Domain of Competence: Practice-Based Learning and Improvement

Ann E. Burke, MD; Bradley Benson, MD; Robert Englander, MD, MPH; Carol Carraccio, MD, MA; Patricia J. Hicks, MD, MHPE

From the Wright State University Boonshoft School of Medicine, Dayton, Ohio (Dr Burke); Department of Internal Medicine and Pediatrics, University of Minnesota Medical School, Minneapolis, Minn (Dr Benson); Association of American Medical Colleges, Washington, DC (Dr Englander); Competency-Based Assessment, The American Board of Pediatrics, Chapel Hill, NC (Dr Carraccio); and Department of Pediatrics, Childrens Hospital of Philadelphia, Philadelphia, Pa (Dr Hicks)

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Address correspondence to Ann E. Burke, MD, Wright State University Boonshoft School of Medicine, One Children's Plaza, Dayton Children's Hospital, Department of Pediatrics, Dayton, OH 45404 (e-mail: ann.burke@wright.edu).

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THE DOMAIN FOR self-directed learning and/or self-improvement as a physician is complex, involving 10 competencies focused on learning and improvement around abilities that allow a pediatrician to become a more masterful doctor. The notions of internal motivation, desire to improve and do better, and self-determination are all at work in this domain. Internal motivation is hard to directly observe but can be inferred by longitudinal observation of behaviors. Malcolm Knowles[1] first established the definition of self-directed learning as a process in "which individuals take the initiative (with or without the help of others) in diagnosing their learning needs, formulating goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes." Attributes of a self-directed, lifelong learner include

> one who exhibits initiative, independence, and persistence in learning; one who accepts responsibility for his or her own learning and views problems as challenges; one who is capable of self-discipline and has a high degree of curiosity; one who has a strong desire to learn or change and is self-confident; one who is able to use basic study skills, organize his or her time and set an appropriate pace for learning, and to develop a plan for completing work; one who enjoys learning and has a tendency to be goal-oriented.[2]

Practice-based learning and improvement lends itself to watching a learner over time, allowing for inference, over many episodes in which they demonstrate self-directed behaviors. These themes thread throughout the following milestones.

REFERENCES

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2. Guglielmino LM. *Development of the Self Directed Learning Readiness Scale* [dissertation]. Athens, Ga: University of Georgia; 1977.

Competency 1. Identify strengths, deficiencies, and limits in one's knowledge and expertise

Patricia Hicks, MD, MHPE

BACKGROUND: Residents' ability to identify their strengths, deficiencies, and limits in knowledge and expertise are related to their ability to self-assess and their ability to use feedback from external assessment. An early learner's awareness of his performance against an internal or external standard is often prompted by consequences or rewards within the educational system or other regulatory or institutional oversight. The motivation and vigilant awareness of this performance becomes more intrinsic with development. Guidance and external measures of knowledge and expertise will most likely continue to provide oversight (eg, maintenance of certification processes), although such oversight cannot determine the learning needs for individual physicians.[1]

The stimulus for identifying strengths, deficiencies, and limits in knowledge and expertise, when intrinsically motivated, usually arises from recognition of a gap in knowledge or skills identified in a particular clinical context.

Table 1. Facilitator Guide for Interactive Case-Based Discussion*

Generic Question	Specific Thinking Skills Induced
What are the strengths and weaknesses of X? Why is X happening? What are the implications of X?	Analysis/ability to draw inferences
What is the difference between X and Y?	Compare–contrast; differentiate
Explain why X (Explain how X)? What is the nature of X?	Analysis
What would happen if X?	Prediction/hypothesizing
What is a new example of X? How could Y be used to (achieve or result in) X?	Application
What is X analogous to?	Identification and creation of analogies and metaphors
What do we already know about X?	Activation of prior knowledge
How does X affect X?	Analysis of relationships (cause–effect)

*Modified from King.[8] The interactive case-based discussion is one in which residents' discussion could be observed, scored, and critiqued on the basis of the level and nature of inquiry as it relates to their level of knowledge, skills, and attitudes. Questioning by the learner reveals the current state of knowledge as well as that learner's ability to identify gaps in knowledge and understanding.

Table 2. A guide for the continuum of learner identification of level of knowledge, skills, and attitudes (KSA), including deficiencies and areas of strength. Achievement of this competency involves multiple areas of development and is therefore contingent upon achievement across all of these elements. Scoring this item is complex and may not reflect a synchronous progression along each of the elements, but rather a slower rate of achievement in some with a more rapid compensatory progression in others.

Aspect of Milestone	*Level 1*	*Level 2*	*Level 3*	*Level 4*
Level of learning hierarchy that is identified as present	*Identifies ability (or inability)* to follow instructions (to ***do*** what is told) for KSA Can compare and contrast with simple KSA to identify basic algorithms, patterns, or rules	*Identifies ability (or inability)* to actually ***comprehend*** the KSA	*Identifies ability (or inability)* to actually ***apply*** the KSA Accurately predicts ability to solve clinical questions	*Identifies ability (or inability)* to ***apply*** KSA in a ***differentiated fashion***, ***elaborating*** on content (able to apply KSA to abstract or novel clinical situations with specificity of case) Demonstration of KSA in teaching or supervisory role aligns with self-assessment of KSA
***Whether (or not) the identification* of strengths, deficiencies, etc. *is sought out or occurs* due to external influence**	External: (negative) consequence-driven	External: consequence → external rewards-driven	Intrinsic: rewards from learning, ease of work, comfort, satisfaction	Intrinsic: desire to acquire more knowledge and expertise for self-development, to better serve patients, to become the best physician possible (even when no one is looking or would notice)
***Factors influencing* likelihood of identification of strengths, deficiencies, gaps, etc. (whether internal or external)**	Recognition or anticipation of consequence or threat of (negative) consequence (external)	External prompts (pretest, priming assignment, other external query of KSA)	(Spontaneous or self-initiated) self-reflection or self-questioning (with or without acknowledgement of tension, uncertainty, ambiguity)	Learner response to dissonance with self: ideal model/image leads to broader self-assessment, needs assessment, or analysis of mastery/expertise
***Degree of Correlation* of identified strengths…compared to absolute or gold-standard measure**	Blissfully and unconsciously clueless of knowledge deficits	Aware, but unresponsive or unable to reconcile evidence of identified gaps	Able to globally identify extreme deficiencies or strengths; lacks gradation of assessment gaps	Able to understand strengths, deficiencies, and limits of KSA

KSA indicates knowledge, skills, and attitude.

*Includes deficiencies and areas of strength. Achievement of this competency involves multiple areas of development and is therefore contingent upon achievement across all of these elements. Scoring this item is complex and may not reflect a synchronous progression along each of the elements, but rather a slower rate of achievement in some with a more rapid compensatory progression in others.