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Practical intelligence and elementary-school teacher effectiveness in the United States and Israel: Measuring the predictive power of tacit knowledge

Elena L. Grigorenko^{a,b,*}, Robert J. Sternberg^c, Sidney Strauss^d

^a PACE Center, Yale University, Box 208358, New Haven, CT 06520-8358, USA

^b Moscow State University, Russia

^c Tufts University, USA

^d Tel Aviv University, Israel

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Abstract

One important aspect of teacher effectiveness, of course, is formal knowledge of one or more academic disciplines. But another aspect of teacher effectiveness may be informal, or tacit knowledge of how to handle challenging situations, or even crises, that arise in the classroom. Tacit knowledge is what a person needs to know to succeed in an endeavor that is typically not explicitly taught and that often is not even verbalized. It is procedural knowledge, and thus is not just a static form of knowledge, but rather, knowledge in use. We constructed a measure of tacit knowledge for elementary-school teachers, in order to determine the teachers' likely effectiveness in dealing with problematical classroom situations. In Study 1, our primary goal was to determine whether our measure predicted principals' ratings of the teachers' classroom performance as well as teachers' ratings of their own effectiveness. We found that teachers who scored higher on our tacit-knowledge inventory generally were rated as *more* effective by their principals, but as *less* effective by themselves. In Study 2, we investigated whether responses to problematical situations that were viewed as better or worse, respectively, in the United States were also viewed as better or worse, respectively, in Israel. We found a high correlation between responses in the two countries. We concluded that it is possible to measure an important aspect of teacher effectiveness via a measure of tacit knowledge, and that comparable measurements may be possible across at least two cultures.

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1. Introduction

When we speak in an educational context about thinking skills, intellectual skills, problem-solving skills, and the like, we often refer to them as they apply to learner. But the teaching–learning process is an interaction between teacher and learner, so the development of these skills is just as important in teachers as it is in learners. Teachers are more effective to the extent that they are able to handle the diverse and often highly challenging problems they confront in the classroom on a daily basis. Although competence in the thinking skills of their academic discipline is extremely important, at least as important is competence in the thinking skills of the practice of pedagogy. This article is about

* Corresponding author. Tel.: +1 203 432 4660; fax: +1 203 432 8317.

E-mail address: elena.grigorenko@yale.edu (E.L. Grigorenko).

thinking skills of teachers in the domain of pedagogy. We are interested, in particular, in teachers' practical intelligence as measured by one important aspect of such intelligence, tacit knowledge—one's knowledge of how to get things done in the workplace, which usually is not explicitly taught and that often is not even verbalized.

Teacher effectiveness typically is judged by examinations that use conventional testing formats – such as multiple-choice and, occasionally, short essay – to assess knowledge of subject matter and of pedagogical principles. Such examinations may be rather remote from the actual day-to-day situations teachers encounter, however. In principle, and, we believe, often in practice, a teacher could be a subject-matter expert and yet be relatively inexpert in transmitting the subject matter to children. A teacher might even be quite expert in his or her knowledge of pedagogical principles, but be unable expertly to apply these principles in a classroom, in the same way that someone who passes a paper-and-pencil drivers' test with flying colors might be unable to drive effectively, or even to drive at all!

It therefore makes sense to explore a variety of tasks that assess teacher effectiveness. New methods of assessment might also lead to new methods of teacher training, as good assessments also provide potential bases for training oriented at improving teachers' skills in classroom situations. In our work with military officers, for example (described in Sternberg et al., 2000), we have used tacit-knowledge vignettes as a basis for training by having the officers read the vignettes and then discuss possible ways of responding to the situations described in the vignettes, in particular, why certain ways are more effective than others. They thus learn through actual case studies.

These new assessment procedures, when refined, may also be considered for use in state licensing procedures (Strauss, 2001). Although effective teaching certainly requires a variety of skills, one set of skills that may be of particular importance derives from the teachers' tacit knowledge regarding how to handle challenging classroom situations. We view tacit knowledge as an important aspect of practical intelligence, that is, the ability to use one's intelligence in the day-to-day situations that confront one in everyday life.

2. Tacit knowledge as a theoretical framework for assessing teacher competencies

Sternberg and his colleagues (see Sternberg et al., 2000; Sternberg & Wagner, 1993; Sternberg, Wagner, & Okagaki, 1993; Sternberg, Wagner, Williams, & Horvath, 1995; Wagner & Sternberg, 1985; Wagner, 1987) have taken a knowledge-based approach to understanding practical intelligence. Individuals draw on a broad base of knowledge in solving practical problems, some of which is acquired through formal training and some of which is derived from personal experience. Much of the knowledge associated with successful problem solving can be characterized as tacit (Polanyi, 1966). It is knowledge that typically is not openly expressed or stated—it is acquired largely through personal experience and guides action without being readily articulated.

The term *tacit knowledge* has roots in works on the philosophy of science (Polanyi, 1966), ecological psychology (Neisser, 1976), and organizational behavior (Schön, 1983), and has been used to characterize the knowledge gained from everyday experience that has an implicit, unarticulated quality. Such notions about the tacit quality of the knowledge associated with everyday problem solving also are reflected in the common language of the workplace as people attribute successful performance to “learning by doing” and to “professional intuition” or “instinct.”

Research on expert knowledge is consistent with this conceptualization. Experts draw on a well-developed repertoire of knowledge in responding to problems in their respective domains (Scribner, 1986). This knowledge tends to be procedural in nature and to operate outside of focal awareness (see Chi, Glaser, & Farr, 1988). It also reflects the structure of the situation more closely than it does the structure of formal, disciplinary knowledge (Groen & Patel, 1988).

Sternberg and his colleagues (Sternberg, 1997; Sternberg & Horvath, 1999; Sternberg et al., 2000; Wagner & Sternberg, 1985) view tacit knowledge as an important aspect of practical intelligence that enables individuals to adapt to, select, and shape real-world environments. It is knowledge that reflects the practical ability to learn from experience and to apply that knowledge in pursuit of personally valued goals. Research by Sternberg and his colleagues (see e.g., Sternberg et al., 1993, 1995, 2000) has shown that tacit knowledge has relevance for understanding successful performance in a variety of domains. The conceptualization and measurement of tacit knowledge are described below, followed by a review of the relevant research on tacit knowledge and practical intelligence.

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