

To: Debra Rudder Lohe

From: Donna Duberg, M.A., M.S., MT(ASCP)SM
Biomedical Laboratory Science Department

Re: 2015 *Try It* CTTL Summer Mini-Grant Results Report

Date: August 16, 2016

Project Title: Documentation of student performance in a medical mycology laboratory course to provide for efficient and effective real time debriefing of organism identification

[Submitted for MLS 4530 & 4560 Medical Mycology w/Laboratory taught Spring, 2016]

Briefly describe the grant-funded experiment and its goals

Since there is only one small white board in our laboratory room, my proposal was to purchase two rolling white boards which each had two sides on which our MLS 4530 & 4560 Medical Mycology w/Laboratory students would draw their fungal organism in detail as they used the microscopes – with two rolling boards and the one white board up front, we could do 5 organisms at a time, and at least 10 organisms per 2-hour laboratory class period. This pedagogy was selected to maximize laboratory time while we had the prepared slides on the microscopes and the students could actually find each of the detailed structures in our drawings. I as the instructor would then look for the structures they may have missed or that need emphasizing either on the drawings or on the image they showed me on the microscope. This teaching/learning style would free up lecture time to discuss content specific to disease states, specimen collection and processing, and treatment.

Articulate what worked as expected and what did not

Most of June and July, 2015 was spent finding the vendor from whom to order the whiteboards and arranging the billing so that the grant would pay for the first \$1000 and the rest (~\$900) would be funded from our department, Biomedical Laboratory Science. The CTTL were very helpful – providing information on size, hooks for the flip charts and most importantly to have the company assemble the boards since this had proved to be a difficult task when they did theirs.

I looked for more detailed descriptions and/or images of our fungal organisms to help the students identify all the structures they need to be identifying in their preparations of fungal organisms and then draw on the white boards. There were no newer reference editions so I did not purchase any. [Note: for the parasitology courses I mention later in

this report, I did find that the CDC provided free CDs with images of many of the parasites we were studying including ones for which we did not have slide preparations. There was also a web link which we could access these images in class if the CD was not handy.]

I had planned to prepare a discussion and to demonstrate how we were going to use the white boards for the first lecture session but I did not. Instead I gave them a detailed list of the structures that had to be represented on their drawings or noted that the structure was absent for that genus/species. The process we followed was: the student drew her/his organism on the white board in black, brown, or blue marker, the rest of the class then debriefed the drawing adding or modifying the information as needed, we (the entire class including me now) then instructed the “artist” to use a red marker to place an asterisk (*) next to or to circle the distinguishing characteristics. The red really showed well in the pictures taken on their cell phones.

Identify ways the faculty member may draw upon these lessons and/or use the pedagogical innovation in the future

I also used the white boards in my MLS 4540 & 4570 Medical Parasitology w/Laboratory courses which I taught in the same format as mycology but it worked even better than the mycology experience because our prepared parasitology slides are not as easy to read as the mycology preparations. See the pix:



Photo used with permission. From left to right: Rhena Singh, Anthony Catalano, Jessica Nguyen, Jordyn Huston, Christine Bennett, and Donna Duberg (instructor)

Our BLS 1150 Foundations of Medical Laboratory Science Laboratory course is team taught (5 faculty members) in the Fall semester and is also taught in the same room as our mycology course. These sections can have as many as 20 students in them with the students sitting facing each other at laboratory work benches. This makes seeing the one small white board at the front of the laboratory difficult at best. We moved each of the white boards close to each “pod” of students and posted key information about the laboratory activities for that class and to debrief the testing results immediately after each the small groups finished. This class is composed of freshmen and sophomores

so we felt this would be a great opportunity to familiarize them with this pedagogy - it worked very well.

**Describe lessons learned and possible applications for other faculty members and
Identify ways the faculty member may draw upon these lessons and/or use the
pedagogical innovation in the future**

While having the cell phone pictures of the drawings available was OK, I will be ordering flip charts and more colorful marking pens this semester so we can keep a more readily visible large permanent copy of drawings. Each week's fungal (and parasitic) organisms will be posted around the lab so we can compare and contrast the different fungal disease groups as we learn them.

This format/approach might be useful in our Analytical Chemistry Laboratory course where the students could work out their calculations and/or post their test results for the rest of the class to use for their laboratory report(s).

Since classroom availability is getting more difficult to find especially for small groups, the research faculty could have their weekly laboratory meetings in our teaching laboratory with this expanded amount of white board space to record the brainstorming of approaches to their research models, to delineate methods and highlight critical steps, to verify calculations of the data collected, and to outline the "results" and "conclusion" sections of the report/paper.