



Practical Intelligence and the Principal

By

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Although measuring intelligence is important to human resource decisions that predict effective performance, researchers differ about what constitutes intelligence and how it should be determined. Traditionally, intelligence has been measured through the extensively studied factor of general cognitive ability (*g*), which has been established as a valid predictor of performance and learning across occupations. It has been argued, however, that *g* is not the sole determinant of performance, since it accounts for only 20% to 25% of performance variance. Moreover, tests of *g* inadequately assess experiential skills and overlook that abilities may change over time. One broader concept of intelligence that recognizes abilities not measured in traditional tests is practical intelligence (PI), which encompasses the abilities needed to succeed in daily life. This report examines one type of PI, tacit knowledge (TK). The authors conceptualize TK, relating it to PI, and review measures of TK and PI. They review findings on the relation of TK to experience, *g*, and performance, as well as related research on TK. They also introduce and illustrate an inventory to measure TK in school principals.

Tacit Knowledge

Conceptualization

The concept of TK encompasses that knowledge which individuals use to

perform effectively but which they may find hard to articulate, because much TK is learned and implemented not in a formal but an experiential context. Tacit knowledge can be viewed as that aspect of PI enabling people to adapt to, shape, and learn from their environments in order to achieve goals they value (Sternberg, 1997). Three main features characterize TK. First, it is acquired with little support from formal training, which helps people encode and integrate other forms of knowledge. Thus, individuals may not be as aware of TK as of formal knowledge. Second, since TK is procedural, it concerns what to do in particular situations; it cannot be expressed as a set of ideas or facts but only as complex, multi-condition rules determined by specific circumstances. Third, TK has practical value to the knower, who applies problem-solving strategies learned earlier to present conditions.

Measures

Because it is difficult to articulate, TK must be assessed through individual responses to representations of practical problems that TK is expected to provide an advantage in solving. The situational judgment test (SJT) is an important type of instrument for measuring TK, presenting contextual problems and associated response options to assess interpersonal and problem-solving skills from respondents' choices of Likert-scale options.

Such TK tests were developed from efforts by psychologists to identify critical incidents at work (Flanagan, 1954). In such incidents, employees learn important performance lessons not formally taught and thus not relying on the explicit knowledge measured by typical intelligence tests. Scored by reference to professional rules of thumb or expert prototypes, SJTs have been used to measure TK and predict performance of people in a variety of occupations. Scores on such tests intercorrelate, showing a general factor distinct from that of tests of *g* (Sternberg et al., 2000). Other measures of PI include simulations like in-basket tests, situational interviews, and group discussions. Many of these measures show high fidelity to the conditions simulated.

Findings

Research has shown significant findings regarding the relationships of tacit knowledge with experience, general cognitive ability, and performance. Also examined has been the association of TK with personality, culture, and demographic factors; further, acquisition of TK has been successfully measured. Tacit knowledge has been shown to correlate significantly with experience, which itself correlates with job performance, as indicated by meta-analytic reviews, such as that conducted by Quinones, Ford, and Teachout (1995). Consistent

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with their findings is work by Sternberg et al. (2000) showing that TK generally increases with experience. Moreover, earlier work has shown that the level of TK corresponds moderately with business managerial level and military leadership responsibility.

Correlation of TK with general cognitive ability is only trivial or moderate; scores on a TK test for managers exhibited an insignificant correlation with IQ test scores. Occasional negative correlations suggest that for some, like craftsmen and artists, practical skills may be of more value than academic skills. Eddy (1988) found near-zero correlations between scores of Air Force recruits on the Armed Services Vocational Aptitude Battery (ASVAB), which correlates with *g*, and scores of managers on a TK test. Such research supports the authors' view that TK tests measure abilities distinct from those measured by traditional intelligence tests.

Just as job knowledge tests, like other tests of *g*, predict performance consistently, TK tests have been found to predict performance in a number of domains. Levels of TK associate positively with such criteria as salary and performance-appraisal ratings. For example, Wagner and Sternberg (1985) obtained significant correlation of TK scores of bank managers with merit-based salary increases and with performance ratings in generating new business. Such results suggest that TK tests measure PI-related aspects of performance that general intelligence tests overlook. In many studies of such diverse individuals as college students, salespeople, and psychologists, similar correlations have been found, using SJTs and other measures. Researchers have also shown the incremental validity of TK tests over typical measures of intelligence in predicting performance. In a key study by Wagner and Sternberg (1990), TK scores accounted for 32% of the variance in performance beyond scores on a traditional IQ test.

TK scores have been found distinct from personality measures (Wagner & Sternberg, 1990), such as the Meyers-Briggs and FIRO-B tests. Further, TK workplace scores across cultures have yielded similar results, and unlike traditional intelligence tests, TK measures may not exhibit significant gender and racial differences. Eddy's study (1988), for instance, showed insignificant correlations between TK and both gender and race, whereas ASVAB scores correlated significantly with both factors. Further research is needed to corroborate Eddy's study. Finally, prompting individuals to selectively encode and combine relevant information resulted in significant TK acquisition, a controlled study of managerial TK learning showed. These results suggest an avenue for future research into ways to facilitate TK acquisition in job preparation.

Tacit Knowledge in Principals

These findings have been extended to an inventory of TK in school principals, whose practical intelligence is crucial to their schools' success. This measure is being used in current research on principals, the results of which will be reported later. The measure consists primarily of 30 situational response items (constructed in two forms), using a 7-degree Likert scale. The respondent is asked to assess the quality of response options under the assumption that he or she is a principal with a complex problem to solve. Also included are demographic and self-evaluative questionnaires for principals and an evaluative questionnaire for district officials.

The inventory is scored by both rank-order correlations of individual responses with the group response pattern and by distances (squared) between individual and group responses. The three major domains assessed by the inventory are dealing with self, dealing with others, and dealing with tasks. Skill types such as motivation and organization are also assessed. Internal consistency

reliabilities for all these areas are high. The scenarios constituting the inventory were rated highly by principals for relevance and importance. This internal consistency and content validity of the inventory warrant further investigation of its empirical validity.

Conclusion

The authors conclude that since it has been established that *g* successfully predicts job performance, a major issue for future research involves improving upon that prediction. They suggest that measures like that of TK, which provides significant incremental validity over measures of *g*, should be a focus of further inquiry. Such new instruments as their new TK inventory for principals may yield significant theoretical and practical insights.

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