CCNMTL and the School of Dental and Oral Surgery have created an interactive Web-based dental laboratory manual, called VirTechs, that provides students with access to detailed instruction on procedures and treatments. For the first time in a preclinical course, all demonstrations, instructions, and supplementary materials for learning endodontic procedures in this course are available as part of the VirTechs collection.

Incorporating the use of a multimedia lab manual in dental school preclinical courses allows for more self-pacing during the first two years of study, potentially increasing overall student achievement by the conclusion of the third year. Students can observe clinical procedures, such as cleaning and shaping the root canal, anywhere at any time with the use of video demonstrations, 3-D images, and animations. Access to complex clinical dental procedures is expanded, allowing for increased comprehension.

Using VirTechs, students learn and practice dental procedures at their own pace, and instructors are able to dedicate more classroom time to discussion and individualized support. It is a model for how new media can facilitate the continuous engagement necessary for a detailed comprehension of surgical procedures. VirTechs will foster more productive, student-centered use of class time specifically in terms of skills-based learning. These changes will help create a more realistic, patient-centered context for practicing dental procedures in the preclinical laboratory by providing all dental students with flexibility of access and extending course materials beyond lab time.

In order to demonstrate dental anatomy and occlusion it is necessary for the students to gain a “bird’s-eye” view of the mouth. The difficulties posed in actual demonstration of clinical practice in class has always been formidable, especially in dentistry. The mouth, being a very small area, does not make visuals easy to capture. The production team used special photography and videography techniques in order to capture clear close-ups of each procedure. Incorporating the Multi-Media Study Environment in the preclinical lab adds a significant advantage in terms of visual aids for study.

Research and Evaluation: In developing the VirTechs system, CCNMTL is employing a variety of formative and summative evaluation techniques, including usability testing, focus groups, and student and faculty questionnaires. In addition to gathering and analyzing comparative data on student performance, a randomized, controlled research study will determine the program impact on self-pacing and student achievement. Formative evaluation and testing is currently under way in conjunction with the Endodontics preclinical lab course at the School of Dental and Oral Surgery.