Presented on Sunday, March 8, 2015, 1:00-3:00 pm

TE-001. Animation of Posselt’s Tracings of Mandibular Movement: Examples of Multimedia Instruction
Chi D. Tran, Daniel Castagna, Richard White, Peter Hansen, University of the Pacific Arthur A. Dugoni School of Dentistry
Animations of Ulf Posselt’s envelope of motion were created and presented in order to illustrate mandibular movement. The animations simulate mandibular movement and are helpful in explaining Posselt’s tracings. According to predoctoral dental students who have viewed these animations, this is helpful especially for visual learners. Comments from faculty have been positive. The animations are useful for students in understanding how Posselt studied mandibular movement. Selected 2D and 3D animations of Posselt’s tracings of mandibular movement will be presented and compared to a video clip of a saggital plane tracing using Posselt’s original tracing instrument.

See Monday for abstract TE-002.

TE-003. Virtual Standardized Patient in Oral Medicine: Residents Versus DDS Students
Glenn T. Clark, Luciano Nocera, Ostrow School of Dentistry of the University of Southern California
Using a custom-built program, we created a single-player standardized virtual patient game designed to teach interview skills and assess treatment planning/decision making choices. The rationale behind the game was that dental students are mostly exposed to patients with complex orofacial pain and oral-facial pathologies in the classroom, but they do not see them as the primary provider. As a result, the students get little opportunity to learn interview skills and practice/test their clinical decision making skills. Mock interviews with standardized human patients are effective but are difficult to scale. Our game, called “DDS Detective,” has the student select a patient; choose medical interview questions and examination questions from a list; and review the patient’s medical history and review of systems questionnaires and examine the case pictures or images. After this is complete, they make a set of final choices regarding the appropriate diagnostic tests, diagnoses, treatments, and prescriptions. The game has a three-tier architecture consisting of Unity3D game engine, PHP services, and MySQL database for game data (cases, users’ data, interaction logs). We examined 71 senior DDS students’ scores, encounter times, and number of questions asked across ten consecutive randomly assigned virtual patient cases. These data were compared to data from 28 residents in an orofacial pain and oral medicine program. The residents spent the same amount of time, asked fewer questions, and scored significantly higher (20%) than the DDS students. However, by case eight, no significant group differences existed. Asking more questions improved the user’s score, but spending more time did not. Both DDS students and residents had lower scores on mucosal and osseous lesion cases and higher scores on TMD/OPF cases. This study suggests that a virtual standardized patient can effectively and rapidly teach interview and clinical decision making skills.

TE-004. Going Beyond Students’ Potential by Teaching Two Innovative Modes to Fabricate Tooth-Colored Restorations Using CAD/CAM Technology
Maria P. Rodriguez, David Herschkowitz, Duane Timothy Culotta, Glenn K. Rochlen, New York University
This project involved teaching students the use of CEREC blue light LED technology and how to fabricate chairside tooth-colored restorations using two modes: Biogenic individual and Biogenic copy modes. Certain clinical situations may warrant an exact copy of a tooth when the operator fabricates an indirect tooth-colored restoration or ceramic crown or wants to duplicate adjacent teeth in the esthetic zone. In Biogenic copy, we obtained a digital picture of the unprepared tooth and another digital impression of the prepared tooth. The software transfers the occlusal parts of the tooth in a preoperative condition and enhances the rest of the restoration. The final design of the restoration is very similar to the tooth prior to it being prepared; in most cases, the occlusal surface does not need to be adjusted. In Biogeneric individual, a digital impression is required of the upper and lower quadrants and also a digital impression of the buccal surfaces in maximum inter-cuspation. The neighboring teeth are analyzed, and the software creates a restoration proposal from a virtual model. The faculty members and students are able to modify contact points and contour of the virtual restoration and, if necessary, adjust the cervical embrasures before the milling process. With CEREC blue light LED technology, the dental students were able to fabricate accurate chairside tooth-colored restorations.

TE-005. The New Era of CAD/CAM Technology and Student Education
Samantha Wolff, Denise Estafan, New York University
CAD/CAM technology has been established in dentistry and is being utilized in many different platforms. It is being used by lab technicians to scan dies, send data to milling machines, and fabricate restorations, dentures, and implant surgeries. In addition to expanded use in the laboratory, CAD/CAM is being used in academic settings in both chairside and simulation settings to enhance students’ education. At New York University, CAD/CAM technology is introduced to dental students at various levels throughout their education. Students receive lectures in their second year detailing the procedures, indications, and technique required for CAD/CAM restorations. In addition to the didactic aspect, students are exposed to CAD/CAM technology in the simulation laboratory where they have the opportunity to have a hands-on experience fabricating a CAD/CAM restoration for a tooth-colored inlay and onlay. Within the group practices and simulation, faculty members are trained in how to use the CAD/CAM technology so they can instruct students chairside and in the laboratory setting. By adding CAD/CAM technology to the curriculum, students are able to learn how to fabricate restorations and how to use the technology to assess their work and learn from their mistakes. We think it is the obligation of all dental schools to prepare and educate their students to be familiar with all sorts of CAD/CAM technology related to dentistry.

TE-006. Igniting Students’ Interest in Dental Management Competencies
Antonio Furino, Scott G. Stafford, William D. Hendricson, University of Texas Health Science Center at San Antonio
To comply with recent Commission on Dental Accreditation (CODA) practice management standards and prepare new dentists for the rigor of today’s increasingly demanding dental markets, eight dental schools currently use a recently updated web-based program developed and tested at the University of Texas Health Science Center at San Antonio (UTHSCSA) School of Dentistry over the past seven years. It emerged from lessons learned in conducting a national study funded by the Kellogg Foundation on assisting small organizations to employ strategic planning for achieving sustainable operation. In 2009, three dental schools evaluated the program during a collaborative six-month project with the UTHSCSA School of Dentistry. Results were reported in a two-hour symposium at the 2010 ADEA Annual Session & Exhibition. Of the eight schools currently using the program, three are new schools, four are established state-supported schools, and one is an established privately supported institution. The program consists of four sequential levels of learning corresponding to progressively higher levels of competence in applying strategic planning to professional development and to managing a dental practice. A modular organization of the material allows use of the program in a four-year curriculum (preferred use) or in a compressed one year of instruction meetings. The blended format includes online simulations and self-directed learning as an alternative to faculty-intensive classroom time. It provides an estimated 128 hours (32 hours per each level/year).
of comparable class time via faculty-monitored self-directed learning and allows more time for discussions on complementary topics and invited speakers. In keeping with the preferences of today’s students, the course material may be explored and assignments completed “anytime, anywhere.” Attendees will be able to view a visual and sound “tour” of the program running continuously on a monitor and personally explore it on two laptops. Authors, instructors, and students using the program will be available to answer questions and further illustrate sections of special interest.

**TE-007. Expanding the Learning Potential of Dental Students by Incorporating CAD/CAM Technology to Conventional Methods**

David H. Hershkowitz, June Weiss, Barbara Slaska, Ying Wong, New York University

Traditional methods of fabricating indirect restorations have included impression-taking, pouring dies, and either manually completing the restoration or digitally scanning the impression. More recently, CAD/CAM technology uses a virtual stone die reproduced directly by scanning the prepared tooth. With either method in use, the student must critically assess and determine whether the preparation meets the criteria for reduction, taper, axial wall depth, and marginal perfection. The software in the CAD/CAM system assists students in their self-evaluation. In these ways, students learn how to evaluate their dental and critical thinking skills through the use of older methodologies and new technology.

**TE-008. Igniting Our Students’ Minds with a Challenging Game of Jeopardy**

Gargi Mukherji, Ralph A. Cooley, Richard Halpin, University of Texas at Houston

Jeopardy is an exciting, interactive, educational television game show in which the participants as well as the audience are able to learn information in various categories. Dental students gain a vast amount of knowledge in the basic sciences especially during the first two years of their dental education. The challenge for educators is to integrate this knowledge for students as they transition into their clinical science courses. Our goal is to present a fun, interactive computer-based Jeopardy game using the software Articulate Storyline for the students. This Jeopardy game has categories related to the basic sciences and medicine and helps students review and apply their knowledge as they transition to clinic and provide direct patient care. Many studies have shown that students enjoy learning in an interactive, fun setting that involves competition or teamwork. In one category, “Medical Emergency Drugs,” for example, the items may include “Drug used to treat angina” for 100 points (question: What is nitroglycerin?) and “Drug used to treat severe anaphylaxis” for 200 points (question: What is epinephrine?). Our Jeopardy game covers critical knowledge relating to a range of topics such as local anesthesia, oral pathology, pharmacology, oral radiology, systemic diseases, and dental materials. We hope that participating in this game will help students review their knowledge in the basic sciences and then apply it as they transition to a clinical setting. We also hope to customize this innovative teaching tool to enhance educational goals at other institutions.

**TE-009. Training Program to Empower Faculty Members and Students in Learning Current CAD/CAM Technology**

Mihaela M. Harutunian, Angelo De Bartolo, Samantha Mamiou, David H. Hershkowitz, Sarah C. Vignola, New York University

The purpose of this educational program is to instruct faculty members about a new software to help them become competent in guiding students to take digital impressions and design restorations using CAD/CAM technology. At New York University College of Dentistry (NYUCD), we have been using CEREC CAD/CAM technology for more than two and a half decades. For use of the new blue light LED CAD/CAM, faculty training was necessary. Therefore, a new educational program was implemented in which each faculty member was required to prepare and design an inlay, an onlay, and a crown utilizing the two modes of Biogeneric individual mold and Biogeneric copy mold. A well-trained faculty member was able to complete this requirement in two days of sessions and therefore was certified to utilize the system in the group practice. The uncertified faculty members were required to do five indirect cases with their students under the supervision of the quality control faculty member. The dental students were required to prepare a tooth under the supervision of their faculty member. In addition, the dental students had to take and pour up both upper and lower impressions under the guidance of the quality control faculty member. The students also performed all required steps such as digital impression, design, modification, and milling of the restoration. Investing the time to produce and execute this educational program created at least two proficient faculty members in each group practice and a generation of NYUCD dental students who are proficient in this CAD/CAM technology.

**TE-010. A Roadmap to a Healthy Smile: Electronic Comprehensive Treatment Planning Tool**

Julie Coe, Virginia Commonwealth University

A well-developed comprehensive treatment plan is a roadmap to a healthy smile. This online comprehensive treatment planning tool is designed to help dentists/dental students create a comprehensive treatment plan in a more standardized format and more effectively communicate the treatment plan to the patient. It will improve patients’ understanding of their own oral health and plan and ultimately increase compliance with treatment and ownership of their oral health. This software is under development at Virginia Commonwealth University School of Dentistry and School of Engineering. Key benefits to dentists/dental students and patients are the following. For dentists, it stores axiUm-imported information relevant to comprehensive treatment planning; provides a standard format to develop problem list, diagnoses, treatment objectives, and treatment options; provides interface to present the treatment plan options including pros, cons, timeline, and sequences with different providers and specialties; and enables multiple providers to access the treatment plan. For patients, it provides personalized oral health information including the current status and recommended home care/maintenance, easy-to-follow treatment plan options with visuals, and ability to ask further questions after they take time to think about the options. This presentation will demonstrate a working prototype of the web-based comprehensive treatment planning tool. A conceptual framework of comprehensive treatment planning in a team-based approach and how this tool can be used in conjunction with axiUm will be discussed.

**TE-011. Using Strategic Planning Software to Enhance Institutional Effectiveness at Virginia Commonwealth University School of Dentistry**

Julie Coe, Michael Healy, Michael Talley, Virginia Commonwealth University

For a dental school to remain a viable entity within the larger university, its strategic plan must fulfill the mission of education, research, and service. The structure and function of a dental school is interdependent upon the goals of the academic/clinical departments, curriculum, and administration as well as the mission of the parent institution. A strategic plan with input from all entities can help guide a school toward its mission and that of the university. However, keeping track of initiatives and activities related to the goals and objectives and to the overall schoolwide strategic plan can be a difficult and cumbersome task. This strategic planning software is designed to better manage implementation of a school’s strategic plan, which will likely lead to institutional effectiveness. This strategic planning software offers a user-friendly interactive platform for deans, department heads, and others involved in strategic plan implementation by providing a standard format to input activities in accordance to the overall strategic plan, goals, and objectives. It also enables reporting a summary of the initiative’s progress measures, outcomes, and improvement steps to fit the needs of deans, department heads, and other administrators. This presentation will demonstrate an intranet-based interactive strategic planning software that was developed at Virginia Commonwealth University School of Dentistry. How this tool is being applied at VCU and how reports can help to enhance institutional effectiveness will also be discussed.
Presented on Monday, March 9, 2015, 10:00 am-12:00 noon

TE-002. How a Website Can Help Recruit New Dentists
Debra Hoyle, University of Iowa
The Office of Iowa Practice Opportunities uses its website to recruit new dentists for the state with two audiences in mind: those who are seeking a practice opportunity and those who are recruiting a dentist. Based on feedback from a student focus group, an interactive state map with dental, county, and state demographics and a listings database searchable by one or multiple variables such as the type of opportunity and area in the state were developed. Additionally, dental education loan repayment and economic development resources in Iowa are highlighted. This innovative website is utilized by thousands of people each year.

TE-003. Student Focus Group to Evaluate Use of CEREC CAD/CAM Technology
Morgan M. Bergman, New York University CANYAD
A student focus group was administered to evaluate the effectiveness of using CEREC CAD/CAM technology in second-year laboratory courses. A total of 13 students from the second-year laboratory simulation course participated in the study. The results suggest that undergraduate students do not understand the educational value of using CEREC CAD/CAM systems. The study also found that 67% of the students felt that the use of CEREC CAD/CAM technology would improve their understanding of occlusion. Recommendations include developing lab exercises that incorporate CEREC CAD/CAM technology.

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TE-012. Teaching Occlusion to Dental Students Utilizing CEREC CAD/CAM Technology
Martin Prager, Michael Newberry, Angela De Bartolo, Martine Mandracchia, New York University
Principles of occlusion must be strictly observed when restoring a compromised dentition. Failure to understand occlusal relationships in form and function will necessarily result in varying pathologic outcomes. The traditional approach to teaching occlusion has been limited to the use of text, drawings, and models. This paradigm has now shifted dramatically with the advent of CEREC CAD/CAM technology and the software version 4.2.4. Using CEREC as an interactive educational tool takes advantage of dental students' proclivity for video interfaces and virtual reality. Observing occlusal contacts (and the ability to modify them) has been a feature of CEREC software for some time. By scanning the dentition with the intraoral camera, whether on a patient, another student, or a typodont, a detailed articulation of the arches is rendered. Tooth morphology, and thus contact points or zones, may be modified utilizing a wide array of virtual tools. With the introduction of a virtual articulator, it is now possible to animate the arches independently or in function. The student gains the ability to instantaneously observe the consequences of changing the occlusal relationships in maximum intercuspation, lateral, and protrusive excursions. Occlusal, medial, and lateral protrusive contacts are displayed in different colors. The articulator is also capable of demonstrating a functionally generated path, with or without the occluded restoration(s) in place. By varying the degree of translucency of the models, the student will gain a clear and comprehensive understanding of the functional relationships and the consequences of any modifications made. By virtually modifying or restoring various teeth, the student can affect canine and incisal guidance as well as eliminate destructive interferences. Utilizing existing CEREC CAD/CAM technology, a paradigm shift will take place in the way students are taught and are able to implement the principles of occlusion and, ultimately, improve the oral health of their patients.

TE-013. Faculty Calibration for Unlocking Potential in Students During CAD/CAM Education
Kay T. Oen, James J. Apltauer, Kathleen Wetzel Apltauer, Mark S. Wolff, New York University
New York University College of Dentistry (NYUCD) has educated its students in CAD/CAM technology since 2004. There have been various studies that compared the survivability of CAD/CAM restorations to restorations produced with traditional methods. This report investigates the role of faculty calibration in the survival of CAD/CAM restorations. This report is a retrospective review of NYUCD patient chart entries made in 2007-13 for CAD/CAM restorations placed. Data gathered include date of placement, date of evaluation of restoration, number of surfaces, inlay vs. onlay, restorative material used, cement used, direct digital impression vs. indirect digital impression of a stone cast, survival or failure, reason for failure, and status of calibration of supervising faculty. Chart review identified 530 CAD/CAM restorations placed during that period. Of those listed, 420 survived (79%), 89 failed (17%), and records were unclear for 21 entries (4%). The entries revealed the supervising faculty member in 463 restorations. Of the 89 that failed, 45 (half) were supervised by uncalibrated faculty members, even though uncalibrated faculty members oversaw only 1/3 of the restorations placed (155 of 463). 29% of restorations supervised by uncalibrated faculty members failed vs. 10% for calibrated faculty members. Choice of cement (Rely-x was twice as stable as compared to Calibra) and whether the restoration was designed directly or indirectly (indirect method had 2.5 times the failure rate as direct) had statistically significant effects on outcome. Both of these choices with higher failures were used more often by uncalibrated faculty members. This study suggests that faculty calibration leads to higher survival rates of CAD/CAM restorations.

TE-014. iBook: iWrote, iUsed, i Liked, and So Did the Students
Anthea Senior, University of Alberta
For many years I have struggled to motivate students to read material prior to attending lab sessions. However, since providing an interactive electronic manual, I have discovered that this generation of students will prepare by tapping, swiping, watching, and listening. In this session, I will describe my journey from producing paper handouts to developing a paper manual to writing an interactive iBook. I will demonstrate how easy it is to get started writing an iBook, using my own dental radiography manual as an example. I will show how I was able to incorporate my own interactive diagrams, photo galleries, lecture presentations, and movies into the iBook. With this tool, my students are now much better prepared for lab sessions, and the time spent by radiology instructors demonstrating techniques has been greatly reduced. The idea of having an interactive electronic book, with media options embedded within it, could be applied to other dental disciplines and teaching settings.

TE-015. Igniting Faculty Through Calibration in Glazing Technology for CAD/CAM
Kay T. Oen, James J. Apltauer, Lucretia Depaola-Cefola, Fabiola Milord, New York University
Educating students in the crystallization process of all-ceramic CAD/CAM restorations is needed as well as staining and characterization by the use of the digital, high-tech vacuum-controlled furnace. New York University College of Dentistry (NYUCD) introduces CAD/CAM technology in the second-year laboratory simulation course. The students learn how to take digital impressions and to design, critique, evaluate, and mill their restorations. These procedures are performed using typodont teeth. As they move into their group practices, they get an opportunity to treat patients and restore teeth with the CAD/CAM techniques they have learned. The newer all-ceramic materials now being used for CAD/CAM restorations require a final glaze to crystallize the molecules. Glazing brings out the final hardness and the proper shade, staining, and characterization. The high-tech furnace specifically designed for this technique uses a vacuum system to achieve these results. It is therefore important to calibrate the faculty in the use of this digitally advanced glazing oven. The faculty comes in off-session to be standardized. This experience is for the benefit of the students’ education since the calibrated faculty members are committed to pass on this knowledge. Delivering a fully glazed CAD/CAM restoration in one visit is a great service to the patient. Glazing also eliminates a lot of chair time for polishing and produces a better result that will minimize wear of the opposing dentition. We think that calibrating faculty members in the use of the newly designed high-tech oven will contribute significantly to educating students in this state-of-the-art technology.

TE-016. Multiple Contiguous Ceramic Restorations Using Adjacent Virtual Restorations in One Sitting Using CADCAM Software
William W. Bongiorno, Mark Wolff, Ralph Cunningham, Gary Berkowitz, New York University
Dental students will learn quadrant dentistry using digital scanning and software to produce adjacent ceramic restorations in one session. Digital technology has secured its place in dentistry for some time now, and the advent of the CEREC system has allowed the operator to create ceramic restorations in a single visit. It is our obligation as dental educators to bring
our students to the forefront of this technology. When multiple restorations are planned, it is beneficial to obtain a virtual model to fabricate multiple restorations in one sitting. The restorations can be planned using CEREC software with adjacent virtual restorations before they are fabricated. This technique allows all restorations to be fabricated without seeing the patient for subsequent scans. A digital impression is taken of either the intraoral preparations or a stone cast of the preparations to create a virtual model. When there are multiple preparations, previous software versions required one restoration be completed before the second preparation could be scanned. Virtual multiple biogeneric restorations can be produced by the CEREC software and it is no longer necessary to go back to the patient for additional scans or impressions. Showing students how digital technology works can be an efficient and accurate way to produce a quadrant of restorations. This technique opens the door for acceptance of the digital future of dentistry.

TE-017. Using Intranet Support to Unlock Students’ Potential in CAD/CAM Education
Samantha Wolff, Kay T. Oen, New York University
Providing intranet-based communication with the quality control faculty member is helpful as students deal with the challenges of chairside procedures using CAD/CAM technology for tooth-colored indirect restorations. Educating students in CAD/CAM technology in treatment planning and providing students with clinical experience in placing indirect restorations is an integral part of the curriculum at New York University College of Dentistry (NYUCD). With the installation of CAD/CAM equipment in each of the seven group practices, providing online support has many benefits. The advantages of this system include real-time support and troubleshooting through immediate feedback from the quality control faculty member. In addition, the patient’s privacy is maintained, and the restoration can be completed in one visit. Acquisition units and milling equipment allow students to take digital impressions and design and fabricate CAD/CAM tooth-colored restorations chairside. The use of intranet technology enables the students and the clinic faculty to export the virtual cast to the central station where the quality control faculty member evaluates, critiques, and modifies the virtual design if necessary. It is then sent back to the student acquisition unit. Here, the case can be imported, which allows for viewing and discussions with the clinical faculty. This is especially of educational benefit in problematic cases. We think that making a quality control faculty member available via intranet technology for evaluating students’ preparations and providing immediate feedback is invaluable in their educational experience. It also provides an opportunity for the patient to receive an all-ceramic restoration in one visit.

TE-018. Single Visit Inlay and Onlay Restorations Fabricated Using CAD/CAM Yield Improved Learning Outcomes With Less Stress for Dental Students
Martine Mandracchia, Michael Newbert, Samar Tannous, Martin Prager, New York University
The nature of dental school creates a high degree of stress for students. When teaching dental students inlay or onlay restorations using conventional dental school methods, many stressors surface that impede the learning process. The stressors and roadblocks encountered by students include but are not limited to difficulty taking and retaking impressions, leading to patient dissatisfaction; the need to obtain quality assurance signatures, causing further delays; waiting for laboratory fabrication of restorations, loss or delay of lab cases; patients’ pressing students to complete work more quickly; poorly fitting restorations, necessitating remakes; the need to fabricate, and possibly re-fabricate, provisional restorations; and multistep procedures requiring anesthesia. This project demonstrates how the fabrication of inlays or onlays using CEREC Bluecam CAD/CAM technology can streamline the learning process while dramatically reducing the amount of stress for students by facilitating the fabrication of a high-quality restoration designed, produced, and delivered in one visit. The need for traditional impression materials and trays are eliminated by using the CEREC Bluecam optical impression, which instantly captures the preparation while saving time and reducing patient discomfort. The days or weeks between sending out the final impression and receiving it back are eliminated as the CEREC milling unit can fabricate the restoration in minutes allowing for same day delivery. Improvements to the technology have proven the CEREC Bluecam CAD/CAM system to be extremely accurate, reducing the need for remakes. The single visit nature of the procedure eliminates the need for a provisional restoration and any potential visits needed, for both the patient and student, if the provisional is lost or damaged prior to delivery of the final restoration. Numerous cumbersome and often challenging steps can be eliminated, streamlining the process and resulting in an interactive, immediate learning medium with lower amounts of stress for students.

TE-019. The Utilization of a Web-Based Clinical Assessment and Administrative Tool
Jessica L. Salisbury, Michele Carr, The Ohio State University
Technology has enhanced the process by which we evaluate and report outcomes for clinical education. Accreditation requires that institutions show a process of achieving goals, student self-assessment, and assessing outcomes. An existing web-based technology tool has been customized and implemented for process improvements and reporting methods. This includes web-based clinical grading, student feedback, and self-assessment, as well as administrative tracking and reporting with the use of tablets in the clinical setting. Additionally, this tool allows students to receive real-time feedback and promotes accountability. Administratively, the system can be used to gather and monitor data for student competence, graduation, and ultimately accreditation. The technology is accessible 24 hours a day, meeting the needs of clinical course directors, students, and administrators. The reporting capabilities of the system can help provide evidence that validates the quality of each educational program. Presenters will demonstrate the web-based technology tool used at their institution in a one-on-one or small-group settings. Presenters will also discuss their experiences in implementing this tool and the lessons they have learned along the way.

TE-020. iLearn: Using Online Resources to Credential Faculty
James Kaim, Kenneth L. Allen, David H. Hershkovitz, Mark S. Wolff, New York University
Preclinical and clinical instruction is frequently supervised by part-time faculty members who are in private practice and often use materials and methods that are not consistent with the core teaching of the college. To ensure that teaching is consistent and standardized, New York University College of Dentistry has initiated an online module to allow new faculty to be credentialed to teach in the preclinical and/or clinic. Software has been designed to allow off-site credentialing of faculty. Multiple modules have been created in cariology and operative dentistry. These provide the core teaching presented to the students in separate modules such as rubber dam, Class II preparations, sealants, etc. The iLearn online method is unique in that it has a self-paced teaching module so that faculty can review core procedures; has an online testing module to assess faculty knowledge using randomly selected questions for a large data bank; provides feedback and detailed explanations when an incorrect response is given; permits retesting with new questions until an acceptable score is achieved; can be done anywhere, e.g., at home, work, or school; and allows departments to review the completion of these modules. The online teaching module uses high-definition images and video. Upon successful completion of each module, the faculty member can print a certificate and receive CE credit.

TE-021. Let’s Tell a Story: An Interactive E-Learning Module About Lasers
Juliana A. Barros, Shalizeh A. Patel, Ryan Quock, Richard Halpin, Catherine Flaitz, University of Texas at Houston
The emergence of laser technology provides an innovative and safe approach for delivering care in general dental practice. This module is designed to provide students with a contemporary education and training in laser dentistry. In an already packed dental curriculum, an interactive computer-based module known as “Articulate Storyline” became a new avenue for students at the University of Texas School of Dentistry at Houston to learn about lasers. This effective and self-paced learning module allowed students to methodically understand and integrate new information with the already existing body of knowledge. In our experience, any interactive...
e-learning software can be valuable in exposing students to new dental updates. The interactive e-learning module titled “An Introduction to Laser Principles” will be shown on two separate iPads at this session. The participants will be able to view this online segment and will be informed about accessing the software and creating a more customized version for their lessons. The purpose of producing this online module was to engage learners’ interest in a relevant yet complex topic. Furthermore, organizing the presentation in small segments followed by interactive assessment tools allowed students to absorb and process the material better with the goal of improving long-term retention. Our expectation is that, after viewing this e-learning video, participants will appreciate how a stand-alone, self-paced, interactive multimedia teaching tool can foster learning in a dental school setting. Participants will learn about “Articulate Storyline” software and its application in everyday teaching; identify areas where this educational software can be integrated into teaching activities for improved learning; and discover approaches to collaborate among multiple clinical disciplines to incorporate multimedia learning in dental education.

**TE-022. Introducing a Virtual Patient Avatar for Comprehensive Dental Education**

Melissa E. Ing, David L. Frantz III, Kanchan M. Ganda, Britta E. Magnuson, Jennifer L. Bassett Midle, Tufts University

Integrating comprehensive care in dental school curricula is critical from the very beginning. Development of virtual patient avatar technology for dental education is important as it allows for the earliest introduction to comprehensive care. This can have a positive impact on dental students’ learning and patient care. Avatars can promote critical thinking by allowing for case-based scenarios and simulation of comprehensive care. Additionally, avatars can enhance dental care by allowing students to simulate interactions and treatment with patients prior to clinical experience. Simulations allow for students to practice and learn from their treatment planning options, so mistakes, when made, are still virtual. In the virtual patient avatar demonstrated in this presentation, the virtual patient is written in C# programming language and runs on a state-of-the-art cross-platform Unity three-dimensional engine. The avatar can be quickly reconfigured to provide virtual patients of any age, gender, or nationality. The avatar enables a realistic 3D patient for medical and social interaction along with a fully detailed, lifelike 3D dentition. In its current version, simple C#, JavaScript, or Boo programming language scripts can be used to quickly reconfigure the system for different scenarios, but a user-friendly graphical configuration system is under development. The virtual patient avatar allows for an interactive experience that dental students can use to learn comprehensive treatment planning. Scenarios cover medically and dentaly complex patients, dental material demonstrations, and responsive questions and answers with different outcomes depending on students’ answers. This interactive computerized visualization enhances critical thinking skills and allows students to explore treatment plan options for patients with diverse issues.

**TE-023. Learning to Use WebQuests: An Inquiry-Oriented Tool for Learning**

Leslie Koberna, Texas Woman’s University

WebQuests, which were first developed in 1995 by Bernie Dodge at San Diego State University, help students learn and understand content and concepts through learner inquiry. WebQuests are a useful way to help students critically think about issues while enjoying the learning process. Attendees will learn about the WebQuest concept and will be shown how WebQuests were used in a special needs dental hygiene course to help students gain a deeper understanding of patient care related to patients with cardiovascular disease, pulmonary disease, and diabetes. In the special needs course, students worked in groups of five to complete each WebQuest. Each WebQuest used scaffolding to layer the content, and the students became the investigators. First, they were introduced to the patient; next, they were given a list of tasks to help them learn content, answered open-ended questions through individual web-based inquiry, and formed decisions based on the research findings; finally, they shared their findings with their group. The group made a combined decision and presented the questions, findings, and decision to the class. The students were responsible for their learning, gained a better understanding of content, and learned to make decisions based on research. The students were engaged and enjoyed the learning process. Student evaluations of the WebQuests were very positive. Attendees will learn about WebQuests and how they can be used in the dental education environment. The demonstration will include step-by-step examples for developing a WebQuest. The demonstration will be self-paced to meet the needs of attendees. At this session, attendees will learn to describe what a WebQuest is, locate examples of WebQuests, and develop a WebQuest for a course they are teaching.