Selecting High-Performing Information Technology Professionals

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ABSTRACT

In order to achieve competitive advantage, 21st century organizations will make substantial investments in information technology (IT). Effective human resource practices in the IT field will therefore be critical. We investigated the applicability of general mental ability and personality test scores in predicting high-performing IT professionals. Data collected from 94 information technology employees in a service industry firm were compared with supervisory ratings along four orthogonal criteria—technical proficiency, relationship management skills, adherence to documentation standards and requirements, and self-initiated professional development. Results were partially supportive of the hypotheses and provide impetus for further work investigating applications of these tests to predict programmer performance in staffing and selection processes.

Keywords: information technology, employee selection, personality, general mental ability, high-performance

The demand continues to escalate for information technology (IT) professionals who create value in project-based work, innovatively solve systems-related problems, and work under inordinate time pressures. Yet, recent evidence conservatively suggests that at least 350,000 information technology jobs remain unfilled in the United States (Maddern, 2000). Furthermore, it has been estimated to take almost nine months to fill an IT vacancy and get a new IT employee up to speed.

The shortage of IT professionals has spurred many human resource managers to make substantial market-based adjustments to compensation plans in the IT field. Even more progressive companies have introduced a variety of retention incentives, particularly for those working in certain “hot skill areas” such as web design and development, Java programming, e-commerce, multimedia, networking, and Enterprise
Resource Planning (ERP) systems (e.g., PeopleSoft, SAP). The IT shortage has also dramatically increased the breadth and/or depth of such skill requirements.

Not surprisingly though, not all IT workers who are hired meet managers’ performance expectations, and anecdotal evidence suggests that many managers of information technology professionals find themselves spending a substantial amount of time coaching low performers. Given significant investments in the IT infrastructures and systems development required for competitive advantage in the new business reality, executives can ill afford poor performing information technology professionals. Unfortunately, typical approaches used for selecting IT employees have focused mostly on such ineffective methods as self-reported histories of IT experience or applicant responses in hurried unstructured interviews just to get someone to fill the vacancy.

Many firms have neglected the advances in selection assessment technologies, including inexpensive tests that can be administered in less than 15 minutes, can be processed readily in-house, and deliver reliable job-specific information quickly (Russell, 1999). The most commonly used commercially available test to predict programmer success is the Computer Programmer Aptitude Battery. Unfortunately, it is severely limited (Mahurin, 1992), as it has not been updated since 1964, it predicts success in programmer training courses rather than job performance, and it has adverse impact against minorities.

With escalating salaries and recruiting difficulties, the selection and retention of high-performing IT employees is critical. As such, efforts to improve the selection of information technologists must improve if we are to use our human resources wisely. Fortunately, more rigorous selection strategies and policies exist to increase “person-job” fit and “person-organization” fit for IT employees and promise highly sought-after utility. The purpose of the present study therefore was to investigate the applicability of two commonly employed human resource approaches for selecting information technology professionals—general mental ability and personality—with the goal of identifying the most high-performing individuals in this field.

A REVIEW OF THE RELEVANT LITERATURE

Whether labeled cognitive ability, general mental ability (GMA), or “g-factor,” the ability to process and analyze information has been shown to predict job performance across a wide variety of jobs (e.g., Hunter & Hunter, 1984; Ree, Earles, & Teachout, 1994). Schmidt and Hunter’s review of the literature (1998) substantiated that GMA is a consistent and universal predictor of job performance and learning. GMA influences job performance through its effects on job knowledge (Hunter, 1983; Schmidt, Hunter, & Outerbridge, 1986). Clearly, GMA is likely to predict the job performance of IT workers, who virtually epitomize the knowledge-worker trend in the present business reality. For example, superior mental ability is likely to be related to superior execution of IT tasks, such as coding, design, and problem-solving.

However, GMA is unlikely to explain variance in other elements of an IT worker’s job performance. For example, analytical ability may have little to do with a programmer’s ability to work with peers, end-users, or managers to complete software projects on time and with little re-work. Instead, personality might explain these aspects of performance.