

Deliberate Practice – A Primer  
A Resource for TTUHSCSOM Expert Skills Program  
John Pelley, PhD

Deliberate Practice (DP) is a state-of-the-art concept that is used in several areas of human performance, including medicine, with the purpose of developing expert skills (Ericsson, 2004). It was born out of a desire on the part of many investigators to look beyond minimum adequate skills and to discover what type of practice produced superior performance. This has obvious importance in the practice of medicine since patients rarely ask to be seen by a physician who is “minimally adequate.” This introduction serves as a primer covering the basic elements of DP that can be applied at the beginning of medical training.

### Background and Clinical Relevance

A simple observation guided the studies on human performance. When examined more closely, it was found that the admonition that “practice makes perfect” was not true. Practice only makes permanent. The type of practice carried out makes the difference between expert development and the maintenance of mediocrity. The type of practice carried out by superior physicians (as well as professional athletes, musicians, chess players, etc.) has been found to be a focused effort called Deliberate Practice. This has caused researchers to reject the “you’ve got it or you don’t” attitude and to accept that high achievement doesn’t necessarily require a particular inborn talent. As you will see in the characteristics of DP below, while high achievement doesn’t require inborn talent, it does require motivation and maturity – mainly because it isn’t easy.

Much of the study of DP in medicine has occurred over the past decade and has been applied to clinical skills ranging from the more obvious surgical procedures to perceptual (imaging) diagnosis and medical diagnosis (Ericsson, 2004; Wayne, et al., 2008; McGaghie, et al., 2011). This primer will be focused on skills needed prior to your clinical skill training, namely learning skills. In particular, the kind of learning skills that prepare you for clinical reasoning and problem solving. This is a step beyond typical study skills because it requires a knowledge of how the brain functions in both learning and clinical reasoning. Thus, the use of DP at this early stage will not only make medical school more manageable academically, but it will prepare you for the type of thinking that will allow you to achieve expert performance at the fastest possible rate (for you!).

### Deliberate Practice Characteristics

1. Deliberate Practice is a focused effort designed for the purpose of improving performance. It is often, and most effectively, accompanied by a teacher’s guidance. A teacher’s knowledge is important in this role, but more importantly a teacher can see you in a way that you cannot.
  - Since the nature of teaching is to create self-directed learning, a teacher is most important early and progressively less important.
  - A teacher helps to define what needs to be improved.
  - The area needing improvement usually stretches the student to exceed their current abilities.

2. Deliberate Practice requires a lot of repetition, but with focus.
  - The reason that everyone doesn't use DP is that it isn't fun – but, then again, not everyone chooses to become an expert.
  - DP is also not necessarily work, nor is it play. It is just focused effort (Colvin, 2011).
  - Studies show that expert skill levels are only achieved after about 10,000 hours of DP (Gladwell, 2009).
3. Deliberate Practice requires continuously available feedback.
  - Feedback is built-in to the clinical setting, but is not well developed in preclinical education.
  - Feedback in the early years of medical education is not built-in, but learning methods are available in the Expert Skills Program that compensate for this.
4. Deliberate Practice is hard to sustain, so it makes you tired.
  - The normal reaction to skill development is to continue to practice a skill at the first successful level, e.g. skill in memorization leads to the use of time to memorize more.
  - DP is always looking ahead to the next level, e.g. mastery of memorization is then utilized to find patterns and relationships in the memorized material.
  - Studies show that some types of physicians who settle for the skills developed in residency actually decrease in performance over time rather than staying the same (Ericsson, 2008).
5. Deliberate Practice changes the brain physically.
  - Actually, any practice changes the brain physically because learning cannot occur without the growth of neuronal dendrites (Zull, 2000).
  - This is why practice makes permanent – thus, practice can produce mediocrity as well as excellence.
  - Steady progress toward expert performance occurs because the brain is always ready to grow more dendrites.
  - The path to expert performance involves growing the right dendrites.

## References

1. Colvin, G. Talent is overrated: What really separates world class performers from everybody else. New York, NY: Penguin Group, 2008.
2. Ericsson, KA. Deliberate practice and the acquisition and maintenance of expert performance in medicine and related domains. *Acad Med.* 2004; 79(10 Suppl): S70-81.
3. Ericsson, KA. Deliberate practice and acquisition of expert performance: A general overview. *Acad Emerg Med.* 2008; 15: 988-994.
4. Gladwell, M. *Outliers: The Story of Success.* New York, NY: Little, Brown, and Company, 2008.
5. McGaghie, WC, Issenberg, SB, Cohen, ER, Barsuk, JH, and Wayne, DB. Medical education featuring mastery learning with deliberate practice can lead to better health for individuals and populations. *Acad Med.* 2011; 86(11): e8-9.

6. Wayne, DB, Barsuk, JH, O'Leary, KJ, Fudala, MJ, and McGaghie, WC. Mastery learning of thoracentesis skills by internal medicine residents using simulation technology and deliberate practice. *J Hosp Med.* 2008; 3(1): 48-54.
7. Zull, J. *The art of changing the brain.* Sterling, VA: Stylus Publishing LLC, 2002.