Featured Article

Using Deliberate Practice and Simulation to Improve Nursing Skills

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**KEYWORDS**
deliberate practice; nurse education; psychomotor skills; simulation

**Abstract:** Many of those conducting simulation often focus on team-based skills to improve patient safety and the quality of care. Although these skills are important, members of the team must each first be competent in the skills required of their profession and continually reach out for opportunities to improve on or refresh their clinical skills. Deliberate practice is a concept that is not currently found in the nursing lexicon. However, it offers a path to skill improvement and expertise within the profession. This article (a) describes the components of deliberate practice, (b) suggests ways that simulation may be used to implement it within simulated clinical settings, and (c) suggests factors that educators need to be aware of when setting the stage for deliberate practice.

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In a recent national survey, clinical nursing faculty members reported spending 69% of their very valuable clinical time observing students in individual skills performance (McNelis & Ironside, 2009). The ritual of prehospital skill checks has probably not changed in decades. In fact, all nursing students have been exposed to some version of skills demonstration at one time or another. Although a skills check may be sufficient to document that a skill was performed correctly at least once, experienced faculty members know that students have not had sufficient practice in a simulated or real clinical situation to perform a skill in a competent and confident manner. Knowledge construction may not have gone beyond the basic cognitive level (Schmidt & Lee, 2005). On graduation, nurses may reach the associative level of skill performance with a certain skill set, which may be performed often in a particular unit. This means that they have working knowledge or familiarity with the skill but may not have fully mastered the task so that it is somewhat autonomous.

With prolonged experience, they will be able to perform these skills without thinking deeply about them, reaching the autonomous level of skill development (Schmidt & Lee, 2005). The problem is that at some stage of our career, we will often find ourselves grappling with performing a particular skill, or set of skills, in a tense situation. Perhaps we even say to ourselves, “I know how to do this, but now I must think hard about it while I am doing it!” We may also begin to wonder whether we learned it adequately the first time around. Deliberate practice, or “deliberate efforts to improve one’s performance beyond its current level” (Ericsson, 2008, p. 991), might provide a means to address this lack of skill and increase clinical faculty time.

Many nursing programs rely on commercially prepared skills learning systems. Some of these training systems
have embedded clinical practice errors in them, such as inadvertent contamination of a sterile field. While using these instructional packages, experienced faculty can frequently point out practice lapses and errors. However, some clinical faculty members also perform skills “their own way,” which may be different from the ways taught in the skills lab or through commercial systems. These well-intended variations can create confusion for students because learners must cognitively grapple with multiple correct or incorrect techniques in their memory and attempt to recall correct procedure from the training session, a concept that Clapper (in press) describes as contextual interference. Although clinical faculty “experts” have a great number of frames of reference or experiences to draw from, these references may not be quality ones (Ericsson, 2006).

To further complicate the problem, learning is situational and very unique between the learner and the environment (Dewey, 1938). Every patient and clinical situation includes different variables that can make performing the nursing skill more challenging and unique. Medical education is researching ways to improve medical practice and training, including the use of deliberate practice (Ericsson, 2004). Nursing can also benefit from implementing deliberate practice to improve educational methodology and nursing performance. A culture of deliberate practice would allow learners to identify a need to learn or improve a skill and then actively seek out opportunities to do so (Ericsson, 2006). However, for deliberate practice to flourish, it is beneficial to understand some key concepts and how simulation can make the learning experience more effective.

**Key Points**
- Assist learners with identifying the skills they need to improve.
- Encourage learners at all levels of expertise to reach out for deliberate practice opportunities.
- Provide opportunities for learners to conduct deliberate practice.

Deliberate practice is deliberate learning. Critical reflection causes the learner to actively seek out the new learning experience, perhaps generating the thought at some point that “I don’t know how to do this skill well enough.” This reflection triggers a need to find safe, optimal opportunities to improve skill performance. When this situation exists, the learner must then decide to move toward it and become completely involved in the practice experience. Once in the deliberate practice setting, the learner has to give full attention to the learning experience, blocking out irrelevant and competing stimuli (Schunk, 2008). Ongoing reflection is another key component of a deliberate practice session. Learners use an iterative process of evaluating and reevaluating information and performance against the information held in memory. Therefore, the best training situations may be those that include immediate feedback, reflection, and correction, followed by opportunities to practice the case or task again, until it can be completed with consistent success (Ericsson, 2008). This paradigm is applicable to skill-based or team-based learning because it incorporates all that we know about the way that we learn best. Simulation facilitators can assist individual learners and teams with improving existing skills and practices by incorporating these key learning concepts. However, the skills needing improvement must first be identified by the learner or team prior to implementation.

Deliberate practice will likely not be used to address the stronger skills that the learner uses on a regular basis. The reinforcement of skills, particularly those rarely used, often requires periodic practice to maintain proficiency. Deliberate practice is designed or sought out, most often by the learner, to practice the skills the learner is most afraid of or the kind that the learner dislikes practicing because they often lead to failure or error (Cloud, 2008; Ericsson, 2006). Examples may include performing as a team member during a cricothyrotomy in the “cannot intubate—cannot oxygenate” multidisciplinary scenario, an emergency medicine nurse refreshing his or her skills in maintaining a central venous catheter, or a student nurse practicing sterile gowning and gloving. Using deliberate practice, the learner actively works to improve personal performance (Shaikh, 2009) in skills, knowledge, and procedure, especially regarding those skills that are not performed often.

The speed with which a skill is performed may not be the goal of each deliberate practice session. A learner might learn to perform a procedure faster than before, but doing something faster does not necessarily correlate with better. The learner will need to first know such things as why the task is being performed and how it relates to improving patient care. This framing process that the learner engages in relates to the declarative knowledge that is needed so that one can fully understand the procedural knowledge (Schunk, 2008). Declarative knowledge includes the knowledge, facts, beliefs, or organized passages (Schunk, 2008) that assist a learner with understanding the steps or skill and allows the learner to acquire a deeper understanding of the task. It may indeed be enough for a learner to practice a procedure to improve speed. But the goal of deliberate practice is mastery of the task, coupled with the cognitive knowledge to anticipate problems or next steps (Ericsson, 2006). Skills can become automated with minimal effort (Ericsson, 2006). As a result, a professional eventually reaches a performance plateau. In the absence of deliberate practice, the automation developing in the professional may hinder his or her ability to produce a superior performance (Cloud, 2008). This automated state may be related to Schunk’s (2008) suggestion that task familiarity does not require much cognitive thought and to Ericsson’s (2006) observation that declining performance is related to declining bouts of appropriate types of deliberate practice.
Effectiveness of Deliberate Practice for Improving Clinical Skills

Is it possible to upgrade student clinical skill performance while still in school? Theory says yes, but few studies have deliberately looked at this question. A review of several academic search engines found few studies directly related to deliberate practice in nursing or nursing education. Haag-Heitman (2008) studied factors that influence expert clinical performance in practicing nurses. Her review of the literature identified the importance of deliberate practice and risk taking, with risk taking being a precursor to learning. Haag-Heitman’s interviews with a group of 10 hospital-based expert nurses revealed that learning was an everyday occurrence for them that included engagement in deliberate efforts at skill improvement, including a lifelong-learning approach to experiential learning. The challenge for health care professionals is to be able to recognize the automated state that may exist within us, suggesting the need for critical reflection and the subsequent deliberate practice to improve our skills.

Additional research evaluating the effects of deliberate practice applicable to improving nursing skills is quite convincing. Niles et al. (2009) used a portable cardiopulmonary resuscitation (CPR) manikin with automated feedback for “just-in-time” deliberate practice with pediatric intensive care unit staff. Over 15 weeks, 420 staff members refreshed or maintained their CPR skills using this trainer. As a result, the researchers observed significantly shorter times to achieve CPR success than those clinicians that received infrequent refresher training. Used in this way, simulation devices or other technologies, especially those offering real-time feedback, may help the learner address gaps in knowledge or skills. Other researchers have also found simulation useful as a foundation for deliberate practice.

Oermann, Kardong-Edgren, Odom-Maryon, and Ha (in press) studied nursing students’ ability to perform CPR using 6-minute monthly practice sessions and a voice-activated manikin. Compared with those students with no practice, the researchers found significant improvements in the students using the voice-activated manikins that generate expert voice coaching via a computer. This research is extremely important when one considers that a CPR course completion card is good for 2 years. Research demonstrates clearly that 2 years is too long between practice sessions as skill retention drops very quickly. In addition, the typical CPR class may provide students with only enough training time to reach the minimal cognitive level of performance. Oermann et al.’s study supports the importance of ongoing reflection in the deliberate practice session.

The Never-Ending Need for Deliberate Practice

The need for deliberate practice never ends. Cloud (2008) describes a simulation study that compared the performance of novice nurses with that of more experienced ones. Experienced nurses approached the scenario that was a part of the study with a more level head and greater tacit skills. However, in the end, the experienced nurses made the same mistakes as the novice nurses, administering the wrong medication for the situation. This may be related to the experienced professional approaching the task with the mindset of an expert rather than that of an analytical lifelong learner. Fadde (2009) suggests more experienced clinicians may possess an advantage for predictive ability and may rely on “nonanalytical pattern-recognition” to generate early hypotheses. This contrasts with less experienced residents, who may rely on rule-based, analytical approaches. Fadde’s observations would explain the actions of the experienced nurses described by Cloud. The experienced nurses may have acquired a great deal of tacit knowledge over the years but moved away from the analytical, critical thought mode that is often associated with learning something well. This common situation justifies the use of deliberate practice for improving one’s performance.

Benefits of Deliberate Practice for Organizations

Deliberate practice is the single most important ingredient in the development of expertise (Ericsson, Krampe, & Tesch-Römer, 1993). Hospitals, simulation centers, and schools of nursing will benefit from encouraging and making deliberate practice accessible for their learners. In a positivist world of health care, one might ask for more evidence. But this may be the wrong approach. The prudent approach is to assume a more postpositivist approach by focusing on meaningful measurements of results from the view of the learner (Fadde, 2009). One would not need a study to understand how this approach is likely to benefit organizations by strengthening the links of the performance chain. Although it is important for professionals to work effectively as a team, each team member requires competence with the individual skill set required of his or her profession. Convincing seasoned professionals that they should consider evaluating their own needs and seeking deliberate practice opportunities may not be easy.

Convincing the Learner to Adopt Deliberate Practice

Clapper (2010a) identified factors that people conducting simulation should know about adult learners. Among these are Grow’s (1991) and Candy’s (1991) recognition of the need for a facilitator to provide scaffolding for a learner in order to encourage the development of a self-directed learning approach. Another is especially important to professionals such as nurses: McClusky’s (1963) theory of margin. In lay terms, McClusky’s theory suggests that as adults we accumulate many tasks and responsibilities (load), and with each new
task, we have less power to deal with them all. The margin that McClusky’s refers to is the gap between responsibilities and the power to deal with them. That is, as adult learners, “We have a lot going on” (Clapper, 2010a, p. e9).

Students are frequently overwhelmed with our additive nursing curricula. Asking students to recognize a need for improvement and providing them with a clinical simulation device may not be enough. Asking students to voluntarily practice or improve their skills means that quality time must be made available to them. Task-trainers, online simulation with real-time feedback, voice-activated manikins, or other suitable training material could be readily available so that when opportunities exist, the learner is able to practice. Charge nurses, nurse educators, or lab preceptors could assist learners with developing goals for training and engaging in deliberate practice. They may also assist with covering patient loads while their learners engage in deliberate practice. Shaikh (2009) offers some suggestions for developing deliberate practice goals, including identifying (a) the skills or competencies that need to be developed, (b) crucial steps for getting to the desired state, (c) an action plan that leads the learner out of a comfort zone, (d) a time frame when the training is likely to occur, and (e) development of some form of measurement so that learners know when they are succeeding.

Simulation centers and clinical educators may also assist by surveying nurses and other clinicians to determine the type of education and skills learners wish to improve on. In doing so, it is important that both this survey process and the learning process itself are psychologically safe for the learner. Learners need to be able to express their concerns for the need for specific skill practice and improvement. The learner also needs to feel that mistakes can be made without professional repercussion or negative criticism (Clapper, 2010b). Deliberate practice involves learning from errors and likely will involve some stumbling because newer information may contrast with what learners already hold in their memory from previous experiences (Ericsson, 2006; Jensen, 2006). Opportunities for simulations and just-in-time learning situations should be set up that are just above the learner’s current level of ability (Ericsson, 2008). As a result, some level of stumbling may occur as the learner grapples with new or refresher skills and information. However, it is important to note that this performance contrast is needed and is an important element to rewire and solidify the neural networks in the brain (Ericsson, 2006; Jensen, 2006) that also lead to increases in knowledge recall and performance. Keeping the deliberate practice sessions psychologically safe for the learner allows for risk taking and learning without fear of personal or professional embarrassment.

Conclusion

Deliberate practice can improve practice and will be of great value for anyone with a quest for expertise in a profession. Because many clinical skills require one to constantly improve or refresh knowledge and skills, there are few experts, but with deliberate practice, many “experts in the making.” The role of the educator is to assist learners with recognizing practice areas that may be improved and then creating a safe and nurturing environment in which the learner can practice those skills in order to improve performance. Adopting a culture of deliberate practice allows the educator and an organization to accomplish all of these in ways that are meaningful to the learner. Simulation provides a venue of making practice as realistic as it can be. After a period of orientation and familiarity, continued feedback, and encouragement by educators, the learner may move to a more self-directed pursuit of excellence. Finally, leaders lead by example. By example, the leader’s own quest for improvement through deliberate practice can mean more than words alone.

References


