

Faculty First Grant Report - 2016

Engaging all learners: Use of multimedia for instruction in the Principles and Practices of Surgery

Karen Tobias, Ph.D. Department of Small Animal Clinical Sciences

Project Overview and Course Overview

The purpose of this projects was to develop an online, multimedia laboratory manual for VM835 Principles and Practices of Surgery. This course provides instruction on basic and critical surgical skills to 2nd year professional students in the College of Veterinary Medicine. The same skills are required of medical students in general and of researchers performing aseptic and minor surgical techniques on laboratory animals, and an online manual would be perfect for enhancing their skills as well.

Semesters the course has been and/or will be taught

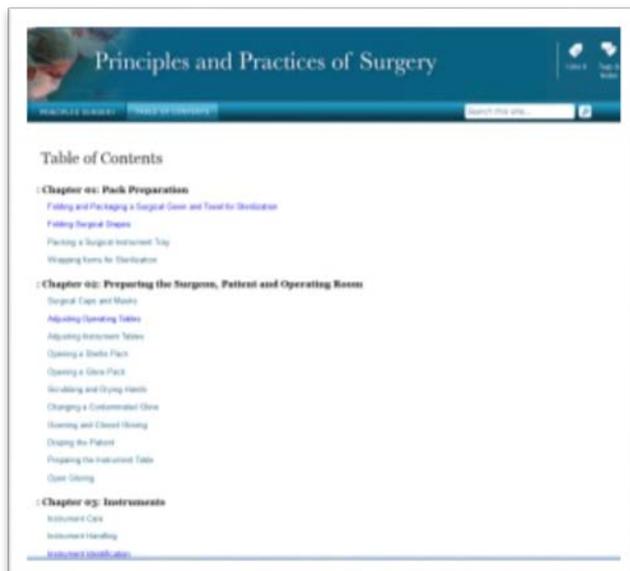
The developed material will be implemented in its current format in the 2017 Fall semester in VM835.

Number of students affected

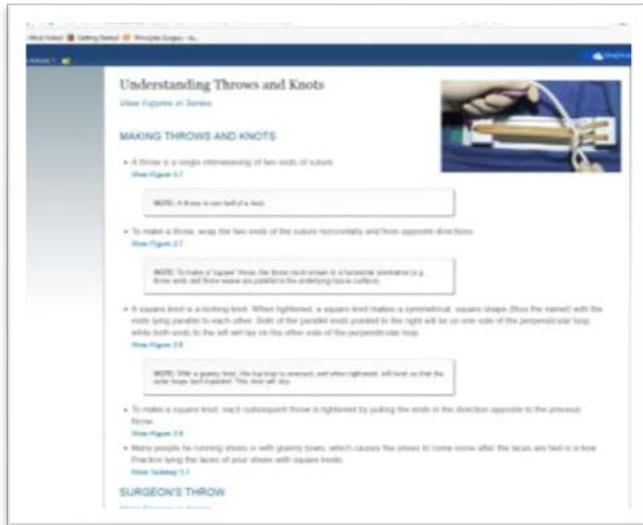
Initially the material will be used by an average of 85 students per year through the VM835 course, 11 to 30 students per year in an advanced surgery laboratory elective, and approximately 100 clinical students. In the future, our hope is to have an online course that will be available nationwide to veterinary and medical students and lab animal researchers. In the United States, approximately 3,000 veterinary students and 18,700 medical students graduate annually.

Project outcomes and products

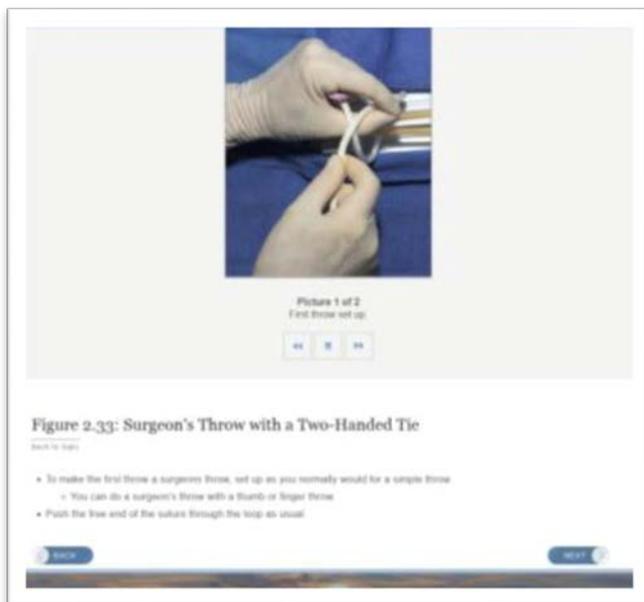
Phase 1 of the project has been completed. This includes text, photos, and figure legends. For those with NetID and password access to UT documents, the project can be viewed at: [The Table of Contents](https://utworks.tennessee.edu/surgery/SitePages/table-of-contents.aspx) (<https://utworks.tennessee.edu/surgery/SitePages/table-of-contents.aspx>).



The picture above displays the Table of Contents Search capabilities



The picture above shows how individual skills are described and linked to figures. Notes are added to clarify the material, and Students can select to view the figures in a series to follow step-by-step instruction (see next image).



The picture above shows an example of the beginning of a figure series. The legend describes the motions shown in 2 of the figures. The student can advance forward ("Next" button) or backward ("Back" button) to view the subsequent or previous step.



The picture above shows how placeholders are set for links to, or to future additions, of videos demonstrating techniques.

Student Evaluation

The current iteration of the online manual is scheduled for use by VM 835 students in the 2017 Fall Semester. Although the 2016 grant included incorporation of videos into the manual, this task could not be completed by OIT because of the extensive scope of the current project. We have submitted a second grant to request OIT assistance in video clip development and editing so that the online manual can be completed.

Once the manual is completed, our plan for assessment is to evaluate 2 groups of students- one using the traditional manual and the second using the online manual- and evaluate their ability to perform one specific set of skills described in both. Additionally, we will evaluate student satisfaction and interest in each modality.

Project benefits for the department and UT

As outlined in VolVision 2020, the University of Tennessee has a long term commitment to increasing the quality and value of education. Our millennial students are proficient in technology and prefer to receive information through digital means. They may not have the patience to sift through large volumes of material when learning tasks but expect to have immediate access to extra materials as needed. An online manual such as Principles and Practices of Surgery allows these students to tailor their learning based on their interest and training level and reaches them through text and figures. Its interactive nature appeals to those who prefer to be “doing” rather than listening. In the future, addition of narrated video clips (particularly those using surgery models available for practice) will make this manual a true multimedia experience.

For the University of Tennessee College of Veterinary Medicine, the strategic plan emphasizes “Retooling for the 21st Century”, with the most important task (described as “Job One”) being teaching. UTCVM is known for its emphasis on education and is constantly exploring ways to produce the best veterinarians. Because of limitations in funding and the author’s technical skills, however, development of an interactive manual was not possible prior to receipt of this grant.

With the help of OIT, our instructors (and the author in particular) have made excellent progress in using “21st Century Tools” to improve instruction.

Conclusion

The first iteration of the online laboratory manual of Principles and Practices of Surgery provides us with an excellent start in reaching our goal of an interactive, multimedia learning experience. Because of the program (OneDrive) used to develop the manual, the ability to have a truly interactive experience was less than expected. Eventually, we would like to be able to click on specific words to bring up definitions and individual photos and to have a plethora of short video links to demonstrate skills. Likely the manual would be more intuitively obvious if it functioned similar to Wikipedia.

Our collaborators at OIT were exceptional. In particular, they were extremely patient in explaining the technical side of the development and are working on clear instructions so that the author can maintain and update the site in the future. Without their expertise,

the online version of this manual would not have come to fruition. If the second grant is funded, we look forward to working with OIT on addition of video clips and improving manual quality and interactivity.