

Intellectual Styles as a Predictor of Intelligence Analyst Job Performance

by

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The views expressed are those of the author and do not necessarily reflect those of the Office of Cyber and Infrastructure Analysis

Introduction

This paper frames the relevance of studying intellectual styles and in particular thinking perspective profiles as described in the theory of MindTime (Fortunato & Furey, 2009) as a means for predicting job performance of candidates for analytic positions within the national security community. The importance of identifying the best candidates for analytic positions is critical to ensuring the success of organizations that support national security (Wastell, 2010). However, with intelligence failures, Wastell (2010) noted, that efforts to improve analysis have relied on processes in use for decades such as competitive analysis, without addressing the analysts' cognitive abilities and reasoning abilities, which involve intellectual styles or how analysts habitually acquire and use information (Zhang & Sternberg, 2005). To address the aforementioned this paper addresses analytic workforce selection by: (a) describing the potential value of understanding differences in intellectual styles; (b) providing evidence in support of the study of intellectual styles as a selection method for analysts within the national security enterprise; and (c) describing the current state of intellectual styles research.

Discussion

Leaders have realized throughout history that selecting the right people for the job is one of the most critical factors in organizational success. Organizational success in the realm of national security and intelligence rests, in part, on the ability of analysts to provide accurate predictions of the future in the form of future potentialities that encompass scenarios as well as general states (e.g., peace, war, etc.). As Sherman Kent (1966) reasoned, in the realm of intelligence analysis, second-rate minds do not make great discoveries; great discoveries require great minds. Similarly, Heuer (1999) wrote that successful analysis involves the identification trends coupled with and conceptualization of future scenarios (potentialities), often with sparse information and substantial uncertainty, using their cognitive abilities and reasoning. However, while cognitive ability is the best overall predictor of performance in a myriad of activities (Cucina et al., 2016), Chiesi, Primi, and Morsanyi (2011) found that it did not sufficiently explain reasoning performance. Furthermore, Chiesi et al. (2011) noted that differences in reasoning abilities were especially relevant to non-normative reasoning tasks such as predictive analysis. Consequently, one of the constant challenges when it comes to selecting candidates for analytics positions comes from differentiating between the reasoning abilities to include critical thinking of individuals. The need for discernment is especially poignant in the development of future potentialities.

One possible method for discerning between the reasoning abilities of individuals is using intellectual styles as a selection factor. In their study of difference between the critical thinking ability of individuals, Stanovich and West (1998) found that intellectual styles uniquely

predicted critical thinking performance ($N= 456$, $r= .094$, $F(1, 526) = 81.51$, $p < .001$). Additionally, they found that combining general cognitive ability and intellectual styles explained approximately 39 percent of the variance in performance between individuals on critical thinking tasks. In a more recent study, Abdi (2012) used Sternberg's (1988) intellectual style constructs, which consists 13 styles to determine if intellectual styles correlate with critical thinking ability. Abdi found that correlation with critical thinking ability varied by thinking style. For example, executive thinking style was less correlated ($r= .15$, $p < .05$) with critical thinking ability than judicial style ($r= .40$, $p < .001$). Based on his findings, Abdi stated that intellectual style had significant validity as predictors of critical thinking ability. Additionally, Abdi's findings support Stanovich and West's findings, and the concept that intellectual styles offer potential as a predictor of analytic job performance, at least in regards to critical thinking ability.

While the study of intellectual styles offers a potential method for discerning between the reasoning ability of candidates, especially when the reasoning involves non-normative responses three challenges exist. First, to date, only studies by Chan (1996), Chilton, Hargrave and Armstrong (2005), and Gallivan (2003) have focused on intellectual styles as a predictor of job performance. Second, studies such as Stanovich and West's (1998), with a focus on cognitive ability and reasoning abilities (e.g., critical thinking), often use intellectual style measures that have weak theoretical foundations. Finally, the studies of probabilistic reasoning ability (e.g., Chiesi et al. 2011; Stanovich & West, 1998) do not involve populations trained in different aspects of reasoning (e.g., critical thinking) such as intelligence analysts. Accordingly, the need exists for research in not only probabilistic reasoning, but also involving intellectual styles as a possible selection factor for analytic positions in national security organizations have the highest potential for success.

As noted in the preceding paragraph, only studies by Chan (1996), Chilton et al. (2005), and Gallivan (2003) focused on intellectual styles as a predictor of job performance. Of the three studies, only Chilton et al.'s (2005) study supported the assertion that intellectual styles are a predictor of job performance. Chilton et al. (2005) found, the degree of fit between an individual's intellectual style and the predominant style varied negatively with job performance ($N= 123$, $\beta= -.61$, $p < .001$). Hence, the closer an individual's intellectual style got to the predominant style in the organization the better the individual's job performance.

While having only one study that supports the assertion of intellectual styles as a predictor of job performance other supporting evidence is available, albeit from studies of intellectual styles as a predictor of academic performance. For example, Zhang (2004) found that intellectual styles predicted performance of students in various subjects that included biology ($\beta = .26$, $p < .05$), chemistry ($\beta = .26$, $p < .05$), history ($\beta = .27$, $p < .001$), and English ($\beta = .19$, $p < .01$). Zhang's results support the assertion that intellectual styles have validity as predictors of performance. Kordjazi and Ghonsooly (2015) also found that intellectual styles related to academic performance in their study of students ($N= 53$) in an English language program. Using Torrance, McCarthy, and Kolesinski's (1988) mode of thinking, Kordjazi and Ghonsooly determined that students with an analytic intellectual style performed better on translation tests ($M= 4.08$, $SE= .39$, $p < .05$) than those with a holistic intellectual style. Consequently, the results from Zhang, and Kordjazi and Ghonsooly's studies support the assertion that intellectual styles have validity as predictors of performance.

Although, few studies exist that involved intellectual styles as a predictor of job performance, a recent study by Pan, Zhang, and Li (2016) explored intellectual styles as a predictor of task performance, which constitute discrete elements of overall job performance. Pan et al. (2016), attempted to determine if cognitive ability and intellectual style predicted the performance of astronauts on emergency operation tasks. Pan et al. (2016) found that intellectual styles explained 14.7 percent of the variance in performance among astronauts involved in the study. Hence, Pan et al.'s (2016) study provides further support for the concept that intellectual styles have validity as predictors of performance, even if it is only for specific tasks.

As noted earlier, many of the intellectual styles often lack strong theoretical foundations. However, one of the exception is the intellectual style of thinking perspective profiles based on the theory of MindTime (Fortunato & Furey, 2009). Fortunato and Furey's (2009) theory of MindTime integrates the theory of mental time travel (Suddendorf & Corballis, 1997; Tulving, 1985) and construal-level theory (Trope, Liberman, & Wakslak, 2007). Mental time travel, as conceptualized by Tulving, rests three memory systems consisting of autoecic (relating to episodic memory), noetic (relating to semantic memory), and anoetic (relates to the procedural memory system). Mental time travel with its links to memory systems provides the theory of MindTime (Fortunato & Furey, 2009) with a foundation based on memory systems that have a solid foundation of research. Likewise, construal-level theory (Trope & Liberman, 2010), provides the theory of MindTime (Fortunato & Furey, 2009) with a solid, research based theoretical foundation. For example, in a study conducted by Gilead, Liberman, and Maril (2013), the researchers found that the areas of the brain used to process temporally different information differed. Gilead et al. (2013) found, using fMRI images, that the processing of future sentences involved three areas of the brain: medial prefrontal cortex, posterior cingulate cortex, and left temporoparietal junction, while processing of present and past sentences involved the insular cortex and the cerebellum. Gilead et al. (2013) findings support key concepts of construal-level theory (Trope & Liberman, 2010) as well as mental time travel (Suddendorf & Corballis, 1997; Tulving, 1985), specifically involving different areas of the human brain used for temporal thinking. Additionally, by extension, Gilead et al.'s (2013) findings support the theory of MindTime (Fortunato & Furey, 2009) by strengthening its theoretical foundation.

The final challenge mentioned concerning the use of intellectual styles and reasoning is that to date the populations studied do not have training in different aspects of reasoning (e.g., critical thinking) such as intelligence analysts. Currently, it is unknown if there are any planned or ongoing studies that involve reasoning performance that involve a population of intelligence analysts or others with specific training in reasoning. Furthermore, there is only one proposed study, my dissertation, which involves studying intellectual styles as a predictor of intelligence analyst job performance. Consequently, even though evidence exists that intellectual styles could provide benefit organizations in their selection of personnel for analytic positions a need for more research exists.

Conclusion

In conclusion, this paper has outlined the relevance of studying intellectual styles as a predictor of analytic performance has to selection of the best candidates for analytic positions, thereby increasing the probability of improving success of national security organizations. Additionally, through the use of intellectual styles constructs coupled with assessments of cognitive ability could meet Kent's (1966) noted need for identifying exceptional individuals,

and O'Hare's (2017) noted need for the use of scientifically derived selection instruments and methods. Even though many challenges exist with the study and use of intellectual styles, researchers have provided evidence that intellectual styles as a concept have validity as predictors of differences between individuals, especially in the realm of critical thinking. Additional research could result in better understanding of the validity and reliability of measures of intellectual styles, intellectual styles constructs, and of the individual differences between analysts beyond cognitive ability.

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