



Intelligence 2.0 in I–O Psychology: Revival or Contextualization?

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As long as completing one's duties, getting one's job done, and being successful in an organization requires intelligence in some form, a renewed interest in intelligence in industrial–organizational (I–O) research can advance the field, both theoretically and practically. We agree with this view that is well expressed by Scherbaum, Goldstein, Yusko, Ryan, and Hanges (2012). However, we think that the focal article is stronger in reviewing the field than in defining new approaches. We explore one

area of innovation that is important in our view: the contextualization of theory and assessment of intelligence so as to bridge the gap between the context-independent conceptualizations and test of intelligence on one hand and intelligence as required in everyday activities in an I–O context on the other. Scherbaum et al. succinctly capture the general mood when they state that “we know what we need to know”; in our view, it could be rephrased as “we know what we can know, using the mainstream I–O approach to intelligence.” Further developments are contingent on the preparedness to leave the safe grounds of context-independent measures of general

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intelligence and to adopt a more contextualized view.

The construct of intelligence that the authors of the focal article seem to have in mind is a decontextualized form of intelligence. With its grounding in classic differential psychology, a decontextualized form of intelligence, captured in a single value, such as IQ, may explain performance differences in many I–O settings. Carroll's (1993) structural model of human abilities is a strong representation of this idea: Skills in areas as varied as reasoning, knowledge, memory, visual and auditory perception, ideation, and speediness are captured in a single concept—general intelligence or *g*. It is this kind of intelligence that the lead authors seem to want to revive in I–O psychology. General intelligence was, is, and probably continues to be our single best predictor of future success, ranging from job to school. It is not surprising that general intelligence comes out as the best predictor in meta-analyses; by aggregating many different data sets, general intelligence, as the most decontextualized concept, will fare best. However, the fact that *g* is our best predictor across the board does not mean that it is the best predictor in all conditions; even the best predictor may not be globally powerful.

Cross-cultural research has drawn attention to the fact that individual differences in any psychological target construct may be influenced by a host of other variables that are common or unique to cultures. One variable that has been shown to diffuse the available variation in *g* is the implicit context that researchers use in instruments for assessing intelligence. There is strong evidence that the context in which a problem is posed can have major implications for the level of cognitive functioning people can attain. For example, people perform differently on items with the same format and difficulty that address either rugby or soccer, depending on whether they are a fan of the sport (Malda, Van de Vijver, & Temane, 2010). And similarly, milk factory workers perform much lower on tasks that involve formal arithmetical measures than on tasks

that involve measures used in packaging and selling milk (Scribner, 1984). People are put at a significant disadvantage when the context that is used in tests does not directly connect with the cultural context with which they are familiar and that is relevant to them.

We propose that the study of intelligence in I–O psychology moves away from a decontextualized “one size fits all” approach to a much more context-informed approach in which cognitive analyses of task demands are translated in assessment procedures. Our approach does not negate the value of general tests of intelligence, but we would argue that the limits have been reached of what can be predicted using general measures of intelligence. Therefore, we propose to add more contextualized measures to batteries in I–O psychology. The contextualization of intelligence in I–O psychology can profit from cross-cultural studies of intelligence where much experience has been gained about how tests can be adapted to specific cultural contexts. Two lessons are the existence of item bias (referring to whether content of an item equally reflects the construct under investigation for all involved) and method bias (referring to whether different groups of people employ different strategies to solve the same problem). One telling example is the way that cultural styles might be primed (Oyserman & Lee, 2008). Evidence of moment-to-moment change in the salience of contexts lends support to our argument that performance is situated.

In addition to variation in *g*, individual differences are thus due to variations in other performance-relevant dimensions. A new paradigm for intelligence in I–O psychology should therefore not deal with the question of whether intelligence models are useful in I–O psychology but more with the question of how prediction in I–O psychology can be improved. Prediction is already central to I–O psychology, but rather than focusing on *g*, the focus should be on the theoretical and empirical identification of

psychological properties that might contribute to the quality of prediction. Now it seems that for this kind of analysis, we tend to rely on the assessment of abstract skills, but the question is whether we should not move to tests that are more firmly rooted in practical, job-specific activities such as those that are currently used in assessment centers. In comparison to classic intelligence tests, these are usually tasks with much higher ecological validity.

What we argue in favor of is a resurgent job analysis with a stronger cognitive focus, asking how for this particular job, or that other one, people process, supervise, and coordinate information (Oberauer, Süß, Wilhelm, & Wittman, 2003). Moreover, such an analysis should be on conceptual models of job requirements that specify which cognitive skills are required. Currently, job analyses are often based on ad hoc procedures. We argue that we need to develop a “psychology of job requirements” that links job demands to cognitive skills and to assessment. Such a “psychology of job requirements” would also need to include more noncognitive elements, decision-making skills, and other skills. Assessment that is based on such conceptual models could not only involve basic cognitive skills, such as working memory, but also complex problem solving in everyday life and other skills that are often assessed in assessment centers. We would argue that we barely scratched the surface in developing such models. Future work in the domain of intelligence in I–O psychology should be focused on developing taxonomies of job skills that consider “intelligence in action.”

Cross-cultural work in intelligence is a good starting point for developing such a taxonomy because this work provides information about the link between cognition and environment that is the target of a “psychology of job requirements.” Cross-cultural work suggests that the basic features of cognitive functioning, such as working

memory, are universal but that the way in which these functions are used can vary across cultures. Analogously, the cognitive skills required to successfully perform at work are universal, but the way in which these skills are used in specific jobs vary considerably. For example, analytical skills are important for both an HR and IT professional, but the way in which they use these skills may differ considerably.

In conclusion, we expect that a reintroduction of intelligence in I–O psychology that involves the revival of its classic conception will not be very productive and might actually hamper the wider acceptance among I–O psychologists of the intelligence construct. Using a single test, such as the General Aptitude Test Battery (GATB) that the lead authors mention, which is mainly a test used with blue-collar workers, does not allow the sensitive detection of relevant individual differences. Contextualization of intelligence, in combination with more in-depth and systematic, theory-based job analysis, seems a more fruitful direction.

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