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Cognitive Ability (CA) in Personnel Selection Decisions A Model to Predict of Job Performance

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Abstract: Cognitive ability (CA) or intelligence testing has been hailed "as the most practical contribution made to humanity by all of psychology. CA is unique as a construct in that a century of scientific research has shown that it predicts an extensive range of important behaviors and life outcomes such as academic achievement, health-related behaviors, moral delinquency, socioeconomic status, racial prejudice, divorce, accident proneness, occupational status and even death, among others. Our main objective in this Paper was to provide an overview of the vast literature on CA tests in selection contexts. We first discuss the unique status of CA in selection, and clarify its psychometric and psychological meaning.

Keywords: Cognitive Ability, CA, GMA, Intelligence Test, Practical Contribution.

Introduction

The predictive validity of CA tests has direct implications for organizational productivity. The higher the criterion-related validity of any selection measure in predicting job performance, the higher the level of performance that can be expected from those selected on the basis of the measure. The utility of any measure or selection system will also depend on the variability in job performance among the applicant pool, as well as the proportion of applicants hired (see Pearlman et al., 1980). Job performance variability among job applicants as measured in dollar value of output is most often substantial (Ree & Carretta, 2002). The economic benefits for organizations can be enormous when maximizing the predictive validity of selection procedures through the choice of the right predictors. This gain in productivity can be quantified in percent of output or dollar value by means of utility analysis. In predicting job performance, when moving from one selection measure to one of higher predictive value, the gain in utility will be directly proportional to the size of the difference between the validities of these two measures. In this light, the substantial criterion-related validity of CA tests in predicting job performance has colossal economic implications. To consider just one example, Hunter and Hunter (1984), based on data from the US Bureau of Labor Statistics from 1980, estimated the utility of hiring on the basis of CA tests to be $15.61 billion for one year in US federal government jobs alone. We then review information on the prevalence of CA test use in personnel selection from around the world. We also discuss acceptability of ability testing and applicant reactions. Next, we review the evidence supporting the use of CA tests for selection by summarizing results from meta-analyses examining their criterion-related validity in occupational settings, across national boundaries. The overwhelming evidence suggests that CA tests are predictive of job performance across jobs and cultures. Given this

conclusion, we explore the causal mechanisms through which CA comes to influence job performance. Next, we briefly note research on race, ethnic group, gender, and age differences on CA tests and their implications for adverse impact. We conclude our paper with a discussion of current and new directions for research on CA, including the assessment of CA using various selection methods such as interviews, assessment centers, situational judgment tests (SJTs), and newly proposed intelligences (such as practical intelligence, emotional intelligence, etc.). Several terms such as CA, general mental ability, and *g*-factor have been used to refer to the same construct (Van Rooy & Viswesvaran, 2002). We use the term cognitive ability to refer to the construct domain covered by tests of CA. We reserve the terms *g* and general mental ability (GMA) to refer to the general factor that spans across CA tests.

Potential Moderators of Cognitive Ability Validities

Criterion-related validities of CA tests generalize across situations and settings (Pearlman et al., 1980). Nevertheless, there have been several hypothesized moderators of cognitive test validities.

Influence of validation strategy

An important question is whether or not concurrent validities estimate predictive validities. For cognitive abilities, it could be hypothesized that validities obtained using employee samples might differ from using job applicant samples due to 1) missing data, 2) range restriction, 3) motivational and demographic differences, and 4) job experience. The comparability of concurrent and predictive validities was empirically examined in a study by Barrett et al (1981). The results suggested that in the CA domain, concurrent validities are similar to predictive validities. The same question was also addressed in Project A using concurrent and longitudinal data from the US Army (Oppler et al., 2001), reaching the same conclusion. Hence, concurrent vs. predictive validation designs do not appear to moderate the criterion-related validities of CA tests.

Influence of criterion and its measurement

CA measures display substantial validities for both learning and job performance criteria. However, stronger relations are found with learning criteria than with more distal performance criteria. Whether or not job performance measurement method moderates validities of CA tests is a question that has been meta-analytically examined by Nathan samples, production quantity, and production quality were all positively predicted by CA tests. Highest validities were found for work samples and supervisory rankings of performance (rs in the 0.60s). Lower validities were reported for supervisory ratings (0.40s). Lowest and non-generalizable validities were found for production quality measures, calling into question the reliability of this particular criterion. Recent theories recognize that the job performance construct is multidimensional (Campbell, 1990), but also hierarchically organized (Campbell et al., 1996), with general, overall job performance at the apex of the hierarchy (Van Rooy & Viswesvaran, 2002). Are there dimensions of performance for which CA tests are not likely to be valid? Though this is a legitimate question, both theoretical arguments and empirical data suggest that CA is a valid predictor of all performance dimensions. Empirically, the largest investigation of this issue was carried out using data collected for Project a (McHenry et al., 1990; Oppler et al., 2001). GMA tests were found to predict technical proficiency, soldiering proficiency, as well as effort and leadership, personal discipline, and fitness and military bearing with positive, substantial validities. There is, therefore, empirical evidence of validity generalization for GMA tests across dimensions of job performance. Even for the criterion of contextual performance, the meta-analytic correlation is .24 (Alonso, 2001). Theoretically, Van Rooy and Viswesvaran (2002) have hypothesized that one reason for the presence of a general job performance factor is the contribution of GMA to all performance dimensions. The fact that GMA is a major determinant for all job performance dimensions is the chief reason for hypothesizing a valid, non-art factual, general factor in job performance measures. Even in very specific performance domains there is evidence for positive and quite substantial correlations with CA measures.

Prediction using GMA versus specific abilities

Specific abilities cannot be measured without measuring GMA in applied settings and GMA cannot be measured without measuring specific abilities (Carroll, 1993). Measures of GMA and specific abilities are generalizable valid. Several large-scale primary studies have been conducted to directly investigate whether or not specific cognitive abilities show incremental validity over GMA.

Hunter et al (1980) found that the specific ability composites derived for specific occupations from the Armed Services Vocational Aptitude Battery (ASVAB) scores did not provide any improved validity over the general

composite. In Project A, McHenry et al (1990) found the incremental validity of specific ability measures over GMA to be in the .02 range. Ree and Earles (1991) showed that specific abilities do not account for any additional variance beyond a general factor extracted for predicting training performance. Ree et al (1994) reached the same conclusion in predicting job performance ratings. The average incremental validity of the orthogonal specific abilities over

GMA was .02. In other research replicating these findings, Olea and Ree (1994) reported incremental validities of specific abilities to be in the .02 to .08 range. Hunter's (1983a) structural equations models indicate that the only causal paths between specific abilities and performance are through GMA (N = 20,256).

From a criterion-related validity point of view, there does not appear to be an advantage associated with using specific ability measures rather than GMA. However, it might be worth noting again that it is impossible to measure specific abilities without assessing GMA and vice versa. From a practical point of view, there may be an advantage to using tests of GMA. Selection in the 21st century is rarely for specific positions and rarely do employees stay in the same position for which they are hired. Further, the nature of jobs changes over time. Therefore, the relative importance of specific abilities varies over time, necessitating a workforce high on GMA, not only on specific abilities.

Differential validity by gender

Based on the results of meta-analyses and large-scale studies reporting criterion-related validities for men and women separately, there appears to be little support for the differential validity of CA measures for men and women (Carretta & Doub, 1998). One interesting moderator of the differential validity of CA tests by gender might be the gender composition of the job. Rothstein and McDaniel (1992) found some existence of differential validity for males and females depending on the gender roles dominating the occupations investigated. For job performance, for male-dominated jobs, GMA appears to be more predictive for men than for women (validities of .34 and .25, respectively).

GMA appears to be more predictive for women than for men for female-dominated jobs (validities of .22 and .38, respectively). CA test validity differences by gender vanish when investigating sex-neutral occupations.

Differential validity by race and ethnicity

Are there differences in validities of CA tests for different racial and ethnic groups? Test critics who allege unfair discrimination in personnel selection posit potential differences in test validity across racial groups (Mahwah & Erlbaum Outtz, 2002). Meta-analyses and large-scale studies refute the hypothesis of single group validity (Pearlman et al., 1980). Furthermore, there appears to be little support for the differential validity of CA measures for different racial groups in predicting learning and performance criteria. There is no evidence that CA tests cause disadvantages for minority groups due to predictive bias (Evers, Pearlman et al., 1980).

Cultural differences have often been cited as a potential obstacle to the validity generalization of CA tests across countries. The past decade has seen an increase in the numbers of primary studies and meta-analyses that report cognitive test validities in other countries around the world (e.g., Bartram & Baxter, 1996, in the UK; Salgado & Anderson, 2001, in Spain and the UK; Schuler, Moser, Diemand, & Funke, 1995, in Germany). In a series of meta-analyses examining the validity of CA tests in Europe, Salgado, Anderson, and colleagues (Sinangil & Viswesvaran, 2001) have reported validities for training success and job performance across European Union countries. The findings suggest that CA tests retain high validity across cultural contexts, offering evidence of international validity generalization.

Job complexity moderators of cognitive ability test validities

As can be seen in Tables 1, an important moderator of cognitive test validities is job complexity. Criterion-related validity increases with task or job complexity levels. This is true for both training and job performance. Highest validities are found for highest complexity jobs where tasks are more cognitively loaded. There are two reasons for the moderating influence of complexity on CA test validities. First, more complex jobs require the worker to acquire knowledge of greater complexity (e.g., learning a computer programming language versus memorizing food menu items). Second, more complex jobs require more difficult information processing (e.g., composing a piece of chamber music versus keeping time when boiling eggs). Many hypothesized moderators of CA test validities have failed to be supported when empirically examined. These include race, gender, and culture. To date, the strongest moderator of validities empirically identified and documented is job complexity.

Table 1. Meta-analytic findings summarizing the validity of CA tests for learning in job training (1983-2003).

Study	*Predictor*	*Job / setting*	*N*	*k*	*ρ*	*SD$_ρ$*	*80% CI*
Hunter (1983b)	GMA	Heterogeneous jobs	6,496	90	.55	.16	.37 – .74
Salgado et al. (2003a) which	GMA	Heterogeneous jobs, Europe	16,065	97	.54	.19	.30 – .78
Salgado & Anderson (2002)	GMA	Heterogeneous jobs, Spain	2,405	25	.47	.17	.25 – .69
Salgado & Anderson (2002)	GMA	Heterogeneous jobs, UK	20,305	61	.56	.08	.46 – .66
Salgado & Anderson (2002)	GMA	Heterogeneous jobs, Spain + UK	22,710	86	.53	.09	.41 – .65
Hunter (1985)	GMA	Heterogeneous jobs; military	472,539	828	.62[a]		
Hunter (1983b)	GMA	High CJ	235	4	.65	.00	.65 – .65
Hartigan & Wigdor (1989)	GMA	High CJ	64		.60[b,c]		
Salgado et al. (2003b)	GMA	High CJ; Europe	2,619	13	.74	.00	.74 – .74
Hunter (1983b)	GMA	Moderately high CJ	1,863	24	.50	.20	.29 – .71
Hunter (1983b)	GMA	Medium CJ	3,823	54	.57	.16	.36 – .78
Hartigan & Wigdor (1989)	GMA	Medium CJ	347		.33[b,c]		
Salgado et al. (2003b)	GMA	Medium CJ; Europe	4,304	35	.53	.22	.25 – .81
Hunter (1983b)	GMA	Moderately low CJ	575	8	.54	.04	.49 – .59
Hartigan & Wigdor (1989)	GMA	Moderately low CJ	3,169		.40[b,c]		
Hartigan & Wigdor (1989)	GMA	Low CJ	106		.00[b,c]		

Note: *N* = total sample size; *k*= number of studies; p = estimate of operational validity; SD p = standard deviation of p; 80% CI = 80% credibility interval. CJ = complexity jobs; QA = quantitative ability; RA = reasoning ability; VA = verbal ability.

[a] Not corrected for unreliability in the criterion. [b] Not corrected for range restriction. c Corrected for criterion unreliability using conservative criterion reliability estimates.

Causal Models in predicting Job Performance

In explaining the predictive validity of GMA, the main process that has been invoked involves learning (Pearlman et al., 1980). Intelligence is the ability to learn and thus has implications for the acquisition of job knowledge, both declarative and procedural (i.e., what to do and how to do it) (see Hunter, 1986, for a discussion of CA and learning). GMA predicts job performance across jobs and settings primarily because it predicts learning and acquisition of knowledge, which is a necessary determinant of task completion. Unless an employee can learn what to do and how to do it, even for the simplest

Tasks, work cannot be completed. Hunter (1983b) presented a causal model where

GMA was predictive of job knowledge, which partially mediated the relationship between ability and job performance. In a large sample of US Army personnel, Schmidt et al. (1986) confirmed this mediating role for job knowledge. Borman et al (1993) found similar mechanisms to be explanatory of supervisory performance. Further, using a more recent, large sample of US Army enlistees, Oppler et al (2001) demonstrated that GMA was indirectly related to job performance through its influence on declarative knowledge and procedural knowledge. The substantial validities of CA tests for predicting job performance can be attributed to the fact that those who are higher on GMA acquire more declarative and procedural knowledge, and do so more quickly than those lower on GMA. This is probably related to their ability to process complex information quickly, more efficiently and with greater accuracy.

Group Differences

The inquiry into the question of whether certain groups differ in their standing on a certain trait is a major part of exploring the homological net of any construct. However, the study of group differences in CA has provoked particularly strong, polarized reactions unlike for any other individual differences construct. The distributions for all population subgroups investigated overlap substantially, and at any level of the ability distribution one can find individuals from any given group. However, the fact that there are subpopulation mean differences on CA stirs considerable controversy among some researchers and the public alike. To a great extent, this is due to the important role that CA plays in determining many educational, economic, and social criteria. Group mean differences on a trait can

Result in adverse impact against subgroups when an outcome (e.g., promotions, job offers) is distributed on the basis of measured standings on this trait.

Age Differences

Although common wisdom suggests that individual levels of GMA begin to decline after peaking in early adulthood, there is now evidence that CA levels are at least somewhat stable for the most of individuals' working lives (cf., Campbell, 2001). Differential patterns of age-related decline in CA test scores can be found for specific cognitive abilities. It has been suggested that the observed decline in cognitive functioning with old age is mainly due to a decline in aspects of fluid intelligence, while levels of crystallized intelligence remain considerably stable over the lifespan. Adverse impact effects against older working adults are most likely to be found on tests highly saturated with the general factor of mental ability. A major factor influencing the magnitude of age differences findings is study design. Longitudinal studies, tracking the same individuals and comparing their levels of cognitive abilities over time, yield smaller estimates of age-related decline than do those with cross-sectional designs, comparing individuals from different birth cohorts at the same point in time. While these are important for detecting cohort effects such as rising levels of cognitive abilities through improved education or absence of negative environmental influences (e.g., malnutrition), they are less suited for evaluating the stability of trait-levels over time. There is now considerable evidence for rising IQ levels over time (Barrett et al., 1999), confounding estimates of temporal stability of CA in cross-sectional studies.

Gender Differences

Gender differences in CA seem to be small and disappearing over time. Hyde and Linn (1988), in a meta-analysis of gender differences in verbal ability, found that women tend to score higher than men on most aspects of verbal ability, most notably speech production. However, effect sizes were small to negligible. The authors concluded, "The magnitude of the gender difference in verbal ability is currently so small that it can effectively be considered to be zero" (p. 64). This pattern of near-zero differences seems to hold for quantitative abilities, as well. In a meta-analysis including more than 3 million men and women, Hyde, Fennema, and Lamon (1990) report a *d*-value of .15 on quantitative ability, with males on average scoring only slightly higher than females. The largest group mean differences on quantitative abilities were reported for problem solving, d = .32, with males scoring higher (Anderson et al., 2001).

Racial And ethnic group differences

Although CA tests have not been found to be predictively biased against racial and ethnic subgroups, moderate to large mean-score differences on most tests have been reported, depending on the groups under investigation. Estimates of group mean differences in GMA have ranged between .7 standard deviation units for the Hispanic–White comparison to around 1 standard deviation unit for the Black–White comparison. In general, Hispanics and Blacks on average score lower than Whites on tests of both GMA as well as tests of specific abilities, while Asians tend to score slightly higher.

Other predictors and their relationship with ability

There are predictors other than tests of CA that show substantial validity in predicting job performance (e.g., integrity tests, structured interviews, assessment centers, see Pearlman et al., 1990; Schmidt et al., 1992). However, in evaluating the utility of a given selection instrument over the predictive value of an existing measure, both its validity and amount of overlap between the two measures have to be considered. The higher the overlap between the measure and CA (as expressed by the correlation between scores on both measures), the lower the incremental validity. Therefore, we will briefly discuss some of the commonly used assessment methods in personnel selection as well as what is known about their overlap with CA. We focus our attention on selection tools and methods (i.e., assessment centers [AC], interviews, and SJTs) rather than constructs, as the distinctiveness of popular construct-based predictors is already well established (Ackerman & Heggestad, 1997).

Assessment centers: There have been four published meta-analyses exploring the nomological net as well as criterion-related validities of the AC method (Arthur et al., 2003; Collins et al., 2003). Gaugler et al. (1987) reported a corrected mean validity of .36 for the prediction of job performance criteria, while the validity for the prediction of ratings of potential was notably higher, .53. Arthur et al (2003) also reported the estimated true validity of overall AC ratings to be .36. A comprehensive meta-analysis investigating the nomological net of AC dimensions found the observed correlation between overall AC ratings and GMA to be .43 (N = 17,373). In a second meta-analysis, Collins et al (2003) reported the estimated operational validity of CA in predicting overall AC rating to be .65, corrected for unreliability in the criterion but not in the CA measures. This indicates substantial overlap between the constructs assessed by overall AC ratings and GMA. It seems reasonable to conclude that the incremental validity of

overall AC ratings over measures of GMA is relatively small, most likely in the range of .02 reported by Pearlman et al (1980). *Interviews.* Meta-analytic evidence indicates the overall validity of employment interviews in predicting job performance is .37 (k = 160, N = 25,244) (McDaniel et al., 1994). However, there are a number of moderators influencing validities. Inter- views with situational content show higher mean validities than do those with job-related or psychological content (r = .50, .39, and .29, respectively). Also, structured interviews are substantially more valid than unstructured ones; rs = .44 and .33, respectively. The relationships between interview ratings and CA measures also have been meta-analytically investigated. Verive and McDaniel (1996), in a meta-analysis specifically targeting the question to what extent employment interview ratings reflect CA, report a corrected mean true score correlation of .40 (k = 49; N = 12,037). The relationship between interview ratings and CA seems to be somewhat stronger when the interview is less structured; also, employment interviews for low complexity jobs seem to overlap more substantially with CA. Based on correlations reported in Huffcutt et al. (1996) and the validity estimates reported by McDaniel et al (1994), Pearlman et al (1980) estimated the incremental validity of employment interviews over tests of CA to be .12 and .04 for structured and unstructured interviews, respectively.

Situational judgment tests: SJTs are paper-and-pencil measures that aim to assess judgment in work situations. Typically items are comprised of scenarios that are followed by response alternatives that the test takers must choose from. McDaniel et al (2001) meta-analytically examined the criterion-related validity of SJTs. The operational validity across 102 samples was .34 (N = 10,640) and the lower 90% credibility value was positive. As such, it appears that SJTs are moderately, but generalizable valid. The limited pool of primary studies contributing to the meta-analyses, and hence second-order sampling error, precluded any firm moderator conclusions. Although it is theoretically possible to build SJTs to assess different constructs, typical SJTs display substantial correlations with measures of CA. McDaniel et al.'s (2001) met analysis reported a true score correlation (i.e., mean correlation corrected for unreliability in both SJTs and CA measures) of .46 (k = 79; N = 16,994). In a follow-up study, McDaniel (2003) reported that SJTs that use knowledge instructions (e.g., what is the most effective/ best response?) are more highly correlated with CA measures than SJTs that use behavioral tendency instructions (e.g., what would you do?). The respective true score correlations were .55 and .23. There is overlap between constructs assessed by SJTs and GMA, ven when behavioral tendency instructions are used.

Newly Proposed Intelligences

The urge to explore the homological net of the CA domain has led researchers not only to investigate the factorial structure of the intelligence construct, but also to propose a number of new intelligences in order to explain proportions of variance in behavior yet unaccounted for. These newly proposed constructs differ not only in scope but also in the methodological soundness with which they were developed and the amount of data offered to support claims of their utility. Legitimate scientific curiosity is only one reason for exploring the construct space. Societal discontent with standardized testing of cognitive abilities is another. It has been suggested that the most successful proponents of competing constructs are those that tap into "the popular preference for an egalitarian plurality of intelligences . . . and a distaste for being assessed, labeled, and sorted by inscrutable mental tests" (Arthur et al., 2003). It is therefore a matter of the highest import to carefully evaluate newly proposed constructs not only with regard to their face validity, but also with regard to their predictive value, divergent and convergent validity with GMA and specific abilities, as well as the psychometric soundness of their measures.

Practical intelligence: One newly proposed intelligence for which utility in predicting both occupational as well as everyday life outcomes has been claimed is practical intelligence. Its core component is tacit knowledge (Bartram & Baxter, 1996), "the procedural knowledge one learns in everyday life that usually is not taught and often is not yet even verbalized". It is usually conceptualized as internalized rules of thumb about what behavior to exert depending on the environmental context and is claimed to be a powerful predictor of an individual's success in specific settings. Practical intelligence has been claimed to be distinct from GMA, and tacit knowledge has been claimed to be more than just job knowledge. Sternberg and colleagues state that "tacit knowledge generally increases with experience but is not simply a proxy for experience; that tacit knowledge tests measure a distinct construct from that measured by traditional abstract intelligence tests; that scores on tacit knowledge tests represent a general factor, which appears to correlate across domains; and finally, that tacit knowledge tests are predictive of performance in a number of domains and compare favorably with those obtained for IQ" (Bartram & Baxter, 1996). Despite more than two decades of research, the data offered in support of the practical intelligence construct remains sparse and spans only a handful of occupational domains. Moreover, primary studies are afflicted with small, heavily restricted samples. A meta-analytic estimate of the operational validity of practical intelligence in predicting task performance is .39 (Arthur et al., 2003). The utility of any construct is mainly a function of the incremental

validity its measures will add over existing and currently employed measures of other constructs. Incremental validity will be a function of both the new construct's predictive validity and a lack of construct overlap with currently employed constructs (divergent validity). Dilchert and Ones (2004) have reported a meta-analytic estimate for the true score correlation between practical intelligence and GMA as .58, indicating that there is substantial overlap between the two constructs. This suggests that the incremental validity over *g*-loaded tests of CA for predicting job performance that can be expected from tacit knowledge inventories will range around .03, casting doubt on whether the enthusiasm around practical intelligence is justified.

Emotional intelligence: There are currently two views on the nature of emotional intelligence. One describes emotional intelligence as encompassing personality characteristics (Bar-On & Parker, 2000). Emotional intelligence as proposed by this school of thought is mostly unrelated to general intelligence (e.g., Derksen, Kramer, & Katzko, 2002). Positing the appropriateness of an ability model, another view postulates that emotional intelligence is (1) a form of intelligence, (2) reliably measured, and (3) rather distinct from personality (e.g., Caruso et al., 2002). Typically, the former conceptualization of emotional intelligence has relied on self-report measures, while the latter has been assessed using task-based procedures (Petrides & Furnham, 2000). Interestingly, task-based and self-report measures show a small correlation (Van Rooy & Viswesvaran, 2002). It has been shown that the ability based approach to defining emotional intelligence yields a construct that shows discriminant validity from personality (Caruso et al., 2002) and moderate convergent validity with CA (Roberts et al., 2001). In a meta-analysis investigating the nomological net of the emotional intelligence construct, Van Rooy and Viswesvaran reported a true scorecor relation of .33 between ability-based measures of emotional intelligence and GMA. Based on the meta-analytically obtained estimate of the validity of emotional intelligence for predicting job performance (operational validity = .24, based on N = 2,652; Van Rooy & Viswesvaran, 2002), it is unlikely that substantial incremental validity can be expected by emotional intelligence measures above measures of GMA in employment settings. On the other hand, tests of GMA demonstrate substantial incremental validity over emotional intelligence measures.

Conclusion

The voluminous data and research studies published in the area of CA testing present some broad conclusions as well as areas for future exploration. First, although future research could explore the nuances of different definitions of CA, there is a broad consensus as to what constitutes CA and what GMA is. Any assertion of the contrary, with implications that there is substantive disagreement in defining the construct, is erroneous. Scientists and practitioners have a fairly good understanding of the construct, despite some potential areas of disagreement. Second, the amount of empirical data available to support the assertion that CA is correlated with several important life outcomes is overwhelming (Brand, 1987). Assertions that CA is nothing but academic ability, without any relevance to real-world tasks, are not supported by empirical data. CA tests are predictive of training and job performance. The predictive validity of CA is not moderated by situational influences, setting, validation strategy, criterion measurement, or cultural context. The predictive validities of CA tests increase with increasing job complexity. Utility losses to employers and national economies will be large if CA tests are not utilized in personnel selection. Several new types of intelligence are being introduced. While worthwhile to explore potential supplements to CA, exaggerated claims, as we find them for constructs like practical intelligence and emotional intelligence, are not helpful. Employers are unlikely to forgo the use of CA testing, especially in a highly competitive global market. GMA is the most powerful individual differences trait in predicting job performance across situations, organizations, and jobs. Hopefully, this paper has adequately stressed the importance of CA and provided a glimpse of its vast supporting literature.

Conflict of interest

The authors declare no conflict of interest

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