

Experiential Teaching Paradigms: Adapting the Medical Education Literature to Academic Pathology Practice

Candice C. Black, DO¹

Abstract

The medical education literature has presented many experiential teaching paradigms to help faculty teach more effectively in busy clinical settings. Three prominent teaching models are The Aunt Minnie model, the SNAPPS model, and the One-Minute Preceptor. Teaching paradigms can help faculty to develop into effective teachers. Each of these models can be adapted to a busy academic pathology practice. The Aunt Minnie model is effective in cases with high pattern recognition, such as repetitive trays of biopsies. The SNAPPS model is learner directed and is easily adapted for an advanced learner with complex cases requiring ancillary testing. The One-Minute Preceptor method is effective for teachers with groups of learners, such as multihanded scope sessions.

Keywords

faculty development, experiential learning, pathology teaching, teaching paradigms, teaching rounds, experiential teaching

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Many experiential teaching paradigms have been developed for use on bedside rounds and for busy medicine and surgery clinics. Sir William Osler is quoted as saying “Medicine is learned at the bedside and not in the classroom; the best teaching is that taught by the patient himself.”

The specialty of pathology is the same in many ways to medical and surgical specialties in that pathologists provide patient care in busy clinical settings. In anatomic surgical pathology, the clinical and radiographic history are reviewed as a pathology diagnosis is rendered, case by case. Special testing results must be incorporated into the diagnostic process and the final diagnosis must form a coherent explanation for the patient’s overall presentation. Pathology is different from medicine and surgery in that the pathologist may not meet the patient face-to-face and is serving essentially as a diagnostic consultant. It is the pathologist’s diagnosis that will guide much of the medical and surgical care for the patient. Surgical pathology rounds may be “scope-side” rather than the “bedside,” but the case-by-case medical review and reasoning process are otherwise the same.

Teaching pathology trainees during a busy scope session can be a challenge. In *Excellence in Clinical Teaching*, David Irby states that although clinicians have practice knowledge, they require a process to transform that into teaching knowledge for teaching purposes.¹ Teaching paradigms and teaching scripts may help to transform this knowledge.^{1,2} Pathology content experts may not be teaching experts. For a trainee, scope-side teaching can vary from an enriching, interactive learning process to a passive, administrative-heavy assistance role, without any correlation with the level of expertise of the teacher. Senior

¹ Department of Pathology and Laboratory Medicine, Dartmouth Hitchcock Medical Center, Lebanon, NH, USA

Corresponding Author:

Candice C. Black, Department of Pathology and Laboratory Medicine, Dartmouth-Hitchcock Medical Center, One Medical center Drive, Lebanon, NH 03756, USA.

Email: candice.c.black@hitchcock.org



expert faculty may be novice teachers, and new-in-practice faculty may be expert teachers.

Tailoring 3 popular medical teaching paradigms for use in academic pathology teaching programs is proposed. The 3 teaching paradigms are the Aunt Minnie model, the SNAPPS model, and the One-Minute Preceptor (OMP) model.³ These can provide a consistent framework and script for faculty to follow. It is vital that the faculty inform the trainee beforehand of the teaching method that will be used, so that the trainee can prepare, organize, and present the cases accordingly.

The Aunt Minnie Model for Pathology

The Aunt Minnie model focuses on pattern recognition. The name Aunt Minnie was taken from the expression, If the lady across the street walks like your Aunt Minnie and dresses like your Aunt Minnie, she probably is your Aunt Minnie, even if you cannot identify her face. It relies on recognition of common patterns of illness.⁴ The learner presents a case to the teacher and then limits the presentation to approximately 30 seconds, including the chief complaint and diagnosis. The teacher examines the patient himself and then signs off on the learners chart notes if all is correct.

In pathology, this model works best for subspecialties with large numbers of small repetitive types of biopsies. Endoscopic gastrointestinal biopsies, gynecologic biopsies, dermatopathology biopsies, and prostate core biopsies are all examples. The learner should be informed that the plan is to follow an Aunt Minnie model of sign-out. The learner has the opportunity to separate (as needed) these biopsy cases from any larger resection cases. The learner would then preview the cases and commit to a diagnosis or to a special testing plan in writing. The learner presents the main points of the case and the main diagnosis to the teacher when all cases are prepared. The learner limits the presentation to approximately 30 seconds, including the chief complaint and pertinent history and their opinion of the diagnosis. For example, the residents may say the chief complaint is bleeding, the pertinent history is that the patient is postmenopausal, and that after examining the biopsy, the diagnosis is endometrial carcinoma. The teacher would then review the slide and if they agree they can sign off on the diagnosis and move to the next case. If ancillary testing is needed, the attending can approve the list of testing orders and then move to the next case.

Critics of the Aunt Minnie model believe that trainees may learn to make snap judgments and would prefer a slower more Socratic method. In the Socratic method, following a history and physical examination by the trainee, the trainee lists the diagnostic differentials for the teacher, and the two discuss the pros and cons of each. Parts of the history and examination are discussed and there is a process of elimination until the most likely diagnosis is chosen. The method is thorough but time consuming. In the past, the preceptor may not actually have seen the patient.^{4,5}

Supporters of the Aunt Minnie model believe that many instances of repetition occur in medicine and learning to recognize the common is important. They believe the diagnostic

process should be made simple, straightforward, and demystified.⁴ Most practicing clinicians use this method to mentally sort diagnoses and to know when additional questions must be asked. It is necessary to know when the Aunt Minnie needs to transition into a Socratic method.

Another critique of Aunt Minnie is that trainees may try to speak for too long about each case, at least at first, and must have training and practice (a learning curve) before the method flows more effortlessly.⁶

The SNAPPS Model for Pathology

SNAPPS is an acronym for, *Summarize, Narrow Down, Analyze, Probe, Plan, Self-Directed Learning*. It was designed to develop clinical reasoning skills in internal medicine trainees through “learner-directed learning.”⁷ The formation and narrowing of the differential diagnosis is directed by the learner. Probing questions are asked by the learner to the teacher, rather than the other way around. This allows the learner to clarify areas they don’t understand, rather than the teacher giving a preformed lesson about a certain diagnosis.

In pathology, this works well with smaller numbers of complex cases that require large ancillary testing panels and have longer differentials. It is better for an experienced learner, rather than a novice, and for a learner seeking more autonomy. Pathology subspecialties that are well-suited for the SNAPPS model include hematopathology, soft tissue pathology, salivary gland tumors, and neuropathology. The learner should be informed that an SNAPPS model will be used to work through a case. The learner can be given a few cases and report back later in the day after a preliminary review of each case is prepared.

The learner will review the clinical history, the surgical specimen, and the slides (Summarize phase). They will narrow the differential to 2 or 3 entities (Narrow phase). They will decide special testing that would be necessary to differentiate each diagnosis. This may be a list of possible molecular genetic tests, immunohistochemical tests, or other tests (Analyze phase). At this point only, the learner returns to the teacher to present each case and to probe the teacher with questions. The learner can edit their plan accordingly. When the faculty person is in agreement, and the learner has exhausted all of their questions, the learner will then initiate the plan (Plan phase). The learner then directs their own learning through the use of journal articles, books, and slide study sets, to augment their learning and deepen their understanding of similar cases with variations. The preceptor should encourage the learner to identify their learning goals at the start of the exercise, in order to strengthen the sixth step, self-directed study.^{7,8} An up-front learning goal can also assist the pathologist in choosing an appropriate case or cases to share with the learner at the start of the session.

Critique of the SNAPPS method is that it requires a full education of the 6 steps by both teacher and learner before it can be deployed.⁸ Strengths of this method are multiple. In a study of traditional case presentation versus SNAPPS method,⁹ the SNAPPS group of learners were found to present the differential diagnosis and final diagnosis more clearly. They also

opened discussion with the preceptor about care management 20% more often.

The SNAPPs method has also been praised for reducing the shame that a learner may feel from not knowing the answer to a question that is asked by the preceptor.^{7,8} It also eases the burden off of the teacher to ask all of the questions or to recite a mini-didactic on a particular subject.

The One-Minute Preceptor for Pathology

This technique was designed for use during busy clinical practice, to teach and give immediate evaluative feedback.¹⁰ It is very good for use with groups of learners and one faculty person, especially when time is at a premium and the teacher knows something about the case. In this paradigm, the preceptor (1) gets a commitment from the learner, (2) probes for supporting evidence, (3) teaches general rules and “thinks out loud,” (4) tells the learners what they did right, and (5) corrects the learners’ mistakes.

In pathology, group teaching occurs frequently at multi-headed microscope sessions. It is common in academic pathology departments for faculty to show “unknown” or interesting slides to groups of learners or consultation cases from personal consult services.

Using this method, after showing the slide, the first step is to ask an open-ended question. This could include “What tissue type or organ system are we looking at?,” “What do we think our next step should be?,” “What value can we add in this diagnostic report?”

The teacher must not ask leading questions or presuppose the answer (ie, “this lung shows more than pneumonia, right?”) and also must patiently wait until the group commits, even if there is awkward silence. If there are multiple levels of trainees at the scope, it is best to begin asking question of the less experienced learner to avoid embarrassment of the more senior learners. After learners commit to a diagnosis, the teacher probes for more supporting evidence in the form of questions, “What lead you to that conclusion and what else could this slide represent?”

It is still not best to offer the “answer” yet, and it is not useful to ask about ancillary testing yet. If a student offers a test result right away, such as this tumor is TTF-1 negative, for instance, the teacher should ask, “why was that test performed?” and “how could the result inform the diagnosis?” rather than giving the diagnosis. The teacher should then teach general rules about this area of diagnosis and think out loud. The teacher could explain classic differential diagnoses for this type of case and only then reveal the correct diagnosis.

The teacher can reinforce what the group did well and give specific feedback about what went wrong in their reasoning, if they were wrong. The teacher can ask the whole group to self-assess where they might have made an assumption and how they could have prevented that.

Much can be learned through slow and patient teaching such that the OMP could be renamed 10-minute preceptor for

Table 1. Application of Experiential Teaching Methods for Pathology.

Teaching Method	Useful Applications in Pathology
The Aunt Minnie model	For many small cases with a high degree of repetition
The SNAPPs method	For advanced learners with more complex cases
The One-Minute Preceptor model	For multiheaded microscope group sessions

pathology. Even small numbers of cases can be made meaningful from a teaching standpoint with this method.

In a study that compared the OMP method to the SNAPPs method for case presentations,⁶ learners responded that they “strongly agreed” that the OMP method made it easier to bring up and initiate discussions regarding management plans. The authors determined that the management plans were discussed beginning in the second step of OMP, whereas the SNAPPs method encouraged uncovering deficits for and by the learner. In line with this, the same group of students scored the SNAPPs higher for “easier to ask questions and (clarify) uncertainties” and easier to discuss “learning issues.”

The OMP can be a challenge to the novice preceptor, as they are leading the flow and pace of the method. It has been recommended as a “tip” for the novice teacher to have a few open-ended questions ready at the start of the session.¹¹ Useful questions for pathology precepts include “How do you plan to proceed?,” “What factors did you consider in making your decisions?,” and “How confident are you in that approach or decision?”

Conclusion

In summary, academic pathologists can utilize experiential teaching paradigms from the medical education literature to enhance the educational value of surgical pathology sign-out. The clinical reasoning involved during the setting of the microscope sign-out closely mirrors that of other specialties. The challenge of “faculty development” is shared throughout medicine and surgery. The American College of Nurse Midwives has identified a lack of preceptors as a root cause of not meeting their goal of 1000 new graduates per year and has employed SNAPPs and OMP in order to begin to instill confidence in midwife teachers.⁸ Like many faculty, some reluctance to teach stems from the lack of development of that skill set and likely from feelings of “inadequacy.”⁸ For learners, the use of teaching paradigms makes them less likely to feel that they have been interrogated or subjected to personal criticism.⁴ This serves to improve confidence and wellness in the trainee and to foster a positive relationship between teacher and learner. The enemy of any teaching paradigm however is the teacher believing that they must always be right and never reveal that they are wrong; “the air of omniscience is a snare for all teachers.”⁴ The applied teaching and use of these 3 methods, the Aunt Minnie, SNAPPs, and OMP, can be used in pathology to develop faculty into effect teachers (Table 1).

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