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An expert performance approach to the study of individual differences in self-regulated learning activities in upper-level college students

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ABSTRACT

One of the hallmarks of adolescent and adult development of expert performance is its self regulation. This paper reviews different approaches to assessing the use of self-regulated learning (SRL) strategies in high-school and college students and their ability to predict academic performance. The current study assesses the use of SRL strategies with interviews and diaries and their relation to grade point average (GPA) in sixty upper-level college students majoring in science. Their diaries revealed that students with high, average, and low GPAs (assessed before the start of the semester) differed in overall use of SRL strategies and in the use of particular strategies during specific weeks. Methods of assessing and understanding differences in adult self-regulation and subsequent academic performance are evaluated and discussed.

Contents

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The expert performance approach attempts to explain how individuals attain superior performance for representative tasks in the associated domain of expertise. Research on a wide range of domains of expertise including music, sports, and games (Ericsson, Charness, Feltovich, & Hoffman, 2006; for a review, see Ericsson, 2006a) has shown how individuals start their training in early childhood and continue with increased levels of practice during adolescence and early adulthood. In particular, expert performers have been found to differ in their accumulated amount of *deliberate practice:* goal-directed activities designed to improve specific aspects of performance through self-evaluation and gradual refinement of performance with feedback (from teachers or coaches and, eventually, through self-assessment) (Ericsson, 2006b; Ericsson, Krampe, & Tesch-Römer, 1993). One of the most salient changes of the structure of the learning activities during this extended training is the increased role of learner, who eventually takes over the responsibility for monitoring performance and self regulating learning from their parents and teachers as they reach adulthood (Ericsson, 1996; Glaser, 1996). Several contemporary researchers (Alexander, 2004; Zimmerman, 2001, 2006, 2008; see also Willingham, 2004) have drawn connections between the attainment of academic goals in school settings and the pursuit of expertise in more traditional domains, such as sports and music.

Our general premise is that advanced college students taking upper-division courses in their science major satisfy the characteristics of adult learners (Merriam, Caffarella, & Baumgartner, 2007). They have reached physical maturity and are legally adults. They are motivated to learn as they are electing courses that are known to be challenging. Finally, they are acquiring more specialized knowledge that build on previously attained fundamentals in order to advance to the next stage of knowledge or expertise. We believe that the study of self-regulated learning in challenging upper-division college courses in science will provide new insights into the factors that contribute to variability in the acquisition of expertise in academic domains.

Despite the vast amount of research on the acquisition of superior performance in traditional domains of expertise, there have been few investigations to date using an expert performance approach to examine factors contributing to individual differences in school performance, as measured by grade point average (GPA) (e.g., Plant, Ericsson, Hill, & Asberg, 2005). There have, however, been several investigations from a very influential and related approach — the self-regulated learning (SRL) approach. Investigations from the SRL approach have proliferated over the last two decades (Karoly, Boekarts, & Maes, 2005; Pressley, 1995; Winne, 1995). The SRL approach evolved from social cognitive theory (Bandura, 1969, for a review, see Zimmerman, 1990), which rejected learning as a passive storage of experience and proposed the importance of self-regulated strategies to learn desired behaviors. Zimmerman defines SRL as "self-generated thoughts, feelings and actions which are systematically oriented towards the attainment of academic goals" (Schunk & Zimmerman, 1994, p. 9). In a more recent review, Zimmerman stated that SRL is "the degree to which students are metacognitively, motivationally, and behaviorally active participants in their own learning process" (Zimmerman, 2008, p. 167).

These definitions share characteristics with the notion of *deliberate practice* activities in other domains. Initially, deliberate practice activities are designed by a coach or teacher, but eventually, motivated individuals design their own practice activities based on self-assessed weaknesses and effective methods for improving them (for a review, see Ericsson, 2006b). Similarly, study activities are initially assigned and monitored by a parent or teacher, but eventually students begin to study independently to attain self-monitored academic goals (Zimmerman, 2008). Initiation and completion of deliberate practice activities also require voluntary effort. Thus, most deliberate practice activities can be viewed as self-generated activities aimed toward the attainment of performance goals. Furthermore, several studies have shown that deliberate practice activities have metacognitive and motivational components, in addition to the behavioral component of engaging in practice (for a review, see Ericsson, 2006b). Metacognitive awareness is a key component in deliberate practice, as aspiring experts must self-assess accurately in order to set appropriate goals and design optimal subsequent deliberate practice activities (Ericsson et al., 1993). Furthermore, unlike mindless repetition or playful activities, engaging in deliberate practice also requires motivation as these activities (much like many challenging studying activities) are not as inherently enjoyable as alternative social activities (Deakin & Cobley, 2003; Ericsson, 2006b).

The current paper examines self-regulated learning in adults from the perspective of the expert performance approach (Ericsson & Smith, 1991; Ericsson & Ward, 2007). We discuss the measurement of self-regulated learning to examine individual differences among motivated adult learners using both traditional methods and those adopted by the expert performance approach. We also compare methods of measuring the development of self-regulated learning, and we relate this to subsequent academic performance. Finally, we discuss the development of self-regulated learning in successful adult learners and how this relates to deliberate practice and the acquisition of expert performance.

First, an outline of an expert performance approach to the study of superior school performance at the college level is presented. Next, we review and discuss contributions from the SRL approach along with some issues raised from the perspective of the expert