Understanding our students and how they learn: preferred learning styles of undergraduate gross anatomy students.

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Abstract
INTRODUCTION. Students learn and process information in many different ways. Learning style instruments are useful as they allow instructors to learn more about students, as well as aid in the development and application of useful teaching approaches and techniques. At the undergraduate level (i.e., primarily students working on their first bachelor’s degree), there is a noticeable lack of research on learning style preferences of students enrolled in gross anatomy. METHODS. The Index of Learning Styles (ILS) questionnaire, developed by Drs. Richard Felder and Linda Silverman, which indicates students’ preferred learning styles in four dimensions, was administered to students enrolled in a large enrollment undergraduate gross anatomy course with laboratory to determine their preferred learning styles. SUMMARY. The preferred learning styles of students (n = 505) enrolled in an undergraduate gross anatomy course were active (51.9%), sensing (85.1%), visual (81.2%), and sequential (74.4%). CONCLUSIONS. An understanding of students’ preferred learning styles should guide course design. Based on the preferred learning styles of the undergraduate students in this particular gross anatomy course, course activities should be hands on (i.e., active), the course should be grounded in concrete information (i.e., sensing), the course should utilize visual representation such as images, figures, models, etc. (i.e., visual), and the course curriculum should move in small, incremental steps that build on each topic (i.e., sequential).

Introduction
Accounting for individual learning styles is not a new idea. As early as 334 BC, Aristotle said that “each child possessed specific talents and skills” and he noticed individual differences in young children (Cambiano, De Vore, & Harvey, 2001). Learning styles can be defined, classified, and identified in many different ways. Students who possessed all preferences of the ILS questionnaire had their scores calculated (i.e. their respective learning styles for the four domains) and entered into an Excel database. The dichotomous coding for the different dimensions were:

- Active learners were scored as a “1”, while those scored as reflective learners were coded with a “0”.
- Sensing learners were coded with a “1”, while those scored as intuitive learners were coded with a “0”.
- Visual learners were coded with a “1”, while those scored as verbal learners were coded with a “0”.
- Sequential learners were coded with a “1”, while those scored as global learners were coded with a “0”.

After coding, the data was transferred into SPSS and descriptive statistics were conducted.

Results
There were 576 students initially enrolled in Anatomy 2300 for the spring 2015 semester. At the administration of the ILS and demographics survey, which was presented to all enrolled students during the first laboratory sessions of Unit II (i.e., Upper Limb Unit), there was approximately 555 students still registered for the course. Of these 555 students, 505 consented to use of their responses for the study. This provided a 90.10% response rate for the demographics and preferred learning styles results. Figures 1 through 4 depict the preferred learning styles determined through descriptive statistics.

Conclusions
An understanding of students’ preferred learning styles is twofold in terms of usefulness. On one hand, this understanding is beneficial to instructors in order to recognize the different learning styles of their students, which can help guide course design. Based on the preferred learning styles of the undergraduate students in this particular gross anatomy course, course activities should be hands on (i.e., active), be grounded in concrete information (i.e., sensing), utilize visual representation such as images, figures, models, etc. (i.e., visual), and should move in small incremental steps that build on each topic (i.e., sequential).

On the other hand, allowing students to fill-out learning style instruments to determine their learning styles enables students to better prepare themselves for their academic careers. Providing students with such information, along with descriptions of each of the learning styles and study strategies for each particular type of learner, can aid in student self-regulation during studying and facilitate metacognition for the student.

If you are interested in utilizing the ILS in your course, please contact Dr. Richard Felder (rmfelder@mindspring.com).

References