Appendix A. Descriptions of each individual theme relating to student excitement

Please explain what would have made you more excited to participate in these sessions.

Feedback Theme - Excitement	# of Codes (% of total)
Poor Timing of Sessions/Not Scheduled	17 (26.2%)
Applicable to Clinical Setting	9 (13.8%)
Desired More Time/Opportunities	8 (12.3%)
Active Clinical Demonstrations (positive)	7 (10.8%)
Lacked Understanding of Ultrasound Basics	7 (10.8%)
No Incentive to Learn/Not Tested	5 (7.7%)
Environment not Conducive to Learning	4 (6.1%)
Instructors (positive)	3 (4.6%)
Instructors (negative)	3 (4.6%)
Student Unprepared for Session	2 (3.1%)
	65

Poor Timing of Sessions/Not Scheduled: Students expressed great concern regarding the scheduling and organization of US sessions. To some students, US felt like an add-on to lab, rather than an actual component of the course. Because there was not dedicated US time, students felt like they were getting behind in dissection when attending the sessions, an obstacle that put them behind schedule, which made some students skip sessions altogether. Several students stated that explicitly posting an US schedule on Brightspace – indicating which groups would be completing US on which day/time – would make the sessions more interesting, as students found it difficult to immediately switch from elbows deep in dissection to scanning in the radiology room. Additionally, putting US sessions earlier in the block to avoid times closer to exams, as well as rotating the order of groups, would allow for all students to have adequate time in the radiology room.

Applicable to Clinical Setting: Students expressed positive comments regarding US and how these sessions prepared them for clinic learning. These students were excited to participate, appreciated seeing anatomy structures from a clinical point of view, and found the session to be helpful, fun, and a great asset to the lab.

Desired More Time/Opportunities: Students expressed interest in having more sessions, thus giving them additional time to work with US and also making sessions feel less rushed.

Active Clinical Demonstrations (positive): Students expressed similar thoughts that framing the US session with a clinically-relevant focus would increase their interest during these sessions. Suggestions included covering US applications during radiology lectures, centering the

sessions around a hypothetical patient with pre-session review items and session objectives, active demonstrations (e.g., flexing muscles to view tendons), providing examples of pathological US scans, and centering US sessions around cadavers.

Lacked Understanding of Ultrasound Basics: Students expressed their lack of basic understanding of US instrumentation and physics prevented them from fully engaging during the sessions. Multiple students stated that the webcasts were not helpful or commented that having an Ultrasound 101 webcast covering terminology, orientation, technique, etc. would be helpful to their learning.

No Incentive to Learn/Not Tested: Students expressed a genuine interest in learning US, but because there were no US-related exam questions, learning US did not feel necessary to master the anatomy course. Because US was not tested, learning US took lower priority given the large volume of material in the course. Some students skipped US sessions because they did not find them necessary to learn.

Environment not Conducive to Learning: Students expressed concerns that they were not comfortable with the learning environment, whether scanning their peers, feeling rushed by their peers, or using US while in their dirty scrubs. Suggestions included having an additional session outside of anatomy lab which would offer a clean environment where students could learn at their desired pace.

Instructors (positive): Students expressed general positive comments regarding the US radiology and anesthesiology instructors, including that the sessions were explained very well, and the facilitators were informative.

Instructors (negative): Students expressed concerns that instructors lacked enthusiasm during the sessions and would at times diverge off-topic.

Student Unprepared for Session: Students expressed ideas that they weren't able to follow along because the US demonstrations often covered anatomy/structures that were covered just minutes prior in lecture. Immediately using US to visualize the structures did not give students adequate time to become competent with the anatomy to the extent that they could identify/mentally manipulate the structures on US.

Appendix B. Descriptions of each individual theme relating to perceived value

Please explain why you did or did not find this information valuable.

Feedback Theme – Perceived Value	# of Codes (% of total)
Clinical Utility (positive)	27 (40.9%)
Aided Learning of Anatomy/Structures	12 (18.2%)
Provided Basic Ultrasound Appreciation	12 (18.2%)
No Incentive to Learn/Not Tested	10 (15.2%)
Lack of Session Structure/Adequate Time	3 (4.5%)
Clinical Utility (negative)	2 (3.0%)
	66

Clinical Utility (positive): Students expressed positive comments that US sessions were a valuable asset to lab that should be retained for future years. Getting early exposure to US helped many students, as it introduced them to certain specialties early in their career explorations and gave them skills they could use immediately (like understanding his or her preceptor in Clinical Apprenticeship when reviewing a scan). Students appreciated learning US in a low-risk setting before scanning real patients. Many students found learning basic US principles to be foundational to their futures in medicine, whether they will be performing scans themselves or simply interpreting US imaging.

Aided Learning of Anatomy/Structures: Students expressed enhanced learning of anatomy as a reason why US sessions were valuable. Seeing structures on US provided a new view, different than those provided by textbooks and Netter's Atlas. Using US to visualize structures provided another dimension to learn and remember anatomy, thus improving students' mental maps of the human body. Students appreciated when structures covered in US sessions were relevant to the current lecture block, and suggested incorporating anatomy pathology into sessions and relevant US images into radiology lectures to further solidify concepts.

Provided Basic Ultrasound Appreciation: Students expressed appreciation for gaining a basic understanding of US to build from, although several students noted they are not comfortable actually performing US following these sessions. Students saw these sessions as a surface-level introduction to US that deepened their appreciation for and knowledge of US prior to beginning anatomy lab.

No Incentive to Learn/Not Tested: Students expressed difficulty in retaining and remembering information from these sessions, as the frequency of sessions did not allow for long-term learning and retention. Some students viewed these sessions as a drag during class because they were more concerned with passing other components of the class. This was echoed in other

comments, where students commented that classmates were not interested in attending since there was no required learning from the sessions. Some students mentioned that including US material on either lecture or lab exams would raise their incentive to learn the material and derive value from it.

Lack of Session Structure/Adequate Time: Students expressed inadequate time in- and outside of lab, as well as a lack of structure, as reasons why they did not find this information valuable. They asked for more defined goals with adequate time and access to achieve these goals would allow students to gain more from US exposure.

Clinical Utility (negative): Students expressed concerns regarding the relevance of how physicians actually use US in clinic, as this was not made clear during the sessions.