Utilizing Virtual Microscopy to Enhance MLS Curriculum

LINDSAY GILBERT, CHERIKA ROBERTSON, CATHERINE SMITH, JASON KEY, LETYCIA NUNEZ-ARGOTE

ABSTRACT

PROBLEM: Laboratory science students need the opportunity to complete real-life laboratories outside of the classroom. The main goal is to improve competency levels among students in the areas of identifying microbiology, hematology, body fluid, and cytology disorders. By creating an interactive learning environment through virtual slide assignments, students can practice microscopy skills continuously without access to laboratory equipment.

METHODS: To address this need, the faculty developed virtual slide exercises through the Leica Biosystems website using Aperio Slidehosting software. A preliminary study was implemented in the microbiology course by incorporating digitally scanned gram stains into the laboratory curriculum. To determine the general attitude toward learning through virtual microscopy, a 5-level Likert scale questionnaire was issued to the microbiology students.

RESULTS: There was a 50% response rate from the students. One hundred percent of the students felt the virtual exercises provided the needed additional practice, 100% felt the exercises reinforced the lecture and laboratory content, 89% felt the exercises helped them acquire useful microscope skills, and 75% felt the online software was easy to use. The supplementary training provided students ownership of their learning and increased laboratory performance.

CONCLUSION: The preliminary results of the questionnaire indicate the lessons improved the students' overall ability to correctly identify cells, perform cell counts, and identify bacteria in patient samples. The Department of Laboratory Sciences has also developed virtual slide exercises for hematology, body fluids, and cytology courses. Additional survey results will be determined at the end of the fall 2017 semester.

ABBREVIATIONS: MLS - medical laboratory science.

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***Lindsay Gilbert**, University of Arkansas for Medical Sciences*

***Cherika Robertson**, University of Arkansas for Medical Sciences*

***Catherine Smith**, University of Arkansas for Medical Sciences*

***Jason Key**, University of Arkansas for Medical Sciences*

***Letycia Nunez-Argote**, University of Arkansas for Medical Sciences*

***Address for Correspondence: Lindsay Gilbert**, University of Arkansas for Medical Sciences, lwgilbert@uams.edu*