Learning Objectives

We intend for you to be able to do the following by the time we end our session:

- 1) Identify the **principles** of effective questioning.
- 2) Identify and describe factors involved in creating an **inquiry-friendly environment**.
- 3) Describe **key considerations** in formulating effective questions.
- 4) Describe how you can **formulate effective questions** for inquiry-based teaching in preclinical or clinical teaching.

References on Inquiry-based Teaching Practices & Strategies

- Balla J, Heneghan C, Goyder C & Thompson M. Identifying early warning signs for diagnostic errors in primary care: A qualitative study. BMJ Open, 2(5); 2012 [doi:10.1136/bmjopen-2012-001539]; 2012
- Clouder L. Reflective Practice: Realising its potential. *Physiotherapy*, 85(10); 2000.
- Galchen R. Annals of Medicine: Every Disease on Earth. New Yorker; 2013 (23 May 2013).
- Graber ML, Kissam S, Payne VL, Meyer A N D, Sorensen A, Lenfestey N, Singh H. Cognitive interventions to reduce diagnostic error: A narrative review. *BMJ Quality & Safety*, 21(7), 535-557; 2012 [doi:10.1136/bmjqs-2011-000149].
- Huynh D, **Haines** ST, Plaza CM, Sturpe DA, Williams W, Rodriguez de Bittner MA & Roffman DS. The Impact of Advanced Pharmacy Practice Experiences on Students' Readiness for Self-directed Learning. American Journal of Pharmaceutical Education 73 (4) Article 65; 2009.
- Jungnickel PW, Kelley KW, Hammer DP, **Haines** ST, and Marlowe KF. Addressing Competencies for the Future in the Professional Curriculum. *American Journal of Pharmaceutical Education*, 73 (8) Article 156; 2009.
- Lyons N. Handbook of Reflection and reflective inquiry. Springer:NY; 2010.
- Maaß K & Doorman M. A model for a widespread implementation of inquiry-based learning. ZDM Mathematics Education (2013) 45:887–899; 2013 [DOI 10.1007/s11858-013-0505-7]
- Marmede S & Schmidth HG. The structure of reflective practice in medicine. *Medical Education*. Dec; 38(12):1302-8; 1996b; 2004.

- Marmede S, Schmidt HG & Rikers R. Diagnostic errors and reflective practice in medicine. *Journal of Evaluation in Clinical Practice*, 13:138-145; 2007.
- National Research Council. How people learn: Brain, mind, experience, and school. Committee on developments in the science of learning. Commission on Behavioral and Social Sciences, Bransford J, Brown A & Cocking R. (Eds.), Wash. D.C.: National Academy Press.
- Ogdie AR, Reilly JB, Pang WG, Keddem S, Barg FK, Von Feldt JM & Myers JS. Seen through their eyes: Residents' reflections on the cognitive and contextual components of diagnostic errors in medicine; <u>Academic Medicine</u> Oct;87(10):1361-7.2012.
- Overholser JC. Elements of the Socratic method: I. Systematic questioning. *Psychotherapy: Theory, Research, Practice, Training, Vol* 30(1), 1993, 67-74. doi:10.1037/0033-3204.30.1.67
- Patrick AO & Urhievwejire EO. Is Soliciting Important in Science? An Investigation of Science Teacher-Student Questioning Interactions. International Education Studies Vol. 5, No. 1; February 2012, pp. 191-199; 2012. [http://www.ccsenet.org/journal/index.php/ies/article/view/11024/9867]
- Plack MM & Santasier LG. The Reflective Practitioner: Reaching for Excellence in Practice. Commentary, In *Pediatrics*. pp. 1545-1553, accessed online; 2005.
- Poon E, Kachalia A, Puopolo A, Gandhi T & Studdert D. *Cognitive errors and logistical breakdowns contributing to missed and delayed diagnoses of breast and colorectal cancers: A process analysis of closed malpractice claims* Springer New York; 2012 [doi:10.1007/s11606-012-2107-4].
- Shraw G & Sperling Dennison R. Assessing Metacognitive Awareness. *Contemporary Educational Psychology* 19, 460-475; 1994.
- Stewart DW, Brown SD, Clavier CW & Wyatt J. Active-Learning Processes Used in US Pharmacy Education. *American Journal of Pharmaceutical Education*; 75 (4) Article 68; 2011.
- Stiegler MP, Neelankavil JP, Canales C, & Dhillon A. Cognitive errors detected in anaesthesiology: A literature review and pilot study. *British Journal of Anaesthesia*, 108(2), 229-235; 2012 [doi:10.1093/bja/aer387].
- Tofade T, Elsner J & Haines ST. Best Practice Strategies for Effective Use of Questions as a Teaching Tool. *Am. J. Pharm Educ 77*(7):155; 2013.
- Zhang M, Lundeberg M & Eberhardt J. Strategic facilitation of problem-based discussion for teacher professional development. *The Journal of the Learning Sciences*, 20(3), 342-394; 2011.