tests:

Narcissistic Grandiosity Scale: The Narcissistic Grandiosity Scale (Rosenthal et al., 2007) measures narcissism independent of self-esteem and consists of 16 adjectives, such as "Perfect," "Extraordinary," and "Envied." For each one, the test taker indicates the degree to which it applies to them on a 7-point scale ranging from 1 (*not at all*) to 7 (*extremely*). It has a reported reliability of $\alpha = .93$.

Short Narcissistic Personality Inventory: The Short Narcissistic Personality Inventory (NPI–16; Ames et al., 2006) consists of 16 dichotomous, forced-choice items developed to measure narcissism. For each item, test-takers selected the alternative that most applied to them from a pair of statements; for example, "I know that I am good because everybody keeps telling me so," versus "When people compliment me I sometimes get embarrassed," and "I am more capable than other people," versus "There is a lot that I can learn from other people." The NPI–16 has an internal consistency of .72 and shows convergent validity with various personality traits similar to the original 40-item version (Ames et al., 2006).

Maladaptive Agreeableness: Maladaptive Agreeableness (Haigler & Widiger, 2001) is an eight-item scale created from five items reflecting extreme agreeableness from the original psychometric study plus three further items we added. The scale items included, "I tend to be gullible regarding the intentions of others," and "I don't know my own preferences, so I am happy to go along with others" and were rated on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The original Maladaptive Agreeableness Scale correlated $r = .66$ with the Dependent personality disorder scale of the Minnesota Multiphasic Personality Inventory–2 Personality Disorder scales (see Haigler & Widiger, 2001).

Interpersonal Competence Questionnaire: The ICQ (Buhrmester et al., 1988) measures self-reported social skills. This 40-item measure asks participants to estimate their competence in five interpersonal areas: initiating relationships, self-disclosure, asserting displeasure with others' actions, providing emotional support, and managing interpersonal conflicts. Responses were on a 5-point scale anchored at each point, ranging from *poor at this* to *extremely good at this.* The scale yields five scores and one overall summary score. ICQ scores predict relationship satisfaction and are related to ratings of these competencies by college roommates. Test–retest reliability for the five dimensions ranged from .69 to .89 (Buhrmester et al., 1988).

The measures concluded with the repetition of the Psychological Mindedness Scale, the Big Five Inventory, and the Vocabulary scales used in Studies 1 and 2.

Procedure

Respondents received credit toward the research participation component of their course. Students expressing interest in the study were sent a unique identifier and link to the study. The first study screen was a consent form, and after reading the screen, respondents could elect either to continue with the two-part online survey or terminate the study.

Once an individual completed the first part of the survey (see Block 1 measures earlier), he or she was given the choice to proceed immediately with Part 2 or to take a break of up to a week before completing Part 2. On occasion, if a participant had completed either portion of the survey in a fashion that was too fast to reflect even having read the statements, he or she was sent a polite e-mail requesting that he or she retake the materials with a motivational statement about the seriousness of the research. Students almost always agreed to retake the survey in such instances. Once a participant had completed the scales, a trigger e-mail was sent to the experimenters, who then e-mailed the participant a debriefing form and assigned participation credit.

Results of Study 3

Item and cluster-based analyses. Thirteen of 18 content clusters in Study 3 were identical to Studies 1 and 2. Item clusters carried forward from Studies 1 and 2 were not screened in Study 3. Regarding the new Visual section of the TOPI, 42 items initially were employed, 12 of which appeared either too easy or too hard, failed to load on the cluster factors during item selection, or showed poor reliability and were eliminated, resulting in 30 items retained. Eleven supplemental verbal items from Recognizing Information had been added and after screening, 10 of these were retained. The new Section 2 cluster (Integrating Models) contained 10 items initially and after screening 9 were retained.

TOPI 1.2 reliability, section correlations, and factor structure. The reliability of the test sections is shown in Table 2. The overall test reliability was at approximately the same level relative to earlier versions, and the individual sections were comparable to the section reliabilities found in either Study 1 or 2. The maintenance in overall reliability reflects a modest improvement because the addition of new clusters sampled from a more diverse group of skills than before likely increased item heterogeneity, which works against test reliability. The purpose of improved sampling was to enhance the TOPI's content validity relative to the skills making up PI (and potentially, the test's predictive validity). The four sections correlated between $r = .55$ and $r = .80$, with the high correlation between Forming Models and Guiding Choices (Table 3).

As in Studies 1 and 2, we employed each section of the TOPI 1.2 as an indicator of overall PI to address the question of whether the four sections of this broadened TOPI were part of PI. Using M*plus*, we found that the four sections again loaded on an overall PI factor, with estimates of the four loadings between .72 and .91; all loadings were high and statistically significant. When the new visual section was broken out independently, it also exhibited a significant loading ($r = .31$, $p < .01$), despite its low verbal content and lower reliability. The fit indexes for the overall model were $\chi^2(2, N = 382) = 3.11$, $p > .05$; CFI = 1.00; TLI = 1.00; RMSEA = .04, 90% CI [.00, .12], indicating that viewing PI as a broad set of skills measured by the four test sections was highly consistent with the data. More detail is provided in Table 3. The TOPI 1.2 section scores were combined into a total TOPI 1.2 score with an overall scale reliability of $\alpha = .90$ (Table 2).

There was a mean difference in TOPI 1.2 total score by gender, with women outperforming men by about a half standard deviation, $t(379) = -4.17$, $p < .001$, Cohen's $d = .43$ (M women = .749; M men = .702); this pattern also held across all subscales.

Correlations with criteria carried forward from prior studies. The last stage of data analysis examined the TOPI 1.2 scores against a greatly enlarged set of validity criteria. The correlations between the TOPI 1.2 scales and the validity scales employed in the two earlier studies—Vocabulary, the Big Five Openness and Agreeableness, and Psychological Mindedness—are shown in Table 5. The results were much the same as before, with moderate correlations between the TOPI and Vocabulary and Psychological Mindedness (rs = .39 and .38, ps < .01), and lower but significant correlations with Big Five Openness and Agreeableness (rs = .11, .18, ps < .05). The results also suggest that PI might be correlated with Conscientiousness, $r = .21$, $p < .01$, which is consistent with the marginally significant finding of $r = .11$ in Study 2 ($p < .06$).

Correlations with added criteria. The correlations between the TOPI 1.2 and added criteria in Study 3 can help improve the interpretation of what the test measures. The means, standard deviations, and reliabilities of the newly added criterion measures of Study 3 can be found in Table 6; the correlations between the TOPI 1.2 and the criteria in Table 7.

Maladaptive Agreeableness and Narcissism: The TOPI 1.2 exhibited negative correlations as predicted of $r = -.16$, $p < .01$ with maladaptive agreeableness, and $r = -.26$ and $r = -.17$ with the two measures of narcissistic grandiosity, indicating that the higher one's personal intelligence, the less likely one is to feel either lacking in self-direction or to feel especially grandiose (Table 7).

Other Hot Intelligences: The TOPI's highest correlations were with other hot intelligences, as measured with ability scales (Table 7). The TOPI 1.2 correlated $r = .69$ with the Strategic scales of the MSCEIT and $r = .53$ with the Reading the Mind in the Eyes scale. It showed little or no correlation ($r = .06$, *ns*) with a measure of social skills (ICQ), probably because people are not able to accurately self-report such ability and ICQ was a self-judgment scale. Most intelligences cannot be validly self-estimated (Brackett & Mayer, 2003; Paulhus, Lysy, & Yik, 1998).

Lifespace: Finally, the TOPI 1.2 correlated with certain dimensions of the Personal Intelligence Lifespace Index (PILSI). This initial version of the Lifespace Index yielded four factors. High scorers on the first factor, an outer-directed sort of People Pleasing, exhibited lower personal intelligence than others, $r = -.21$. Even more strikingly, those scoring high on Confirmed Controlling, which involves a confident decisiveness about others coupled with a dismissive attitude toward the importance of psychological knowledge, correlated $r = -.41$, $p < .01$, with personal intelligence. These individuals seem to exercise power over others in a confident fashion that neglects the needs of others and might involve objectifying and making fun of others (Table 7).

Collectively, the criterion measures of Study 3 inform us far more about PI than those of Studies 1 and 2. Some of the implications of these findings are drawn out in the General Discussion.

TABLE 6.—Means, standard deviations, and reliabilities for the additional criterion measures of Study 3.

Measures	Items Used	M	SD	α
Personality Disorder Symptom Scales				
Maladaptive Agreeableness	8	2.95	.56	.65
Narcissistic Grandiosity	16	3.10	1.24	.96
Narcissism Personality Inventory	16	.83	.19	.71
Lifespace Index				
People Pleasing	18	46.08	16.97	.86
Rational Coaching	14	49.46	17.67	.88
Confirmed Controlling	14	40.97	8.65	.58
Reading Books	8	20.27	9.91	.74
Reading the Mind in the Eyes	36	25.53	4.55	.68
Interpersonal Competency				
Questionnaire	40	4.44	.51	.93
Initiating Relationships	8	3.35	.82	.89
Providing Emotional Support	8	3.78	.59	.86
Asserting Influence	8	3.41	.66	.85
Self-Disclosure	8	3.24	.74	.86
Conflict Resolution	8	3.48	.62	.86
MSCEIT[a] Strategic Emotional Intelligence	56	94.08	18.88	.86
Understand Emotions	32	97.54	17.88	.77
Changes	20	99.19	17.14	.68
Blends	12	97.70	16.66	.64
Manage Emotions	24	91.37	18.60	.81
Emotion Management	15	93.38	16.15	.62
Emotional Relations	9	92.18	18.57	.64

Note. Study 3 statistics for criterion measures administered across studies (e.g., the Test of Personal Intelligence, Vocabulary, Big Five) are reported in Tables 2 and 4. The additional scales are Maladaptive Agreeableness (adapted from Haigler & Widiger, 2001), Narcissistic Grandiosity (Rosenthal et al., 2007), the Short Narcissistic Personality Inventory (Ames, Rose, & Anderson, 2006), Reading the Mind in the Eyes Test (Revised; Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001), the Interpersonal Competence Questionnaire (Buhrmester et al., 1988), the Mayer–Salovey–Caruso Emotional Intelligence Test (MSCEIT; Mayer, Salovey, & Caruso, 2002a) Strategic area: Changes and Blends (part of Understanding Emotions) and Emotion Management and Emotional Relations (part of Managing Emotions).

[a]The Strategic area of the MSCEIT consists of about half the test including the Understanding and Managing aspects of emotional intelligence.

TABLE 7.—Correlations between the Test of Personal Intelligence (TOPI) 1.2 and the added criterion measures[a] of Study 3.

Validity Measures[b]	Recognizing Information	Forming Models	Guiding Choices	Systematizing Plans	Total TOPI 1.2
Personality Disorder Symptom Scales					
Maladaptive Agreeableness	−.09	−.16**	−.17**	−.12*	−.16**
Narcissistic Grandiosity	−.26**	−.16**	−.24**	−.23**	−.26**
Narcissism Personality Inventory	−.19**	−.11*	−.15**	−.13**	−.17**
Lifespace Index					
People Pleasing	−.17**	−.19**	−.19**	−.14**	−.21**
Rational Coaching	−.01	−.04	−.01	.10	.04
Confirmed Controlling	−.31**	−.37**	−.38**	−.34**	−.41**
Reading Books	.01	−.04	.01	−.04	−.02
Reading the Mind in the Eyes	.38**	.49**	.50**	.46**	.53**
Interpersonal Competency Questionnaire	.04	.08	.05	.06	.06
Initiating Relationships	−.01	.01	−.01	−.02	−.01
Providing Emotional Support	.12	.18	.13**	.15**	.17**
Asserting Influence	−.01	.06	.06	.02	.04
Self-Disclosure	.01	−.01	−.02	−.02	−.01
Conflict Resolution	.07	.08	.04	.08	.07
MSCEIT Strategic Emotional Intelligence[c]	.54**	.61**	.63**	.58**	.69**
Understand Emotions	.50**	.62**	.64**	.57**	.68**
Changes	.45**	.60**	.59**	.54**	.63**
Blends	.45**	.53**	.57**	.50**	.60**
Manage Emotions	.48**	.46**	.49**	.46**	.55**
Emotion Management	.43**	.41**	.47**	.46**	.51**
Emotional Relations	.43**	.41**	.42**	.39**	.48**

Note. N = 379.
[a]Criterion correlations for Vocabulary, the Big Five and Psychological Mindedness for Study 3 are given in Table 2. [b]The additional scales are Maladaptive Agreeableness (adapted from Haigler & Widiger, 2001), Narcissistic Grandiosity (Rosenthal et al., 2007), the Short Narcissistic Personality Inventory (Ames, Rose, & Anderson, 2006), Reading the Mind in the Eyes Test (Revised; Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001); the Interpersonal Competence Questionnaire (Buhrmester et al., 1988); the Mayer–Salovey–Caruso Emotional Intelligence Test (MSCEIT; Mayer, Salovey, & Caruso, 2002a) Strategic area: Changes and Blends (part of Understanding Emotions) and Emotion Management and Emotional Relations (part of Managing Emotions). [c]N = 356.
*p < .05. **p < .01.

GENERAL DISCUSSION

On the Possible Existence of Personal Intelligence

The validation of a concept such as PI and its measure involves the constructive integration of both theory and research. The theoretical concept of PI must be consistent with existing conceptions of the field (or have a rationale for why it is not), and measures of PI must exhibit properties of a reliable and unitary ability that are consistent with the theory (Smith, 2005). The viability of PI, in other words, depends on diverse matters including the distinction between cool and hot intelligences, findings from empirical psychometric work, and whether PI adds clarity to theoretical concepts in the field (or at least raises important questions). No single set of studies can by itself conclusively indicate the validity of the concept. That said, the empirical work described here contributes several important findings crucial to addressing the central claim of the theory of PI: that people exhibit reliable individual differences at a diverse yet unified group of abilities related to understanding personality. The findings also are crucial to understanding hot intelligences more generally.

Was there evidence for a PI across the three studies conducted here? The findings suggest that PI does exist. The TOPI was constructed to measure four areas of PI. Each of its four sections was made up of subsidiary item clusters (varying from 14 to 18 across studies). We viewed these four sections, and the clusters that made them up, as diversely sampling from a newly defined population of possible PI abilities rather than as a complete set. The Recognizing Information section was designed to test the ability to recognize personality-relevant information, ranging from recognizing personality traits from faces, to identifying inner personal states (e.g., motives, sleepiness). As further examples, the Forming Models section tested people's knowledge of traits, and the Systematizing Plans section was intended to test a person's knowledge of which goals were more likely to create consistency versus conflict (see Table 1). Because all the items of the TOPI were ability-based, if the sections exhibited reliability and some degree of unity as a group, it would provide strong support for the idea that a PI exists as an entity.

The First Criterion: Reliable Individual Differences

Some TOPI sections fared better than others in our analyses, exhibiting high reliabilities across all studies. For example, Guiding Choices (Section 3) was reliable consistently through all three studies (αs = .81–.84). Recognizing Information (Section 1), by contrast, exhibited borderline reliability across studies (αs = .52–.61). The other two sections were between these

two. There could be at least two reasons for the lower reliabilities observed in Section 1. First, the items were particularly heterogeneous, including both visual-perception modalities and highly verbal descriptions of inner states. Second, we had difficulty setting an optimum level of difficulty for many item types in that section. Despite our attempts to rework individual items across studies (or replace them), they often remained either easier or harder than we had hoped to make them.

That said, the overall quality of sections and of the overall test was sufficient to make it clear that reliable individual differences exist in the skills measured. The three versions of the TOPI considered as wholes were each highly reliable from Study 1 forward, ranging from $\alpha = .88$ to .90.

The Second Criterion: A Unitary Set of Abilities

All three studies also provided evidence that the four sections were drawing on a global ability. Across the three studies a one-factor confirmatory factor analysis, using the four sections as specific indicators of overall PI, provided a generally adequate fit to the data. The overall model fit was good for Studies 1 and 3, and a bit less so in Study 2. Correlations among sections of the test were sometimes higher than specified by the theory, suggesting that the four test sections might not be sufficiently distinct from one another in certain instances. In each test of the model (across the three studies), the four TOPI test sections loaded significantly on an overall PI factor. Collectively, the one-factor model represented an informative, although imperfect, first representation of the results that will benefit from needed refinement in future studies.

The Third Criterion: The Relation of Personal Intelligence to Other Variables

We also began an exploration of the relation of PI to other criteria. In these explorations, PI appeared to be fairly independent of the general traits of the Big Five, ranging between $r = -.08$ and $r = .21$, with the stronger relations with Agreeableness, Conscientiousness, and Openness. PI correlated more highly with Psychological Mindedness, the motivation to understand others, as reflected by rs of .27 to .38 across studies (ps < .01). Most of the remaining relationships were examined only in Study 3.

In Study 3, PI correlated with lower degrees of Narcissistic Grandiosity, $r = -.26$, and Narcissism on a brief scale, $r = -.17$, indicating that the intelligence might buffer against such unrealistic and exploitative self-concepts (Ames et al., 2006; Rosenthal et al., 2007). In relation to overdependency, PI also correlated $r = -.16$ with lower degrees of Maladaptive Agreeableness, indicating that it might buffer against the extreme lack of self-knowledge that leads one to over rely on others for decision making (Haigler & Widiger, 2001).

PI also was related to other intelligences—particularly other hot intelligences. Beginning with the one cool intelligence we examined, Verbal Comprehension (indexed by our Vocabulary scale), the correlations with the TOPI were moderate overall ($r = .39$–.45 across studies, ps < .01). Moving toward "hotter" abilities and intelligences, the correlation with the Reading the Mind in the Eyes test (Study 3 only) was still higher at $r = .53$. Interestingly, although the Reading the Mind test is often thought of as emphasizing visual perception, it correlated most highly in our study with more verbal scales, suggesting that the Reading

the Mind's verbal response scales could contribute importantly to making a correct choice. Finally, the TOPI 1.2 correlated with the Strategic Emotional Intelligence portion of the MSCEIT, $r = .69$. If the correlation is replicated at this high level, it will reflect a surprising degree of overlap between the two abilities. Consider, for example, that every single one of the MSCEIT items directly asks something about emotion—questions about emotional states, their meanings, and how to manage them. By contrast, only one or two items out of the 134 TOPI items ask anything about emotion. The TOPI asks questions about the connections between mental states (more inclusive than emotion) and actions, about personal reputations, traits, and goal conflicts.

One might wonder whether the relationship among the TOPI, MSCEIT, and Reading the Mind is slightly inflated by vocabulary usage (e.g., as represented by the Vocabulary score), or by participants' overall efforts at the ability scales. No doubt this contributes some shared variance, but the Reading the Mind test is largely nonverbal, and vocabulary's relationship with the TOPI was just $r = .39$ in Study 3. The findings here suggest that the reasoning involved across hot intelligences might be more similar than originally envisioned. Although that could be the case, we expect PI to be distinct in that it is conceptualized as a superset of skills that includes some emotional intelligence but goes beyond it, involving also the ability to read and to understand oneself in terms of inner motivations and goals, as well as the ability to reason about one's traits and goals and their fit with one's identity, and to reason about such information in relation to other people as well.

Personal Intelligence and Lifespace Criteria

Lifespace data are conceptually and empirically distinct from self-judgments of, say, personality traits. Lifespace responses (also known as biodata) exhibit fewer influences of social desirability or of positive biases than do self-judgment data (Breaugh, 2009; Mayer et al., 1998; Stokes, 1999; Vicino & Bass, 1978). The TOPI correlated negatively with two lifespace factors on the PILSI, providing a first look at how those low in PI might differ from those higher in it. In particular, at least some low-scoring people on the TOPI are more inclined to make decisions about others in which they felt confirmed, to imitate others with the aim of entertaining themselves, and to discourage others from seeking self-knowledge and knowledge of others. This provides a first indication of the kinds of behavioral differences one might expect between high and low scorers—it is a promissory note, however, owing to the exploratory nature of the PILSI. This version of the PILSI was far more successful at describing low- as opposed to high-PI individuals. Very speculatively, we might guess that higher PI people would take a collaborative approach to understanding themselves by asking friends and colleagues to provide them with feedback, and would better listen to other's desires before giving advice. Verifying such a hypothesis, however, will require work with future versions of the lifespace scale.

Future Research

The results here suggest that PI might be a useful target of assessment in both understanding people's interpersonal behavior and their performance at tasks that require some knowledge of personality. If so, then further development of tests such as the TOPI are warranted. In relation to the TOPI itself, a further psychometric development of the test "below" the section

level—at the cluster level—is warranted, to improve the reliability of the individual clusters and to allow for tests of the hierarchical nature of PI beyond the section and overall levels. Another unsettled issue involves possible gender differences in the intelligence, which were not present in Study 2 but were in Study 3 (with women performing about a half standard deviation higher than men). Further empirical work should clarify whether this difference is found in new samples.

The relation of PI with other hot intelligences is yet to be settled and future modeling of the hot intelligences as a group will be of value. The results here suggest that PI, emotional intelligence, and perhaps social intelligence (if measured as an ability) might form a rather cohesive group. If so, the question of how to fit them into a broader picture of intelligence, including the cool intelligences such as the verbal comprehension, perceptual-organizational, and other intelligences becomes of interest, as well as how they might be fit within such ambitious models as Carroll's three strata model of intelligence (Carroll, 1993).

PI also will be of interest to study in relation to concepts such as self-knowledge. Those with higher PI, given their better understanding of the meaning of traits, which traits covary, and similar information, ought to be better able to apply such concepts to themselves and have better self-knowledge. This hypothesis could be tested by correlating PI with empirical approaches to studying self-knowledge that have been recently developed (Dunning, 2005; Robins & John, 1997; Vazire & Mehl, 2008; Vogt & Colvin, 2005). Those studying self-knowledge have recently identified better criteria for what a person actually is like. Vogt and Colvin (2005), for example, use combined data drawn from the person's self-knowledge, parents' and friends' assessments, and videotaped behavior of the individual. Others have used voice-activated recording devices to track and analyze a person's naturally occurring conversations over the course of a day (e.g., Holleran, Mehl, & Levitt, 2009).

Yet another key question is how PI develops over time (Clausen, 1991). There is considerable evidence that the ability to recognize and use trait information begins early in childhood and that there are individual differences in such knowledge (Gonzalez, Zosuls, & Ruble, 2010; Hedlund & Sternberg, 2000; Heyman & Gelman, 2000). Until measures of PI are employed over different age groups, however, little will be known about its development. Such development also is likely to be influenced and shaped by culture. For example, in some non-Western cultures, the concept of self is grounded in the relation of the individual to the broader society and to one's place in that society (Fulmer et al., 2010; Markus & Kitayama, 2010). The nature of PI as defined and operationalized in this study might require some adjustment so as to be applicable beyond the Western sample studied here.

The Purpose of Studying Personal Intelligence

A larger question remains: Even if PI can be identified within the human mental toolkit, does the world need another intelligence or another hot intelligence (Austin & Saklofske, 2005; Hedlund & Sternberg, 2000)? We don't know about the question in general, but it is possible to speak specifically of PI. Psychologists have speculated that among our early ancestors, those who understood personality and other people possessed an evolutionary advantage over others (Buss, 2008; Funder, 1995; Klein, Cosmides, Tooby, & Chance, 2002). As such, PI was once

crucial to obtaining advantages—and it likely still is in certain ways today (Haselton & Funder, 2006). Information about personality qualifies as "hot" and concerns reasoning about the essence of who a person is. From the dawn of written history, understanding and discussing personality has been an important worldwide value, emerging in many wisdom traditions during the Age of Transformation (1000 BCE–200 BCE; Armstrong, 2006; Mayer, Lin, & Korogodsky, 2011). In India, Siddhartha (the Buddha) said, "A man should first direct himself in the way he should go. Only then should he instruct others" (The Dhammapada, c. 550 BCE/1994). In the Middle East, Akaavya ben Mahalalel said, "Know where you came from; know where you are going; and [know] in whose presence you will have to make an accounting" (Pirke avot, c. 200 BCE–200 CE/1993, 3:1, p. 36). And, in ancient Greece, Chiron of Sparta was said to have inscribed "Know Thyself" on a column outside the Delphic temple (Diodorus, 1935/1960, Book IX, 9, 10). Such wisdom teachings suggest that judgments of personality—and attempts to guide such judgments—emerge from far back in our evolutionary history (Haselton & Funder, 2006; Mayer, Lin, & Korogodsky, 2011).

The Menninger Clinic studies on psychological mindedness, which conceptualized the attribute as an ability, suggested that such high-ability people were more adept at changing themselves for the better than others (Appelbaum, 1973). Emmons and King's (1988) demonstration that people who have more consistent goals than others also exhibit better well-being is relevant. Those who are more accurate at judging others also might be more socially skilled and better adjusted (e.g., Letzring, 2008). These and other works suggest that a general ability at PI might well predict important and positive outcomes in a person's life and in the lives of those around the individual.

Conclusions

We began with a theoretical depiction of PI as a capacity to reason about personality and personality-related information. Given that description, we asked whether people exhibited differences in their abilities to solve personality-related problems, and whether those problems formed a unitary ability. Whether PI exists, we argued, was of importance to intelligence researchers in understanding the set of hot intelligences and their relation to intelligences more generally. More broadly, understanding and evaluating personality has been a core pursuit across the world's many cultures for millennia (Mayer, Lin, & Korogodsky, 2011). Finally, PI might today predict important aspects of a person's life outcomes. Across three samples, we have found evidence that the mental ability is related to psychological mindedness, to emotional intelligence, to "reading the mind" through a person's eyes, and that, behaviorally, people higher in PI are likely to be less domineering and more sensitive to others' needs. This study is just a beginning in capturing the measurement of PI and understanding what it might and might not predict. Although it is an early step of a long trip, we are hopeful it is a step in the right direction.

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