



Abstract / Introduction

The Kabul University of Medical Science (KUMS) in Kabul, Afghanistan, began a Medical Laboratory Technology program in 2012. The program has struggled to achieve expected student outcomes due to limited capital resources amid complex political and geopolitical challenges. The University of Minnesota (UMN) received a grant through FHI-360 and USAID to help strengthen KUMS faculty's capacity to deliver a quality educational program and produce workforce ready graduates. To support KUMS faculty we started with a comprehensive curriculum review and faculty mentorship in instructional design and instructional technology. Because of significant barriers to face to face interaction in the United States or Afghanistan, participants met in other countries with support from local collaborators and universities. Interactive workshops were held in Kigali, Rwanda with cooperation from faculty from the University of Rwanda (UR), Rwanda Biomedical Center (RBC), and National Reference Laboratory (NRL) in Rwanda. Through this multinational collaboration and with instructional facilities provided by the NRL, faculty from the NRL, UR, and UMN were able to establish mentoring relationships with KUMS colleagues and gain critical insight into the needs of the KUMS faculty as they developed their academic program. Curriculum redesign resulted in a significant shift of student credit load from practical "training" courses to theory based lecture courses. Laboratory instruction was redesigned to focus on understanding and performance of fundamental skills and techniques rather than specific diagnostic testing methods. Workshop activities provided opportunities to practice simulated laboratory exercises. KUMS faculty who attended the workshops were able to develop sufficient experience with curriculum design methods to revise their individual courses as well as mentor other faculty back in Afghanistan. KUMS, NRL, UR, RBC, and UMN faculty relationships will continue to develop through regular contact via web conferencing, as well as extensive email exchanges regarding course design and evaluation of instructional content.

Curriculum Redesign

Prior to face to face meetings, KUMS provided UMN faculty with a complete curriculum map. During a kick-off meeting in 2017 in Bangalore, India, programmatic needs were further assessed. The curriculum underwent in-depth review and the review was presented to the KUMS faculty at the first exchange in Kigali, Rwanda in January of 2018. Alignment, sequencing and emphasis were frequent issues in the KUMS MLT curriculum. The curriculum emphasized practical instruction in teaching laboratories. KUMS faculty dramatically altered their curriculum within institutional constraints to incorporate review findings. As a result, emphasis shifted from practical laboratory instruction (76 practical; 64 didactic credits prior to review) to didactic instruction in theory (65 practical; 76 didactic after review); a shift of ~36 credit hours of instruction.

Mentorship in Lesson Development

During curriculum review at the first exchange in Kigali, emphasis was placed on appropriate alignment of course materials with course goals and objectives. Each participant developed individual lesson plans and received feedback from UMN faculty via email. In light of these extensive curriculum review and lesson development activities, participants began the second exchange with well developed understanding of these concepts. New participants at the second exchange reported comfort with concepts due to knowledge transfer from previous attendees. Participants reported modest but not significant gains using specific components of curriculum design after the second exchange.



Left: KUMS participants shared content from the first exchange with other faculty at their institution.

Below: KUMS participants engaged in a simulated laboratory exercise.



Short Course Outcomes Supporting Faculty Development

In response to participant interest, a series of short courses addressing specific content areas was planned. Fundamental concepts of curriculum design, alignment, and content selection were modeled to reinforce concepts previously presented. Activities were developed to highlight the value of practical simulation in a teaching laboratory and delivered with logistical and instructional support from the UR and the RBC/NRL.

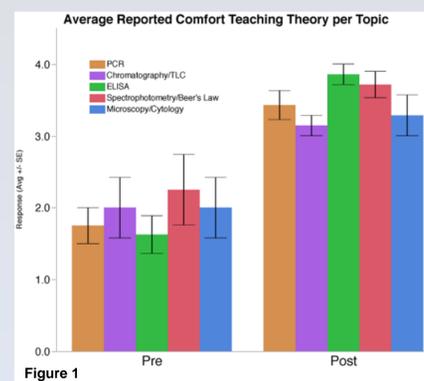


Figure 1

Figure 1. Participants reported increased comfort teaching theory. Participants reported significantly increased comfort in each topic area. (n=8, p<0.01 for each topic compared to pre exchange survey, ANOVA followed by Tukey-Kramer post hoc test)

Figure 2. Participants reported increased comfort teaching technique. Participants reported significantly increased comfort in each topic area. (n=7, p<0.01 for each topic compared to pre exchange survey, ANOVA followed by Tukey-Kramer post hoc test)

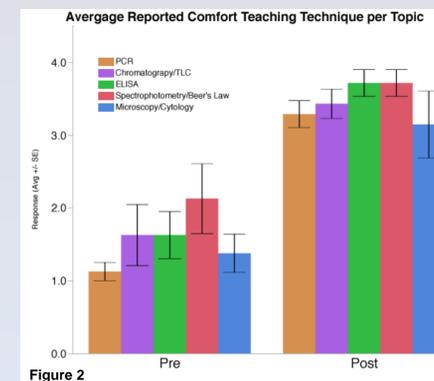


Figure 2

Discussion & Future Directions

Kabul University of Medical Science is the oldest higher educational institution in Afghanistan, established in 1932. It currently educates students in an array of disciplines including radiologic technology, anesthesia technology, midwifery and medical laboratory technology. The medical laboratory program was established in 2012, with its first cohort of students graduating in 2016. The current work was initiated to develop the clinical knowledge and educational skills of KUMS faculty to educate future health care professionals and to develop the pedagogical and leadership competencies to implement, evaluate and improve curricula. Short courses highlighted the need for the involvement of trained laboratory practitioners in medical laboratory education. At least three additional laboratorians were recruited as instructors, educated by faculty on content delivered in the first exchange, and are now integral to programmatic review and reorganization.

In spite of the short contact time, it's clear that these kinds of activities, though limited in scope, can have a direct and immediate impact on the educational capacity in low resource settings and may not be solely applicable to laboratory science. Further, RBC/NRL co-faculty gained insights into international collaboration in laboratory science education modeled by UMN faculty. With another exchange scheduled for late summer 2018, additional, more in depth instructional design theory will be presented that includes modeling of instructional design by KUMS faculty. We hope that this effort will establish the foundation of current educational theory and techniques that will allow KUMS to continue to build capacity in Medical Laboratory instruction into the future.

Acknowledgments

The University of Minnesota partnership with Kabul University of Medical Sciences is part of the United States Agency for International Development (USAID) Afghanistan University Support and Workforce Development Program (USWDP) - a five-year project that aims to increase the skills and employability of professionally-qualified Afghan men and women in the public and private sectors. This poster is made possible by the support of USAID and FHI 360 through award number AID-306-A-13-00009 (CMP). The contents are the responsibility of the authors and do not necessarily reflect the views of USAID, the US Government, or FHI360.

