

Research & Reviews: Journal of Dental Sciences

High Technology Support in Continuing Dental Education

Andrea Mascolo^{1*}, Elio Boschetti¹, Abdallah Raweh¹, Vincenzo Piras² and Gloria Denotti²

¹Ludes Foundation HEI, Department of Dental Medicine, Malta

²Institute of Dentistry University of Cagliari, Italy

Editorial

Received: 19/08/2016

Accepted: 22/08/2016

Published: 30/08/2016

*For Correspondence

Professor, Andrea Mascolo, D.D.S. MSc. (oral Surg.), Associate Professor of Dental Medicine, Division Implantology LUDS Foundation HEI Malta

E-mail: andrea.mascolo@ludes.edu.mt

Keywords: Dental education, Digital dentistry, Digital dental education, Clinical observation, Second opinion, LUDS digital workflow

Digital dentistry identifies the new broad segment within the dental industry which resulted from the merging of traditional dentistry with the high tech 'digital' sectors such as computer-information science and telecommunication.

Digital Dentistry is transforming several dental procedures making them faster, easier and more reliable.

Dental education is taking advantage of the "digital revolution" as well. Among the new technologies, the use of video in dentistry is increasing is becoming a common tool for communication, documentation and education; in Rochester, NY, telehealth centres are successfully used an intraoral camera to send files to paediatric dentist for screening children teeth ^[1]. Bomstrand et al. established a telemedicine consultations network between specialists of the Department of Oral and Maxillofacial Surgery at Uppsala University Hospital (Uppsala, Sweden) and dentists in the public dental health service ^[2].

A study of Schonwetter, showed through a survey conducted in a Canadian dental school that the students had comparable learning outcomes whether they experienced the face-to-face or the online lectures; the online lectures had a more positive impact on their long-term learning ^[3]. Ahamd et al. used of High-Definition Audiovisual Technology in a Gross Anatomy Laboratory to teach anatomy to dental students of a U.S. dental school, they reported that more than 87% of students strongly agreed or agreed that the audio visual devices represented anatomical structures clearly in the gross anatomy laboratory founding more convenient learning anatomy with the new technology ^[4].

The effectiveness of procedural video compared to live demonstration in transferring skills for fabricating orthodontic appliances were measured by Alqahtani et al., they concluded procedural video is equally as effective as a live demonstration ^[5].

Video provides many advantages including live-stream demonstration, the creation of case studies for students, as well as the post-evaluation of work performed by students.

A fundamental component of high quality clinical education is the ability of student to observe skilled clinicians perform operative procedures live. Clear practical demonstrations of techniques and procedures are invaluable for student clinicians.

In this regard, Tomson et al. ^[6] tested the effectiveness of use of a surgical loupe-mounted HD Camera for clinical teaching in undergraduate students reporting excellent feedback from students interviewed on the ability to see the tutor during the presentation of a clinical procedures.

Recently, Rusanen from the University of Helsinki, in cooperation with the Department of Conservative Dentistry, Semmelweis University, Budapest, Hungary have repurposed the Birmingham research, investigating the use of a loupe-mounted video camera enhanced the learning and performance of undergraduate dental students in fixed prosthodontics with the conclusion that the use of a head-mounted video camera helped students to learn tooth preparation for fixed prosthetics restorations more efficiently ^[7].

The Department of Dental Medicine of Ludes Foundation HEI, newly accredited from NCFHE Malta, founded on Swiss decennial educational tradition, intends to focus on undergraduate studies but mainly on post graduate training.

The Dental Medicine Department intends to propose programs according to the strict European standards aimed at both European and International students.

Ludes, Dental Medicine has developed a partnership with international Institutions and Associations, such as AAID (American Academy Implant Dentistry) with the aim of proposing programs which meet the real needs of clinicians.

The ambitious aim of the Dental Medicine Department is to offer a new experience in postgraduate education; an interactive environment to enhance the communication between tutors and students and the opportunity for the students to share with the tutors the daily clinical issues; the Continuing Education knows the concept of "Clinical Observation" where participants follow the tutor, Ludes would introduce a bidirectional experience: students will observe the specialist/ Tutor provides care to patients in a clinical setting; with the same system, however, the project participants could share daily clinical questions with their Tutors and with clinical specialists; they will be able to benefit of "the second opinion" in the clinical needs of every day.

Clinical Observation, Clinical tutoring through distance learning will offer a new digital dental educational proposal.

The Department of Dental Medicine of Ludes Foundation HEI would establish a new concept in dental continuing education, approved by faculty of Dentistry, University of Cagliari, that boasts experience in distance learning education, named Ludes Digital Workflow. The students will have the opportunity to program the treatment case from the beginning to the end sharing all information with supervisors, and the day of the procedure are supported in real time by a specialist. Ludes Digital Workflow will be based on strict clinical protocols and clinical information shared through digital technology.

Prior to the procedures, the operator will share with the supervisors all relevant information (video, pictures, x rays, medical history, perio chart) to discuss and establish a comprehensive treatment plan.

The day of the procedure the operator will be supervised in real time by tutors having the same view through HD head mounted Camera and remote sharing software. In the same way all procedural steps could be supervised from tutors.

Many benefits and advantages could be reported from the operators improving their diagnostic and treatment skills, offering a high quality treatment to their patients because supervised and guided from experts.

Ludes digital workflow could become a reliable method to support students and clinicians because founded on the experiences and results of other academic projects^[6,7]. It could be very useful when operators and supervisors are not in the same site. This method could be an innovative clinical teaching approach; it will be needed a careful calibration and future tests to better evaluate the protocol.

If the outcomes will be considered fully satisfactory, this method might be useful in other medical fields also, such as cardiology and oncology.

The authors are looking forward to receive collaboration proposals in order to better spread the digital educational project and promote an international cooperation through educational digital dentistry.

REFERENCES

1. Kopycka-Kedzierawski DT and Billings RJ. Teledentistry in inner-city child-care centres. *J Telemed Telecare*. 2006;12(4):176-181.
2. Blomstrand L, et al. Telemedicine—a complement to traditional referrals in oral medicine. *Telemed J E Health*. 2012;18(7):549-553.
3. Kunin M, et al. Comparing face-to-face, synchronous, and asynchronous learning: postgraduate dental resident preferences. *J Dent Educ*. 2014;78(6):856-866.
4. Ahmad M, et al. Use of High-Definition Audiovisual Technology in a Gross Anatomy Laboratory: Effect on Dental Students' Learning Outcomes and Satisfaction. *J Dent Educ*. 2016;80(2):128-132.
5. Alqahtani ND, et al. Live demonstration versus procedural video: a comparison of two methods for teaching an orthodontic laboratory procedure. *BMC Med Educ*. 2015;4(15):199.
6. Tomson PL, et al. The use of a High Definition Surgical Loupe-Mounted Camera for Clinical Teaching, 39th ADEE Annual Meeting, Birmingham, UK. 2013.
7. Hirvikangas H, et al. The use of recordings by a loupe-mounted video camera in training of fixed prosthodontics on models, Helsinki. 2014.