

Instinctive Clinical Teaching: Erasing the Mental Boundary Between Clinical Education and Patient Care to Promote Natural Learning

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Abstract

Effective clinical teaching is essential in physician education, yet faculty members rarely receive formal training in clinical teaching. Formal models for training clinical educators are often tedious and require significant time and effort. Instinctive clinical teaching allows clinicians to seamlessly integrate and promote effective teaching into their clinical practice. The approach is guided by similarities between the

components of Kolb's experiential learning cycle—*concrete experience*, *reflective observation*, *abstract conceptualization*, and *active experimentation*—and the elements of the patient care process—*history* and *physical*, *initial assessment*, *differential*, *hypothesis*, *final diagnosis*, *management*, and *follow-up*. Externalization of these clinical thought processes allows for inclusion of learners and promotes effective clinical teaching.

Introduction

A major challenge for the clinical phase of medical education is the demand placed on clinical teachers, who must divide time between clinical, teaching, administrative, and other duties. When educational activities compete with other duties for physicians' time, it is often teaching that suffers. Although several models have been developed to increase effectiveness in clinical teaching,^{1–3} their implementation is cumbersome and requires specific training and a significant time commitment.

We present an integrated approach to clinical teaching that simplifies the relationship between a physician's clinical and educational duties. It is based on Kolb's experiential learning cycle⁴ and aims to erase the distinction between teaching and patient care duties. Kolb's 4-stage model of *concrete experience*, *reflective observation*, *abstract conceptualization*, and *active experimentation* illustrates how the learning experience is transformed through reflection. The stages of Kolb's cycle to a

considerable degree correspond to the elements of the patient care process. *Concrete experience* is gained during history taking, physical examination, and data collection; *reflective observation* is used during the initial assessment and formation of a differential diagnosis; *abstract conceptualization* yields a working hypothesis and diagnosis; and *active experimentation* leads to management and follow-up (FIGURE). This approach emphasizes that effective physicians are simultaneously effective educators who carry out teaching activities in a manner that is concurrent, intuitive, spontaneous, and instinctive.

Applying Kolb's approach to clinical teaching produces 4 fundamental tenets that facilitate effective teaching:

1. *Diagnose the learner's needs.* The skill set a physician uses to diagnose a patient's problem can be applied to diagnose a learner's need. Initially, preceptors may broadly draw out and assess a learner's existing knowledge, identifying gaps that enable preceptors to tailor their teaching to these needs.⁵

Case example: In an ambulatory clinic, a trainee describes a chief complaint of increasing pallor in a 15-year-old adolescent girl with prolonged menses. The learner reports pallor and increased heart rate with normal peripheral perfusion on physical examination but is unable to state a likely diagnosis. This reflects a weakness in the learner's ability to synthesize the information elicited from the patient's history of present illness and findings by physical examination.

2. *Think aloud.* Both learner and teacher should think aloud to enhance reflective learning. This is a

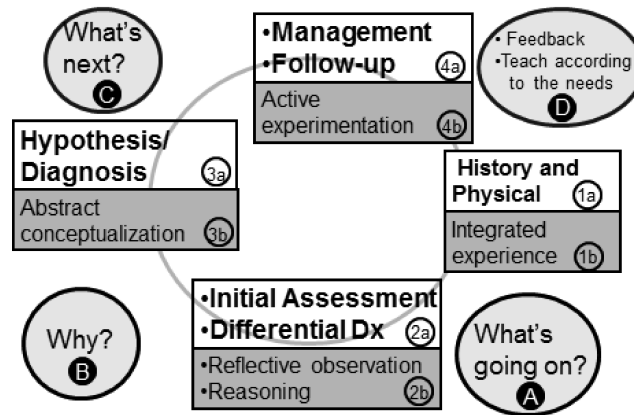
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Received July 29, 2013; revision received February 5, 2014; accepted May 13, 2014.

DOI: <http://dx.doi.org/10.4300/JGME-D-13-00277.1>

Patient Care Activities → Learning Activities



FIGURE

RELATIONSHIP OF PATIENT CARE ACTIVITIES TO STAGES OF THE EXPERIENTIAL LEARNING CYCLE

Numbers (1–4) represent stages of a patient care encounter (a) and their corresponding phase in the experiential learning cycle (b). Capital letters (A–D) represent the internal questions and thought processes that drive each cycle from one stage to the next. Instinctive clinical teaching encourages that these questions be asked of the learner rather than internally.

powerful way for a clinical teacher to model professional thought processes, and the learner gains insight into the mindset of a practicing physician, particularly his or her reasoning and decision making.⁶

Case example: The instructor might comment, “When I have a patient with pallor and tachycardia, I want to think broadly and consider common causes and pathophysiological mechanisms that lead to pallor with tachycardia. Do we have any clues as to why our patient may have noticed increasing pallor recently?” By verbalizing his or her own thought process, the instructor helps to develop a learner’s clinical reasoning skills.

3. *Challenge the learner.* Effective teachers test the limits of learners’ abilities. The goal is 2-fold: first, learners may demonstrate their comfort with the subject; second, and perhaps most important, they may identify gaps in knowledge and opportunities for further learning. When faculty give away the answers or simply recite facts, learners are deprived of opportunities to advance their knowledge and reasoning ability.

Case example: The preceptor allows the learner to reach his or her own conclusions regarding the likely causes of the patient’s pallor and tachycardia. This process allows a learner to solidify and build on his or her fund of knowledge rather than memorize a list of facts.

4. *Emphasize competency.* Competency-based learning objectives are the future of medical education.⁷ In contrast to the memorization-based method of traditional didactics and lectures, competency-based

learning objectives emphasize a learner’s ability to effectively collect data, synthesize information to generate a diagnosis, and formulate and implement a management plan. Competency is built through the active experience of integrating knowledge and clinical skills.⁸ This approach transforms the goal of the educational encounter from the acquisition of knowledge to dynamic application, empowering teachers to erase the distinction between patient care duties and teaching responsibilities. It allows educators to individualize their trainees’ learning experiences to facilitate learners’ professional formation.

Case example: The preceptor can teach the learner aspects of the diagnostic approach, pathophysiology, epidemiology, and management of pallor by focusing on strengthening the learner’s skills in data gathering, synthesis, clinical reasoning, and decision making.

Instinctive Clinical Teaching

In clinical education, each patient encounter is a learning experience where new information is internalized and applied in the context of previous knowledge and experience. This suggests that learners must provide students with the opportunity to effectively and efficiently internalize, process, and apply new information (ie, learn).

Effective physician educators balance patient care and teaching activities in a fashion that is spontaneous, natural, and instinctive. They invite learners to take part in the mental processes that drive clinical decision making. The fundamentals of patient care are similar to the experiential learning model.⁴ The 4 components are summarized in the

following sections, along with a description of their relationship to patient care activities.

Integrated Experience—History and Physical

Integrated experience defines when the learner encounters a new experience or reinterprets an existing experience, just as a physician encounters a new patient and interprets the information in the context of previous experience with similar complaints. During this phase preceptors might challenge learners to apply their clinical knowledge to the current problem, focusing on a broad differential diagnosis and added aspects of the history and physical.

In the case of our hypothetical patient, a teenager diagnosed with anemia, the learner may understand anemia, but that knowledge may be limited to infants with iron deficiency or children with blood disorders. In that context, a teenager with anemia presents a new situation that draws on familiar concepts, and the educator's goal is to facilitate the learner's ability to connect his or her established understanding with the new clinical presentation.

Reflective Observation—Initial Assessment and Differential

Kolb emphasizes that reconciling inconsistencies between a new experience and existing knowledge is of particular importance in reflective observation. In forming an initial assessment and differential diagnosis, physicians reconcile key points of the history with the physical findings to determine whether these support or disprove a particular diagnosis. The question shifts to "why": Why is a particular physical finding relevant to, consistent with, or inconsistent with the history? Questions posed to learners might focus on clinical and diagnostic reasoning to elicit the learners' thought process regarding the diagnosis, thereby ensuring that learners' thinking is logical and efficient.

For our example, the learner may be under the false impression that causes of anemia are either congenital or nutritional and appear only in childhood. The learner may not appreciate the importance of assessing heart rate and peripheral perfusion in determining the severity of anemia or may have trouble judging peripheral perfusion. These issues may be addressed by demonstrating the physical examination findings and challenging the learner to connect them to the history.

Abstract Conceptualization—Hypothesis and Final Diagnosis

Reflection gives rise to a working diagnosis—a hypothesis—based on application of information gained in the previous stages of the learning cycle. During the abstract conceptualization phase of the cycle, preceptor questions might focus on why one diagnosis is more likely than another. Once a diagnosis is reached, questioning learners about their plan for management can be tailored to their

level of knowledge and educational needs. In the case of the teenager with anemia, for example, the teacher may probe the learner's understanding by asking what causes might lead to anemia in this case.

Active Experimentation—Management and Follow-Up

The final stage of the cycle involves deploying the knowledge gained in the previous stages. In clinical terms, the physician executes the management plan that has been formulated based on the patient encounter. This stage also includes observing the results of that experimentation, such as tracking response to treatment, monitoring improvement, and providing long-term follow-up. At this stage the patient experience is reinforced in the learner, which allows for feedback and additional teaching as dictated by the learner's needs.

For our hypothetical patient with anemia, a learner's understanding of the case's teaching points can be reinforced by following up on the patient's test results and response to therapy. Another way to enhance understanding is to involve the learner in educating the patient's family about how to control menorrhagia and iron deficiency or by having the learner teach approaches to manage anemia in a didactic session.

Summary

Our approach to clinical education based on the experiential learning cycle integrates physicians' clinical work with their teaching obligations. In this way, preceptors can be effective educators even on a busy clinical service. The preceptors' questions should drive the stages of the learning cycle and the process of patient care (FIGURE). Engaging clinical learners requires faculty physicians to externalize internal questions, asking them of the learners in addition to themselves. The clinical experience allows the physician to be an effective teacher who combines subject matter expertise and pedagogical knowledge.⁹ The method described is learner focused and intuitive to physician-teachers, as it mirrors the clinician's approach to patient encounters. This relationship can facilitate effective teaching in clinical settings.

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