

FOCAL ARTICLE

Intelligence 2.0: Reestablishing a Research Program on *g* in I–O Psychology

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Abstract

Intelligence (i.e., *g*, general mental ability) is an individual difference that is arguably more important than ever for success in the constantly changing, ever more complex world of business (Boal, 2004; Gatewood, Field, & Barrick, 2011). Although the field of industrial–organizational (I–O) psychology initially made substantial contributions to the study of intelligence and its use in applied settings (e.g., Hunter, 1980; Schmidt & Hunter, 1981), we have done relatively little in recent times about studying the nature of the intelligence construct and its measurement. Instead, we have focused predominately on using intelligence to predict performance outcomes and examine racial subgroup differences on intelligence test scores. Although the field of I–O psychology continues to approach intelligence at a surface level, other fields (e.g., clinical psychology, developmental and educational research, and neuropsychology) have continued to study this construct with greater depth and have consequently made more substantial progress in understanding this critical and complex construct. The purpose of this article is to note this lack of progress in I–O psychology and to challenge our field to mount new research initiatives on this critical construct.

Intelligence (i.e., *g*, general mental ability) is an individual difference that is arguably more important than ever for success in the constantly changing, ever more complex world of business (Boal, 2004; Gatewood et al., 2011). Competencies related to intelligence, such as the ability to learn, solving problems in ambiguous scenarios, and integrating wide and varied sets of

information, are just some of the skills and abilities that have become increasingly critical for meeting the challenges of the shifting work environment (Baum, Bird, & Singh, 2011). Although the field of industrial–organizational (I–O) psychology initially made substantial contributions to the study of intelligence and its use in applied settings (e.g., Schmidt & Hunter's, 1981, 1998, work on prediction of job performance; Fleishman's taxonomy of human behavior [Fleishman & Quaintance, 1984] that focused on cognitive aspects of human work capabilities; and McHenry and others' [McHenry, Hough, Toquam, Hanson, &

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Ashworth, 1990] study of multiple predictors in Project A), the field has been much less active in conducting research on intelligence during the past few decades. Instead our focus has generally shifted to alternative constructs and measures (e.g., personality research, structured interviews, and work samples/simulations) or methodological approaches relating to the scoring of cognitive ability tests (e.g., banding, cut scores, and computer adaptive testing). As a field, we have recently done little of note when it comes to studying the nature of the intelligence construct and its measurement. Instead we have relied on research that is decades old, and likely in need of updating, as well as focused almost exclusively on the narrow (albeit important) questions of using intelligence to predict performance outcomes or examining racial subgroup differences on intelligence test scores.

Although we approach the construct of intelligence at a relatively surface level, other fields (e.g., clinical psychology, developmental and educational research, and neuropsychology) delve into intelligence research with greater depth and continue to make progress in understanding this critical and complex construct (e.g., the development of new models of intelligence from cognitive science such as the planning, attention, simultaneous, successive [PASS]; the emergence of new measures from clinical and cognitive psychology as well as neuropsychology that aim at assessing executive functions of the brain). The purpose of this article is to take note of this lack of progress in I–O psychology and to challenge our field to launch a new research agenda on this critical construct. In particular, we outline basic strategies for jump starting this research agenda and discuss the importance of conducting research that doesn't just focus on the prediction of outcomes but also aims at gaining insight into the nature of the intelligence construct and its measurement. A central point of this article is that the field needs to reorient itself toward studying intelligence for understanding, as well as prediction, to overcome

the gap between the importance of the construct and our scientific study of the construct.

Intelligence Is More Important Than Ever

Intelligence has long been viewed as one of the most critical competencies for success on a variety of important life outcomes, including job performance and educational achievement (Gottfredson, 1997a, 1997b; Herrnstein & Murray, 1994; Jensen, 1998; Sackett, Schmitt, Ellingson, & Kabin, 2001; Schmidt & Hunter, 1998). In fact, research based on validity generalization points to intelligence as the single best predictor of future job performance (Hunter & Hunter, 1984; Schmidt & Hunter, 1998). Although there are many unresolved issues around intelligence (Goldstein, Scherbaum, & Yusko, 2009; Neisser et al., 1996), the importance of the construct is widely accepted in our field (Murphy, Cronin, & Tam, 2003).

Intelligence test scores are generally valuable for predicting a number of life's important outcomes, but their value is greatest when the domain of the outcome is complex, ambiguous, novel, rapidly changing, or unpredictable (Gottfredson, 1997a, 2002; Hunter, 1986). Many have argued that increased complexity, ambiguity, novelty, and unpredictability characterize today's business world (Cascio, 1995; DeNisi, Hitt, & Jackson, 2003; Jeaneret, 1998; Offermann & Gowing, 1993; Pearlman & Barney, 2000), which makes intelligence more critical than ever for success in organizations (Baum et al., 2011; Boal, 2004; Gatewood et al., 2011; Kehoe, 2002; Pearlman & Barney, 2000). In fact, Murphy et al. (2003) found that 81% of the 703 I–O psychologists responding to their survey on cognitive ability believe that intelligence will only become more important as the competencies required for job performance increase in complexity.

In part, this is driven by the fact that a more complex, less predictable workplace requires critical workforce competencies

that are related to intelligence, such as ability to learn, solving problems in ambiguous scenarios, and integrating wide and varied sets of information (Pulakos, Dorsey, & Borman, 2003; Senge, 1990). These arguably intelligence-based skills are required to meet the challenges of the new world of work, thus putting a premium on intelligence (and intellectual capital) when staffing an organization (Pearlman & Barney, 2000). Pearlman and Barney note that one change that has occurred with jobs is that they “are more demanding cognitively (because of the need for almost continual integration of new knowledge and technology)” (p. 16). Therefore, organizations in today’s modern work environment in general and high performance organizations in particular require employees who possess a wide range of skills (both cognitive and noncognitive in nature), including advanced intelligence-related capabilities such as information gathering and analysis, problem solving, critical and creative thinking, applied mathematics, and decision making (Pearlman & Barney, 2000). Given the importance of intelligence, and the case that many scholars make that its importance is increasing, one might expect our field to focus more on studying this complex construct. Indeed other fields such as education, neuropsychology, clinical psychology, and cross-cultural studies have deemed intelligence to be increasingly important and have devoted a great deal of effort to study the construct and its measurement (Davidson & Downing, 2000; Flanagan & Harrison, 2005; Kane & Engle, 2003; Mayer, 2000). However, a cursory review of the literature will demonstrate that this does not seem to be the case for I–O psychology.

A Brief History of the Contribution of I–O Psychology to Research on Intelligence

The study of intelligence, in general, has a long and rich history that arguably dates back thousands of years with initial conceptualizations of intelligence emerging as

early as the fourth century B.C. (Ree & Carretta, 2007). In terms of modern research on the construct, many point to Francis Galton as the individual who in 1869 first conceived the notion of generalized cognitive ability (i.e., intelligence, *g*) and focused on designing objective techniques for measuring intelligence (Ree & Carretta, 2007). Other pioneers of the modern study of intelligence (see Wasserman & Tulskey, 2005) include Alfred Binet, who created initial structural models of the construct as well as a standardized measurement scale that served as a prototype for many subsequent intelligence measures developed during the first half of the twentieth century (Binet & Simon, 1911/1916), James Mckeen Cattell, who coined the term “mental tests” and developed test batteries to be used in educational settings with college students (Cattell, 1890, 1893), and Charles Spearman, who established the psychometric approach to intelligence that focuses on a unitary factor underlying tests of cognitive ability (i.e., *g*; Spearman, 1904).

One core foundation of the field of I–O psychology lies in differential psychology and the study of individual differences (Landy, 1989). Given this focus, it is not surprising that the field early on took a great interest in intelligence testing. Although initially intelligence testing was predominantly used to diagnose mental problems in school children (e.g., Binet & Simon, 1905/1916) and the mentally disabled (Goddard, 1913), World War I saw the emergence of intelligence tests used for more work-related purposes—the assessment and placement of recruits in the army. Coinciding with the U.S. declaration of war in 1917, the president of the American Psychological Association, Robert M. Yerkes, enacted a plan to put in place test batteries for the psychological assessment of army recruits (Gatewood et al., 2011; Landy, 1989). The success of this initial intelligence testing endeavor with the army during World War I and World War II spurred the use of widespread testing in both education and industry (Ghiselli, 1966; Landy, 1989; Thorndike, 1959; Wasserman & Tulskey, 2005).

Building off this initial success, the emerging field of I–O psychology established personnel selection and its associated testing systems as a core area of research and practice (Landy, 1989). Thus, during the early history of our field, the study of intelligence was a main area of focus to which we made significant scientific contributions. For example, Fleishman and his colleagues conducted research to identify the basic abilities, especially those that were cognitive in nature, required for performing a wide range of tasks in an organizational setting (Fleishman, 1966; Fleishman & Quaintance, 1984). On the basis of a multidecade research program, Fleishman isolated sets of various types of abilities required for effective work performance, including those that were cognitive, physical, psychomotor, sensory-perceptual, and social-interactive (which were added later). Cognitive abilities identified by Fleishman's research included oral comprehension, fluency of ideas, memorization, numerical facility, as well as inductive and deductive reasoning (Fleishman & Quaintance, 1984). Fleishman's work yielded detailed descriptions of the various abilities as well as rating scales on which individuals could estimate the extent to which any given ability was needed to successfully perform a job or task (Gatewood & Feild, 2001). Fleishman's work on this taxonomy provided an initial platform for conceptualizing how intelligence manifests itself as various cognitive abilities that positively affect job performance in work organizations.

Although Fleishman's work aims at the very nature of the intelligence construct as it pertains to work settings, the primary scientific contribution of our field to the study of intelligence has been research on the use of intelligence test scores to predict job performance (Goldstein et al., 2009; Murphy, 1996). In particular, our field has been involved in conducting a series of large-scale studies and developing statistical methods aimed at examining the relationship between intelligence and job performance, including Project A and the General Aptitude Test Battery (GATB) studies.

Project A was a major research project focused on the development of a multi-predictor selection system for entry-level positions in the U.S. army (Campbell, 1990) as well as measures of soldier performance. Project A involved a team of I–O psychologists who created a comprehensive battery of predictors, including general cognitive ability tests, as well as other types of instruments (e.g., spatial ability tests, temperament and personality inventories, and psychomotor assessments) and comprehensive measures of job performance. Using these data, a validation study was conducted to examine the extent to which various types of tests predicted various aspects of job performance (McHenry et al., 1990). Although it is difficult to know to what extent the findings from Project A were leveraged to redesign the test battery used to select military personnel, it is clear to this day that the military has continued to study intelligence as a means to understand job performance (e.g., Ree & Carretta, 2002, 2007).

The research on the GATB was another large-scale project involving I–O psychologists who focused on the intelligence–job performance relationship (Hunter, 1980, 1986; Hunter & Hunter, 1984; Schmidt & Hunter, 1998). The GATB is a mental ability test battery used by the U.S. employment service to select individuals for a range of jobs within various government agencies. Validity generalization analyses of 515 validation studies involving the GATB provided support for the relationship between intelligence scores on this test battery and performance on the job. The test battery was shown to be related to both training and on-the-job performance outcomes (Hunter, 1980, 1986; Hunter & Hunter, 1984). Further analyses demonstrated that the intelligence battery predicted job performance across a range of jobs of varying complexity, with stronger predictions emerging for more complex jobs in comparison to less complex jobs (Hunter, 1986). This study and subsequent similarly styled research leveraged meta-analytic techniques to examine the intelligence–job performance relationship and its generalizability (Schmidt &

Hunter, 1998). This validity generalization research, the meta-analytic techniques that underlie it, and the application of this approach to study the relationship between intelligence and job performance may be the strongest contribution of our field to intelligence research (Murphy, 1996).

In summary, the field of I–O psychology has previously made strong contributions to the literature on intelligence, with work on the prediction of performance being of particular note (e.g., Schmidt & Hunter, 1998). Although there is no question that many from our field have contributed to the collective knowledge on intelligence and have done so for a long period of time, one could argue that our field's contribution to the study of intelligence is both decreasing and becoming more limited in scope.

Decreasing Contribution of I–O Psychology to Intelligence Research

We believe that this decreasing contribution is best illustrated through the changes in the rate of publications on intelligence, the scope of this research, and where I–O psychologists are publishing their intelligence research. An examination of the table of contents for the first issue of *Journal of Applied Psychology* (March, 1917), which many recognize as the primary journal for the field of I–O psychology, reveals that nearly half of the articles focused on the topic of intelligence. In contrast, more recent issues of this journal rarely address this topic. For example, the first volume of the *Journal of Applied Psychology* contained 63 articles, of which 13 were related to intelligence, which is about 20%. In contrast, the last complete volume of the *Journal of Applied Psychology* (Volume 95, 2010) contained 430 articles, of which 5 were related to intelligence, which is about 1%. Furthermore, one of these five articles focused on emotional intelligence, which many view as completely independent of the intelligence construct.

A further cursory analysis of journal content reveals a similar trend that makes

a case for the limited and arguably decreasing amount of research pertaining to intelligence conducted by the field of I–O psychology. A rudimentary database search was conducted on the topic of intelligence using PsycINFO® that focused on the *Journal of Applied Psychology* and *Personnel Psychology*, two of the main journals in I–O psychology that emphasize the areas of individual differences and personnel selection. The terms searched pertaining to the topic of interest were *intelligence*, *general mental ability*, and *general cognitive ability*. The identified articles were then reviewed to determine their emphases regarding the study of intelligence and to ensure they were indeed relevant to the study of intelligence.

The findings from this review generally show a dramatic decrease in research on intelligence in these journals. In initial decades such as the 1920s and 1930s, the topic of intelligence is reflected in about 20% of the journal content. In the decades that immediately follow, the 1940s and 1950s, this is cut in half as <10% of the journal content is related to intelligence. Subsequently, in decades from the 1960s through the first decade of the new century, the percent of journal content related to intelligence drops to a maximum of 2%–3% at best. In summary, the quantity of research on intelligence being published by our field in our most prestigious journals has greatly decreased over time.

In addition, a great deal of the research that is conducted by our field on intelligence has become narrower in scope over the years. Early on, a wide variety of issues regarding intelligence were examined in the field's key journals, including theoretical discussions regarding the nature of the construct, studies on how to measure intelligence, and research on the prediction of relevant outcomes using intelligence tests. However, the majority of current research has focused *solely* on the predictive relationship between intelligence and work performance. This relationship is incredibly important to our field, and as noted earlier, it is recognized as the major contribution

of our field to the study of intelligence. Nevertheless, the emphasis on prediction does not mean that we should ignore other basic critical research questions for understanding this construct, such as the nature and measurement of intelligence. Regrettably, this seems to be the case. Most research reviewed in these journals focuses on prediction of work performance rather than other important questions regarding the nature of the construct and how it is measured. For example, a review of articles on intelligence published in the *Journal of Applied Psychology* and *Personnel Psychology* from 2000 to 2011 finds that approximately 75% focus on prediction of performance (i.e., 26 of 35 intelligence-related articles published during this time period are meta-analyses or multiple predictor studies that focus on the relationship between intelligence test scores and job performance outcomes).

Certainly, there are some I–O psychologists who are conducting research examining more fundamental questions about intelligence. As the preceding implies, 25% of the main journal research referenced above does not focus on prediction and instead centers on underlying issues relating to construct, structure, and measurement. However, for the most part, this research is being published in journals that the typical I–O psychologist does not read (e.g., *Intelligence* and *Journal of Experimental Psychology: Applied*). The combination of the narrow focus in the I–O journals and the more fundamental research by I–O psychologists appearing in the journals of other fields greatly limits the contribution the field of I–O psychology makes to the literature when it comes to intelligence and ultimately the practice of I–O psychologists.

In summary, the field of I–O psychology has made strong contributions to the literature on intelligence. However, the amount of research, in general, by our field on this topic has steadily decreased in quantity and narrowed in scope such that we tend to ignore basic research issues, including understanding the nature of the construct and its measurement, while

focusing almost exclusively on the prediction of performance. The disconnect between the importance of the construct and the type of research on which the field is focused is surprising and concerning. If intelligence is becoming more important as the business world increases in complexity, why have we narrowed our focus, while other fields (e.g., neuropsychology, cognitive psychology, developmental psychology, and education) have expanded their focus and continued to produce research on this topic that reflects depth and substance?

Why Don't We Study Intelligence in I–O Psychology?

The underlying question is why have I–O psychologists stopped studying the construct of intelligence and largely ignored new developments in intelligence research that are coming from other areas of psychology? Why have we left the research to others when intelligence is perhaps one of the most important constructs in our field? When one follows the research trajectories of other important constructs for our field such as personality, goal setting, and job satisfaction, the path of intelligence research is curiously very different. In each of these well-established areas, there has been a consistent stream of research on the constructs, their measurement, and their relationships with a variety of criteria. In contrast, the research on intelligence has not shown a substantial focus on the construct or its measurement for some time. Certainly, numerous authors in our field have made calls for additional research on the construct of intelligence and have noted that there is much that we do not know that requires further exploration (Goldstein et al., 2009; Goldstein, Zedeck, & Goldstein, 2002; Gottfredson, 2002; Reeve & Hakel, 2002; Tenopir, 2002). Although there are many possible reasons why these calls have, for the most part, been ignored, we believe that there are a few explanations that warrant more detailed consideration.

We have embraced the psychometric approach to intelligence to the exclusion of other possibilities. Although there are many theories and approaches to the study of intelligence (Cianciolo & Sternberg, 2004), I–O psychology has seemingly solely adopted the psychometric approach to intelligence (Goldstein et al., 2009; Murphy et al., 2003; Schmidt & Hunter, 1998; Viswesvaran & Ones, 2002). The psychometric approach is rooted in the work of Charles Spearman (1904) who posited the existence of a general factor of intelligence that underlies all branches of intellectual activity. Spearman went on to define this *g* factor as mental energy and stated that it could be mathematically derived from the “shared variance that saturates batteries of cognitive/intelligence tests” (Wasserman & Tulsky, 2005, p. 16). Proponents of this psychometric approach such as Jensen (1985, 1998, 2000) have worked to popularize these basic tenets regarding the nature, definition, and structure of intelligence.

Although the psychometric approach is well regarded by many researchers, there has been ongoing debate since the beginning in the intelligence literature and related sciences regarding its major tenets (Bartholomew, 2004; Cattell, 1963; Horn, 1976; McGrew, 2005; Neisser et al., 1996; Sternberg, 2000; Thurstone, 1938; Wasserman & Tulsky, 2005). Although this approach has been useful for I–O psychology, it is important that the field recognize that there are other credible approaches to intelligence that define the construct differently (e.g., Bartholomew, 2004; Fagan, 2000; Sternberg, 2000), posit different structures for the construct (e.g., Horn & Blankson, 2005; McGrew, 2005; McGrew & Evans, 2004; Sternberg, 1985), outline different theoretical approaches for understanding the construct (e.g., Cattell, 1971; Naglieri & Das, 1997, 2005; Sternberg, 1985), generate different models for conceptualizing the construct (Davidson & Downing, 2000), and discuss different ways of measuring the construct (e.g., Chen & Gardner, 2005; Fagan & Holland, 2002, 2007; Kaufman & Kaufman, 1983; Naglieri,

2005; Sternberg, 1981; Woodcock & Johnson, 1989).

Despite these different conceptualizations and approaches, our field has overly embraced and committed to the psychometric approach. This may not be a problem in and of itself given that support has been found for the psychometric approach and its tenets. The problem is that the field has interpreted the psychometric tenets as a singular reality, not open to discussion or debate. Clearly, this is not the case and there is much still to learn about intelligence even within the psychometric approach (Reeve & Hakel, 2002; Tenopyr, 2002). However, this point has somehow been lost, resulting in I–O researchers missing other credible theoretical and empirical approaches to intelligence and actively resisting them. New developments are often subjected to withering criticism aimed at discrediting them instead of attempting to draw from them to improve our science and practice. In contrast to I–O psychology, areas of psychology such as cognitive, developmental, clinical, educational, and the neurosciences have drawn fruitfully on other approaches to intelligence (Davidson & Downing, 2000; Mayer, 2000; Naglieri & Das, 2005; Vernon, Wickett, Bazana, & Stelmack, 2000; Zu & Weiss, 2005). The field of I–O psychology has generally failed to take advantage of other approaches to intelligence or even explore what we can learn from them. As a result, we are falling further behind in the cutting-edge knowledge and research on intelligence.

We are victims of our own success. As Murphy (1996) and others (Goldstein et al., 2002; Wagner & Hollenbeck, 1998) have argued, the success of I–O psychologists at establishing simple and generalizable relationships between cognitive ability and job performance has discouraged further research into this relationship and the construct more generally. In some respects, it makes good sense. Why is there a need to look for something different when what we have now works pretty well? This type of thinking has led to research that has made a

contribution, but it is incremental in nature and primarily looks for small refinements to the existing knowledge and approaches rather than more dramatic leaps in thought. We see the situation as analogous to Kuhn's (1962) description of the progress of science.

Kuhn stated that science does not progress through the steady, cumulative acquisition of knowledge but instead moves forward through dramatic, violent revolutions that periodically shatter the status quo. Although we have no way of knowing whether there will be a scientific revolution that will overturn the dominant psychometric perspective within our field, we are suggesting that I–O psychology's success has led us to narrow our focus and failed to take advantage of the new developments from other fields. Like any field that is in this state, there is a tension between the success of the dominant knowledge and approaches and the realization that they do not explain every aspect of phenomena of study (as is true of any theory or construct; Kuhn, 1959). We believe that this tension can be seen in the findings of Murphy et al. (2003). About 85% of the I–O psychologists responding to their survey agreed that intelligence tests do a reasonable job of measuring intelligence, but 89% also agreed that there are aspects of intelligence that are not measured by standard intelligence tests. Yet, this tension in I–O psychology has not reached a point where researchers turn their attention to new ideas and approaches to build on the success of their existing theory and constructs as well as develop new ones.

However, in areas of psychology exploring intelligence outside of I–O, this tipping point was reached long ago. This can be seen in the creation of new models of intelligence such as Sternberg's triarchic approach that focuses on analytical, creative, and practical aspects of intelligence (Sternberg, 1985, 1997, 1999) and the PASS theory of intelligence from cognitive science that views intelligence as comprising planning, attention, simultaneous, and successive functions of the brain (Naglieri & Das, 1997, 2005). It can be

seen in new definitions of intelligence such as Fagan's (2000) view that intelligence should be seen as "processing" and Schmidt's (2002) view that it should be seen as "the ability to learn." It can also be seen in new measures of intelligence such as Jensen's (2006) work on mental chronometry, which focuses on the speed with which the brain processes information, neurocognitive research (e.g., Haier, 2003; Prabhakaran, Narayanan, Zhao, & Gabrieli, 2000), that attempts to directly measure activity in the brain using various neuroimaging procedures (e.g., electroencephalography, positron emission tomography, and functional magnetic resonance imaging) or Higgins, Peterson, Pihl, and Lee's (2007) neuropsychological measures of prefrontal cognitive ability.

In summary, a great deal of theoretical and empirical research is being conducted on intelligence, and we are perhaps missing the opportunity to learn from it. This is not a time to rest, in that there are many unresolved and complex issues to deal with when it comes to intelligence (Neisser et al., 1996). We need to reach the tipping point those other fields have reached and begin exploring again.

We have a sense of "mission accomplished." We would argue that there is a prevailing sense in the field that "we know what we need to know" and "the case is closed" (Goldstein et al., 2002, 2009). Thus, there is no need for additional research. Again, we are not minimizing past accomplishments or suggesting that our existing knowledge is fundamentally flawed. Our point is, as noted above, that there is a misplaced belief that the major questions have all been answered and there are no large gaps in the literature to tackle.

We argue that in part, the belief in the completeness of our knowledge is driven by our field's interpretation of the psychometric tenets as objective facts around which there can be no debate. Such an interpretation leads to our viewing the assumptions of the psychometric approach as fundamental truths that cannot be

questioned and thus require no further investigation and research. In part, this has likely been encouraged by many proponents of the psychometric perspective who vehemently present its tenets in an uncompromising, “the-book-has-been-written” manner (e.g., Herrnstein & Murray, 1994; Jensen, 2000). In our view, this absolutist presentation of the psychometric perspective by such proponents has likely inhibited further work within our field on important research questions regarding intelligence. That is, because the tenets are presented as facts to which there can be no debate, we view the need for research on the nature of the construct, its measurement, and its relationship to critical outcomes as unnecessary, and we also tend to ignore, discount, or actively criticize any new findings on these issues by other fields because we have been told there is nothing new to learn.

This sense of mission accomplished has been reinforced in our own journals with article titles such as “why there cannot be a debate” (Schmidt, 2002) or “not much more than *g*” (Ree & Earles, 1991). Although these articles are focused on very specific questions about intelligence, it is not surprising that some would jump to conclusions about the overall state of our research and knowledge of intelligence (Reeve & Hakel, 2002). We do not mean to imply that these authors are attempting to discourage additional research. They are major proponents of *more* research and have substantially moved the field forward with their own research. However, the unintended consequence is that research is discouraged and a questionable belief is fostered that all the major and most interesting research questions have been answered.

It is akin to the unintended consequence that Guion and Gottier’s (1965) review of the personality literature had on the field for about 25 years. Guion and Gottier’s review noted that the current personality tests in use were not appropriate for personnel selection. That is, they stated that personality tests that aimed predominantly at measuring

dysfunctional or abnormal personality characteristics were not job relevant in that they did not produce scores for personality dimensions that would differentiate various levels of performance on the job. They concluded that *these* personality tests were not valid for predicting job performance. In reaction, the field of I–O psychology virtually stopped studying personality tests for selection purposes. This misinterpretation lasted 2 decades and greatly inhibited research in this area until the field eventually realized that tests of normal personality may be appropriate and valid for predicting job performance. This epiphany led to a vast amount of research on this topic in the late 1980s and early 1990s after the area was dormant for so long. Perhaps the same can occur when it comes to the study of intelligence if our field comes to realize that the “case closed” mentality is premature and that there are many interesting issues to grapple with and questions to ask when it comes to intelligence.

Although almost every I–O psychology research paper on intelligence makes some suggestions for future research, the suggested avenues of research seem to be interpreted as work for other fields to complete rather than our own. We are missing opportunities for boundary spanning and innovative research that will challenge the dominant approaches to reconsider their tenets and as a result improve the existing approaches as well as suggest new directions of thought on this critical topic of intelligence. Other fields of study have been conducting this type of research for some time. Again, we as a field are falling further and further behind.

We have legal and adverse impact concerns. Many authors have argued that the focus on legal issues and adverse impact has distracted the field from pursuing important research questions (Goldstein et al., 2002; McDaniel Kepes, & Banks, 2011). Although we take no position about changing existing regulations, we do believe that the heavy focus on them has led to the maintenance of the status quo and not

strongly encouraged new and innovative thinking about the construct of intelligence. Clearly, there has been new and creative research including the work on alternative predictors, alternative formats, and scoring. This research has made important contributions to the field. However, the focus of that research has been on reducing score differences between groups and making refinements to the existing thinking on the intelligence construct. With few exceptions (e.g., Outtz & Newman, 2009), the focus has not consistently included improving our understanding of the intelligence construct while trying to understand these racial differences. It is our belief that re-engaging in the fundamental questions about the construct of intelligence and its measurement will help move us past the status quo and has the potential to contribute to address the long standing concerns about adverse impact. Some research by other fields has demonstrated that this may be the case (e.g., Fagan & Holland, 2002, 2007; Sternberg, 2006).

We lack a cooperative scientific spirit. The debates in the area of intelligence have been vigorous and at times bitter. We agree with McDaniel et al. (2011) that (a) debates in the area of personnel selection, especially this one, arouse emotion; (b) the debates are not open-minded considerations of multiple viewpoints, and they can degenerate into accusations of one side being unsupportive of equal opportunity and the other side being unscientific and ignoring research findings that do not support social goals; and (c) this situation is not helping the field.

The creation of the situation is somewhat understandable given the social and political context surrounding intelligence testing over the past 20 years. At times, strong stands and vigorous defense of scientific findings were needed (e.g., Gottfredson, 1997a). The unfortunate byproduct is that the positions have become entrenched and debates focus more on proving the other side wrong than mapping out a research agenda that incorporates multiple perspectives for the field to pursue.

In this environment, there is little to no acknowledgment of the merit of different positions and ideas, an unwillingness to seriously consider differing viewpoints, and no effort to jointly forge ahead to improve the science of I–O psychology. The essence of this problem is captured in the 2002 special issue of *Human Performance* on the role of cognitive ability in I–O psychology. Many of the articles, including the summary, spend more time explaining why the other articles are wrong instead of mapping a specific research agenda for I–O psychologists to better understand the construct of intelligence and its measurement, as well as build on our success in predicting job performance. We as a field need to be approaching new developments on the construct of intelligence and its measurement from the perspective of “what we can learn” instead of the perspective of “why it cannot work” or “why it must be wrong” that currently dominates our field.

We agree with Neisser et al. (1996) that the study of intelligence needs self-restraint, reflection, a lot more research, a joint effort, and serious consideration of different viewpoints. Unfortunately, I–O psychologists don’t seem to be present when it comes to these efforts regarding intelligence, perhaps because the field considers all the questions as having been answered and the case to be closed. This does not have to be the situation. In other areas of I–O psychology where there has also been vigorous debate such as goal-setting theory, joint collaborations across multiple perspectives (e.g., Latham, Erez, & Locke, 1988) occurred and greatly enhanced our theories and understanding of important work-related phenomena. We believe that this type of collaboration is possible for intelligence research. In summary, while other fields continue to think deeply and expand their conceptualization of intelligence, I–O psychology has decreased its research activity in this area and remains focused only on relatively narrow aspects of intelligence. The question becomes, where is a starting point for our field in renewing our research agenda on this critical construct?

What Should I–O Psychology Be Doing to Study Intelligence?

As we have commented throughout this article, a disconnect exists between the importance of the construct of intelligence and the intensity of our research efforts. If intelligence is indeed one of the most important constructs in our field, we need to reestablish a clear research agenda on this topic. In particular, we need to direct the field to conduct research on basic questions regarding intelligence, including understanding the construct and how it is measured and examine these as they pertain to the study of human behavior in the workplace. As noted earlier, what little research we now conduct tends to focus on prediction of job performance outcomes, which, although important, should not constitute the sole focus of our research agenda and should not come at the expense of basic research on understanding the nature of the construct and how it is measured in the context of I–O psychology.

Currently, we are falling far behind other areas of study when it comes to understanding these basic issues about the construct and its measurement. It is critical that we stay up to date on findings from these other fields and that we generate research on our own that targets our field's particular niche of examining human behavior in work settings. The field needs to reestablish a comprehensive research program that focuses on all these questions as they pertain to the study of human capital in organizations: the construct, measurement of the construct, and prediction of outcomes. In other words, we need boundary spanning research that once again puts I–O psychology at the forefront of the science and research on intelligence.

To this end, we have generated a number of suggestions. These suggestions are not meant to be exhaustive, and there are many other directions that intelligence research in our field can take. Our goal is simply to start the conversation about how I–O psychology can reengage in research on the fundamental questions regarding the

critical construct of intelligence as it relates to human behavior in the workplace. We make the following set of suggestions:

Encourage Research and Enhance Education on Intelligence

From a very practical standpoint, we need to ramp up research efforts on this critical topic. To this end, we need to do all we can to encourage research initiatives and to provide those within our field with grounding in the topic so that they can generate new and insightful ideas for answering basic questions about the construct that pertain to human behavior in work settings. Although there are some I–O psychologists who are conducting research and examining fundamental questions about intelligence, their research on this topic tends to be published in journals that I–O psychologists do not typically read (e.g., *Intelligence* and *Journal of Experimental Psychology: Applied*). Thus, the field is missing out on the opportunity to build on this work and refocus on studying intelligence more generally rather than just more research on predicting job performance outcomes.

We believe that the major journals in I–O psychology should take steps to encourage researchers to submit this type of research to our journals and not to dismiss it as dated research to questions that have already been answered. For example, perhaps a special issue or several special issues on new developments in intelligence research would help increase awareness within the field of the new and exciting research that is being conducted on intelligence. Alternatively, special sections in our journals on individual differences could help achieve these goals.

In addition, perhaps adding a special track on this topic to the next conference for the Society for Industrial and Organizational Psychology would help facilitate progress. The track could call attention to the growing importance of intelligence in the workplace, highlight recent findings from other fields that are potentially applicable to our field of study, pinpoint needed

areas of research from a practitioner standpoint, and present the work that is being done in our field that is currently at its periphery (and often published outside our main journals). In addition, inviting basic intelligence researchers to come give talks at the conference could facilitate progress in terms of moving our field forward and helping promote cross-fertilization of ideas and a research agenda that builds off current findings from other related fields. Even a workshop on the topic offered at the next conference could help in educating the field on the latest findings from the larger intelligence literature, and this could begin the discussion of how they apply to work organizations. Should any of these approaches help jump start interest and research on intelligence, perhaps a leading edge conference focused on this topic could eventually be a logical next step.

Part of the challenge of reestablishing a research agenda around intelligence is that many I–O psychologists receive little comprehensive training on intelligence as a construct. Our training may come as part of a personnel psychology course where the focus is a mix of measurement and prediction. However, little depth is typically provided directly regarding this construct. In addition, it is rare that such courses go much beyond presenting the psychometric approach to intelligence when educating students of the field. In addition, although some students may take a basic course on cognitive psychology that may include some coverage of intelligence, it rarely captures the dynamic nature of the current research occurring in various areas of psychology on this construct. Thus, individuals from our field are often extremely surprised to hear about all the alternative approaches and active research occurring on intelligence outside of our field. It is interesting, and somewhat disappointing, that most I–O psychologists are more familiar with the construct of personality (e.g., various proposed structures and models, and alternative hierarchical forms) than the construct of intelligence. This is something that needs to change to encourage research in this area.

A Better Understanding of the Construct of Intelligence

A critical starting point for research on intelligence for our field is a focus on the nature of the construct. That is, we need to have a clear understanding of what intelligence is in terms of a definition and delineation of the domain. Given that a defined construct and domain will serve as the foundation for the development of measures of intelligence (research on measures of intelligence is discussed in the following section), it is critical that research be devoted to this issue. In doing so, it would serve us well to draw from other fields and their thinking regarding the nature of the construct, how it is defined, its structure, and its resulting domain as well as to consider the question ourselves from the unique perspective of intelligence in work settings.

Defining intelligence for the field of I–O psychology. Intelligence is an extremely complex construct, which is still lacking an agreed-upon definition (Neisser et al., 1996; Sternberg & Detterman, 1986; Wechsler, 1975). This is especially problematic because a consistent and coherent definition is important for a clear understanding of the construct and for subsequently developing construct valid measures that can be used to accurately predict performance in personnel selection (Schmidt & Hunter, 1998).

It is important to consider that the definition of a construct naturally reflects its field of study (Wasserman & Tulskey, 2005). That is, the field of investigation often affects what one focuses on, and emphasizes, when defining a construct. As described by Wechsler (1975), different fields have created different definitions of intelligence. For example, anthropology focuses on the ability to adapt to the environment, whereas education focuses on the ability to learn. He notes that even within a field such as psychology, different areas of study attend to different aspects of intelligence (e.g., learning psychologists emphasize the ability to acquire and apply concepts, whereas clinical psychologists emphasize the ability to

think in a rational manner). Thus, an initial question to research is how I–O psychology as a field should define intelligence. That is, with an eye toward understanding intelligence as it pertains to human behavior in work settings, what should be emphasized in defining the construct?

Currently, within our field, many different definitions have been used, and a consensus has not emerged (Goldstein et al., 2002). Our field needs to draw on the thinking of other fields, integrate it with our focus on human behavior in the workplace, and strive to develop an agreed upon definition of intelligence for I–O psychology. Although we may not reach a precise final definition for our field (many fields continue to wrestle with this task), the discussion will provide rich thinking on the construct and how it manifests itself in work settings, as well as to further assist with delineating the domain that we aim to understand and measure.

Understanding how intelligence manifests itself in work settings. Building off the previous point, research is needed to better understand how intelligence manifests itself in work settings. That is, we need a better understanding of what intelligence looks like in action when used on the job. For example, Schmidt (2011) noted Gottfredson’s work on “the role of GMA in everyday life tasks, such as understanding bus schedules and filling out Social Security forms...(as) an area of opportunity for future research that could lead to better understanding of many social phenomena.” We agree that a focus on the role of intelligence in everyday tasks is critical and that this notion could be applied to I–O psychology by focusing on job tasks. That is, research could similarly be done on the role of intelligence in job tasks so that we can better understand how this construct manifests itself in the workplace.

The work by Fleishman and his colleagues (e.g., Fleishman & Quaintance, 1984) described earlier on developing a taxonomy of human behavior that included the cognitive domain (e.g., fluency of

ideas, memorization, numerical facility, and deductive reasoning) serves as a good starting point for considering the operationalization of intelligence in work settings. Further work has been done in this area by others who have focused on developing job analysis techniques (e.g., the Position Analysis Questionnaire; O*NET) that have captured cognitively oriented factors that are arguably related to intelligence. The work on skill acquisition (e.g., Ackerman, 1992) also serves as a useful starting point for understanding how intelligence becomes manifest at work as well as an example of how boundary spanning research can improve our understanding of the construct and improve prediction. These lines of work provide a good foundation, but further research is needed for a number of reasons.

One reason is that given the progress made over the years in understanding intelligence and intelligence factors (e.g., Carroll, 1993; McGrew, 2005; Sternberg, 1985), it is important to update these taxonomic efforts so they align with the latest thinking on intelligence. We need to fully consider the new models that have emerged, their structure, and their factors when developing taxonomies of intelligence for the workplace. For instance, the well-supported Cattell–Horn–Carroll (CHC) model (McGrew & Evans, 2004) specifies key dimensions of intelligence including fluid intelligence, crystallized intelligence, general memory and learning, visual processing, auditory processing, retrieval ability, processing speed, decision speed, and quantitative knowledge, whereas Sternberg’s triarchic approach focuses on analytical, creative, and practical abilities (Sternberg, 1985, 1997, 1999). Models from other perspectives include cognitive science’s PASS model, which describes intelligence as reflecting the planning, attention, simultaneous, and successive functioning of the brain (Naglieri & Das, 1997), and the bioecological model proposes that intelligence is a function of interactions between innate potential abilities, environmental context, and internal motivation (Ceci, Rosenblum, de Bruyn,

& Lee, 1997). Learning about, and taking into account, these types of models and associated dimensions may help us update our taxonomies so that we have a better understanding of intelligence factors that operate in the workplace. In other words, many of our taxonomies are likely out of date and could benefit from being refreshed with the current research being done in other fields.

In addition, a range of researchers have investigated the relationship between the models generated from these various perspectives in hopes of getting a true understanding of the construct of intelligence and how it operates in practice (McGrew, 2005). For example, studies have examined the causal relationships between basic information processing abilities (e.g., working memory) and higher order cognitive dimensions (e.g., fluid intelligence) in hopes of understanding how these abilities interact during performance that requires intelligence (e.g., Ackerman, Beier, & Boyle, 2002; Danemann & Merikle, 1996; Kyllonen, 1996). Our field needs to consider these interactions and the findings from this research if we hope to have a better and more current understanding of intelligence and how it operates in the workplace.

Another reason is that we feel much work is needed to properly translate these models into usable factors that truly reflect intelligence in work settings. That is, the cognitive factors contained in our taxonomies (e.g., Fleishman's) are often written at a level of abstraction and generality that can make them difficult to relate to everyday work behaviors and the extent to which these behaviors reflect intelligence. For example, it is often difficult to examine behaviors in the workplace and judge if they are related to abstract factors such as fluency of ideas and deductive reasoning. In fact, can we truly distinguish what constitutes deductive versus inductive reasoning on the job? When doing so, do we take into account the latest research on these factors and their relationship to each other (e.g., Heit & Rotello, 2010)? How about trying to assess memory and how it manifests

itself on the job? Do we understand the difference between various types of memory such as short-term and working memory? Do we view these concepts using the latest research findings on them (e.g., Ackerman et al., 2002; Kane & Engle, 2003)? Finally, does the difference between short-term and working memory (or for that matter deductive and inductive reasoning) actually make a practical difference when understanding intelligence in human behavior in the workplace, or are such delineations of limited practical value?

We feel these are the types of difficult questions that emerge and that are not being investigated by our field because we are not conducting research on fundamental issues such as how intelligence manifests itself in the workplace. Neglecting this research leaves our taxonomies as incomplete, difficult to use, and out of date to the extent they are not updated based on new research findings from our field as well as other fields. Again, the field needs to approach all these more recent developments from the perspective of "how it can improve our understanding" instead of the perspective of "why it must be wrong" that currently dominates our field. In some ways, our less precise, and often nonscientific, competency models have done a better job producing usable descriptions of the cognitive capabilities that comprise various jobs (e.g., problem solving in abstract situations, analysis of trends across divergent information, and detecting patterns in data). One has to wonder if cognitive ability as sometimes conceptualized in the intelligence literature is too narrow in terms of its domain to truly reflect the higher level processes required at work (and sometimes reflected in these competency models). In fact, many intelligence models are considered too narrow and restricted because they overly focus on a small subset of verbal and quantitative factors (Chen & Gardner, 2005). Such models may not focus on the higher level processes of intelligence that make a difference in the workplace (e.g., analytical and integrative capabilities; Baum et al., 2011). As a field, we need to do more to scientifically

pinpoint how the full nonrestricted domain of intelligence manifests itself on the job.

Improving Our Measures of Intelligence

There is little debate that intelligence test scores are good predictors of important life outcomes, but there is a considerable amount of variance that is unexplained. Most of the discussion of how to improve prediction has focused on the criteria (Murphy, 1996). We argue that this discussion should put a greater emphasis on our measures of intelligence. In particular, a greater focus should be placed on gauging the degree of deficiency in our tests, as well as how we can develop intelligence tests that are based on intelligence theory and cognitive processes.

A better understanding of construct deficiency. I–O psychologists seem to be in agreement that intelligence tests do a reasonable job of measuring intelligence, but they also concur that there are aspects of intelligence that are not measured by standard intelligence tests. Concerns about deficiency are not new (Chen & Gardner, 2005; Neisser et al., 1996). In fact, more than 100 years ago, Binet and Henri (1895) worried about the lack of attention paid to measuring superior processes of intellectual functioning in their tests (which served as a prototype for many of the subsequent tests used to measure intelligence). Minimizing deficiency is important because the psychometric approach is based on the use of a diverse array of highly *g*-loaded tests when creating a composite score for intelligence (Jensen, 1998). As stated earlier, a number of authors (e.g., Alfonso, Flanagan, & Radwan, 2005; Chen & Gardner, 2005) have pointed out that conventional psychological tests tend to measure narrow aspects of the construct (e.g., linguistic and quantitative) using limited formats (e.g., written form and multiple choice) and thus cannot collectively be considered a “diverse” array of tests. In particular, Alfonso et al. found that most intelligence tests only assess two or three broad dimensions of intelligence.

Given these concerns, a natural area for additional research is to understand how to reduce the deficiency of our tests. One place to start would be to articulate what aspects of intelligence our tests should measure, what we are currently measuring, and what important aspects are missing. We believe that a regrounding in the theoretical models of intelligence (e.g., Carroll, 1993) and the reviews of the existing intelligence tests such as that by Alfonso et al. (2005) would help move this area of research forward. Research focused on reducing the deficiency in our tests will help improve their construct validity and predictive power.

Theory-based test development. Historically, most tests designed to measure intelligence lacked a solid theoretical foundation for their development (Kaufman, 2000). Tests were designed by combining various subtests to generate a composite, as described by the psychometric approach, without much thought given to creating a battery of subtests that comprehensively reflected the diverse nature of the intelligence domain. Researchers have only recently begun to build intelligence tests that reflect psychological theory on the nature of the construct (e.g., Flanagan, Ortiz, & Alfonso, 2007; Kaufman & Kaufman, 1983; Thorndike, Hagen, & Sattler, 1986; Woodcock & Johnson, 1989). This theory-driven approach has led to the revision of existing tests (e.g., Weschsler Adult Intelligence Scale, version 3) as well as the development of new tests (e.g., Cognitive Assessment System and Cross-Battery Assessment) that reflect more current theories of intelligence. Such measures focus on developing subtests that tap the critical aspects of intelligence, pinpointed by their respective theory (e.g., the key group factors of CHC theory).

Research has also focused on understanding the cognitive processes involved in solving test problems (e.g., Embretson, 1983). This research attempts to articulate the knowledge structures, cognitive processes, and cognitive strategies that are

required to solve a test problem as well as understand how these processes lead to items being more or less difficult for test takers (Embretson & Reise, 2000). On a related note, theoretical work has also been devoted to understanding how stimulus features of items contribute to item difficulty and affect item performance (e.g., Irvine & Kyllonen, 2002; Lievens & Sackett, 2007).

Collectively, this research aims to build better intelligence tests that are firmly rooted in theories of intelligence and the cognitive processes involved in successfully completing intelligence test items. There is a lot that can be learned from this research. Unfortunately, these new developments have yet to affect the research or practice on intelligence tests in I–O psychology. The tests that we commonly use have not substantially evolved since their inception (Thorndike, 1997). We argue that it is time to begin drawing on these developments to understand how we can improve our tests and build a stronger theoretical basis for them.

Improving the Prediction of Important Outcomes

As noted earlier, the prediction of job performance is an area in which we have made important contributions to the literature (e.g., Schmidt & Hunter, 1998) and one in which we have continued to conduct research. Although we have made the case in this article that our field needs to conduct research on more basic questions regarding the intelligence construct and its measurement as it pertains to human behavior in the workplace, this does not mean that we should cease research on the prediction of job performance. On the contrary, more research is required in this area as well. A majority of the studies completed on the predictive relationship between intelligence and job performance are more than 30 years old, which leaves this line of research extremely dated; thus, current research is urgently needed to update these findings.

Our field needs to continue to explore the general relationship between intelligence and job performance as well as the nuances of this relationship. It is critical that we examine the boundary conditions as well as potential mediators and moderators affecting the relationship. Research should be conducted on the following types of questions:

- Has the nature of the relationship between intelligence and job performance changed as the environment has grown in complexity and the intellectual requirements have hypothetically increased (Boal, 2004; Gatewood et al., 2011; Kehoe, 2002; Pearlman & Barney, 2000)? Early research on prediction demonstrated that greater intelligence is more predictive for more complex jobs compared to less complex jobs (Hunter & Hunter, 1984). Current research should focus on questions about what occurs as work environments become more complex. Does the increased complexity, in fact, require more intelligent workers? As jobs that were less complex become complicated, do incumbents with lower intelligence struggle to perform or are they able to rely on experience as a substitute for intelligence? The world is constantly changing and thus the business world of today is different than the one that existed when a majority of previous research was conducted on the intelligence-job performance relationship. Thus, as noted above, current research must be conducted to reexamine this relationship.
- As measures of intelligence evolve, does the degree of association between intelligence and job performance change or remain stable? That is, as we refine our measurement of the intelligence construct, reduce deficiencies in our measures, and explore new measures of intelligence (e.g., neuropsychological; Higgins et al., 2007), does the observed relationship

between intelligence and job performance remain the same? One could argue that the relationship could be stronger as our measures improve; however, one could also argue that to the extent that deficiency contributed to prediction of job performance, you could see a decrease in the strength of the relationship.

- As we develop more theory-driven measures of intelligence that consist of subtests that better reflect the structure of intelligence (e.g., Carroll, 1993; Sternberg, 1985), to what extent do the various subtests predict the aspects of performance that they would be hypothesized to predict (e.g., a subtest aimed a fluid intelligence should predict aspects of job performance that are directly reflective of fluid intelligence)? Although researchers have consistently claimed that a general intelligence test predicts job performance better than subtests of intelligence or specialized ability tests (Ree & Carretta, 2002; Ree, Carretta, & Teachout, 1994), this really misses the point about understanding the psychological variables that affect performance and testing these relationships. That is, it is important for our field to truly understand the relationship, and therefore, examining the links between intelligence and job performance at various levels of analysis (e.g., general factors and subfactors) is critical to really understand human behavior in the workplace. We need to move beyond simple prediction to focus on understanding what aspects of intelligence affect various aspects of performance on the job.
- Do measures of intelligence predict a wide range of job performance outcomes (as well as career success, life success, and performance on everyday tasks)? This is a question that bears further investigation given claims in other fields that intelligence relates to a wide range of critical life outcomes (Herrnstein & Murray,

1994). Given this proposition, one would expect measures of intelligence to predict an extensive and varied set of performance outcomes that go well beyond typical task-related ratings. Research should be conducted in our field to see if this is the case and to explore the limits of what intelligence predicts in work settings.

In summary, our field not only needs to turn its attention to conducting research on fundamental issues regarding the intelligence construct and its measurement, but it also needs to continue to conduct research on the predictive relationship between intelligence and job performance. On this front, it is important to ask new questions that reflect the evolution of the field of intelligence when exploring this predictive relationship. We argue that these new questions need to start with “how can these new ideas improve our understanding and prediction” instead of “how are these new ideas wrong” or “how they may not predict overall job performance better than the traditional tests.”

Conclusions

Many in I–O psychology claim that intelligence is the most important individual difference variable. However, the field does not seem to treat it as such given that limited research is conducted within I–O psychology on this construct, relatively little attention is paid to intelligence research conducted in other fields, and new developments are actively resisted or treated with extreme versus appropriate skepticism. Although other fields continue to produce cutting-edge research in this important area, we seem content to rely on dated findings and a narrow research program that does not address fundamental questions regarding the nature of the construct and its measurement. The purpose of this article is to call attention to this deficit and challenge our field to launch a new research agenda on the construct of intelligence. In our minds, the best way to make this

happen is through productive interaction and discussion among researchers with different perspectives. We sincerely hope this article serves to ignite this discourse.

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