Featured Article

A Deliberate Practice-Based Training Protocol for Student Nurses
Care of the Critically Ill Patient: A Randomized Controlled Trial of a Deliberate Practice-Based Training Protocol

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Abstract
Background: The purpose of this study was to establish the efficacy of a deliberate practice intervention designed to enhance levels of clinical performance in senior baccalaureate nursing students.
Method: A randomized control design was used. Forty participants were randomly assigned to control and intervention groups.
Results: The deliberate practice-based intervention resulted in statistically significant improvements to key aspects of participants' efforts in each of the four scenarios.
Conclusions: The deliberate practice protocol prompted participants to reconsider and act on salient stimuli present in the simulated task environment, resulting in substantive performance improvement.

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The competence of health care professionals is a key variable that contributes to the provision of safe environments and high-quality health care. Today's highly demanding health care environment requires the effective use of clinical reasoning skills in complex care situations to achieve positive patient outcomes. Simulation has rapidly become one of the primary means by which health care professionals are trained to navigate variable clinical situations and develop critical skills without posing a risk to patients (Watson et al., 2012). In general, the technology used in simulation has advanced more rapidly than the educational methods used to train health care workers in simulated task environments (STEs) (Ericsson, Whyte, & Ward, 2007; Cooper et al., 2010; Harris, Ward, Eccles, & Whyte, 2012). A variety of instructional approaches have been used to structure simulation-based training and promote transfer of learning to real-life settings in health professions education (Hamstra, Brydges, Hatala, Zendejas, & Cook, 2014).

A growing body of evidence suggests that training methods guided by the expert performance approach (Ericsson, 2004) that are based on deliberate practice principles are

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the most effective means of providing training experiences that increase expertise in nurses (Alinier & Platt, 2014; Clapper & Kardong-Edgren, 2012; Harris et al., 2012; Causer, Barach, & Williams, 2014). This study employed a randomized clinical trial to establish the efficacy of a deliberate practice intervention designed to enhance levels of clinical performance in novice acute care nurses, based on Ericsson's (2004) expert performance approach.

Key Points
- Researchers have reported few clinical trials of structured, deliberate practice based approaches to clinical learning.
- Cognitively based approaches focus on maximizing clinical performance progressively through reflective practice.
- Research has shown strong connections between engagement in deliberate practice and higher-level performance.

Theory

Cognitively based approaches to clinical education have rapidly shifted from traditional classroom-based activities to more holistic approaches to engaging learners in representative tasks in naturalistic environments (Ericsson et al., 2007). In domains such as nursing, the ultimate goal of teaching—learning activities is the achievement of expert-level performance (Ericsson & Smith, 1991; Ericsson, 2005). Deliberate practice is a central concept when considering efforts to achieve the highest levels of clinical performance in nursing. In its original characterization, deliberate practice refers to methods used to improve both skill development and implementation to attain progressively higher, and ultimately, expert performance (Ericsson, Krampe, & Tesch-Romer, 1993; Ericsson, 1996; Ericsson & Simon 1993; Haag-Heitman, 2008).

Deliberate practice involves engaging highly motivated learners in well-defined tasks that are representative of the real world of clinical practice, at an applicable level of difficulty, where informative feedback is promptly available Ericsson et al., 1993; Ericsson, 1996; McGaghie, 2008). Further, deliberate practice is done intentionally and repetitively, at progressively higher levels of situational complexity, to facilitate performance improvement and acquire proficiency. Engagement in simpler and more routine activities is far less likely to result in significant performance improvement (Ericsson, 2006). Rather, the likelihood of observing differences in performance between groups is significantly higher when presented with more difficult cases, such as those that might occur only occasionally during actual clinical practice (Ericsson et al., 2007). Simply put, the engagement in simple or routine tasks does not demand the level of performance necessary for one to truly engage in deliberate practice. The educational intervention used in the present study is based on Ericsson's conception of deliberate practice.

Performance in a STE involves several important cognitive processes that serve as antecedents to decision making. The ability of nurses to enter the STE and rapidly process multiple stimuli is central to facilitating decisions and associated actions that are effective in achieving the goals of care. Sometimes called intuitive decision making or naturalistic decision making, Recognition-Primed Decision (RPD) model by Klein (1998) describes the process by which individuals make complex decisions in a variety of domains, including nursing. An early example of his work was a study of urban firefighters and their decision making during dangerous and highly pressured situations associated with emergency events. According to Klein (1998), the RPD model involves two primary processes: (a) sizing up the situation to recognize which course of action makes sense and (b) evaluating that course of action by imagining it. Klein effectively characterized the way that decision makers process information relevant to the situation at hand. First, decision makers view a situation and determine the degree to which the situation is familiar and then determine which goals make sense in such a situation. Key to goal setting is the ability of the decision maker to recognize salient cues in the environment and determine which cues are important in determining courses of action. These cues, derived from the senses, and processed in the cerebral cortex, form the basis of decisions. Finally, decision makers envision what to "expect next" if certain actions are taken to determine appropriate ways of responding to situations.

According to Klein (1998), experience plays an important role in establishing the cognitive patterns that result in appropriate decisions. For instance, the ability to identify a situation as typical or atypical requires a degree of experience within the domain to compare the current situation with a priori situations. As one accumulates more experiences, one is essentially better equipped to recognize key situational stimuli and respond appropriately to them (Bond & Cooper, 2006). Conversely, individuals who lack experiences in a particular domain also lack the ability to superimpose situations that they are experiencing over previous experiences. In effect, these individuals (novices) lack the cognitive processing skills to appropriately characterize situations. Principles by Klein (1998) are consistent with the conception of deliberate practice by Ericsson (1996, 2004).

Atypical situations are the most challenging for all decision makers, according to Klein (1998). In atypical situations, individuals are required to arrive at a "diagnosis" based on their available memories. In this way, decision makers are compelled to consider aspects of a situation that are familiar, and hence, reconsider relevant cues, plausible goals, and action strategies in a similar fashion to how they would in routine situations. In framing this process, Klein illustrated the substantive limits to the cognitive abilities of people who lack extensive experiences (i.e., novices), in that they invariably proceed based on their memories, however limited they are. The present study was conceived based on the decision-making work by Ericsson and Klein.