

Chapter 10

Collaborative Learning for Histopathology Education

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ABSTRACT

The authors have developed a pedagogical approach to the teaching of histology and histopathology using a team-based, collaborative learning model. To accomplish this, students are assigned to small groups of “microdissection” teams, mirroring the approach used in gross anatomy dissection. These collaborative groups present the case, including history, relative labs, imaging, gross pathology, and microanatomy, to their classmates. Each clinical case contains normal and abnormal virtual microscopy slides with links to key areas of interest, as well as hyperlinked references to the medical literature (the electronic pathology text or an article from a general medical journal, e.g., The New England Journal of Medicine®). In order to facilitate this collaborative process, they use Microsoft Office 365® and the included OneNote® program. The approach has facilitated integration of histopathology into the curriculum with more interactive laboratories stimulating active learning to build improved diagnostic skills for the learners.

INTRODUCTION

Over the course of our combined 70+ years of teaching histology and histopathology in the pre-clinical phase of medical school, we have recognized that histology, and closely-related histopathology, are among the difficult subjects for medical students to master. Indeed, at the end of two years of coursework, the majority still seem to

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see only blobs of pink and blue! Most students seem to focus on color or artifacts on their slides, rather than identifying the relevant diagnostic or pathognomonic morphological features. In retrospect, that should not be a surprise to those of us who are long-term medical educators. We often select medical students for admission to American medical schools based (largely) upon the standardized Medical College Admission Test (MCAT®) test, which consists of multiple choice questions. That standardized test tends to provide an advantage to those students who happen to possess the necessary learning skills to memorize and process large amounts of data (Pelley & Dalley, 2008; Pelley, 2018). Introverted, intuitive students (as determined by the Myers-Briggs Type Indicator®) (Pelley & Dalley, 2008; Pelley, 2018) may be at a disadvantage, as can be seen in Table 1 (Pelley & Dalley, 2008). Other types of learning inventory instruments, such as the Kolb Learning Style Inventory® classifies learners as “accommodators, assimilators, convergers, or divergers” (Kolb & Kolb, 2013). The Kolb Learning Inventory has shown that most of first-year medical students are “assimilators” and “convergers,” although their learning style may change over the course of the undergraduate medical school curriculum (Engels & de Gara, 2010; Gurpinar, Bati, & Tetik, 2011). The study by Gurpinar et al. (2011) showed that the type of curriculum was not the driving force in the change in learning style. In contrast to medical students, medical residents and faculty are predominantly convergent and accommodative, with no statistically significant difference between residents and faculty members (Engels & de Gara, 2010).

Table 1. Well-developed type skills and underdeveloped type skills

Well-Developed Type Skills		Underdeveloped Type Skills	
Extraversion	Introversion	Extraversion	Introversion
Active approach	Reflective approach	Hyperactive	Withdrawn & secretive
Bring breadth	Bring depth	Superficial	Overly serious
Sensing	Intuition	Sensing	Intuition
Practical	Imaginative	Slow & dull	Careless
Brings data	Brings perspective	Narrow focus	Impractical & dreamy
Thinking	Feeling	Thinking	Feeling
Analyzes situations	Affiliate people	Cold & uncaring	Easily hurt
Brings consistency	Bring harmony	Overly competitive	Overly sentimental
Judging	Perceiving	Judging	Perceiving
Decisive	Inquisitive	Overly opinionated	Indecisive
Bring a plan	Bring options	Controlling	Procrastinating

Source: Adapted from Success types in medical education: A program for improving academic performance. Retrieved from <https://www.ttuhsu.edu/medicine/medical-education/success-types/documents/stsinmed.pdf>

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