NEW PERSPECTIVES FOR TEACHING DENTISTRY

Alice Pereira da Costa **Santos**[1], Beatriz Salomão Porto-Alegre **Rosa**[2], Maria Augusta **Visconti**[3]

[1]Professional Master's Course in Dental Clinic, Department of Pathology and Oral Diagnosis, School of Dentistry, Universidade Federal do Rio de Janeiro.
[2]Graduated student in Department of Pathology and Oral Diagnosis, School of Dentistry, Universidade Federal do Rio de Janeiro.
[3]Adjunct professor in Department of Pathology and Oral Diagnosis, School of Dentistry, Universidade Federal do Rio de Janeiro.

Higher education is challenged to think about how to enable people, at any stage of their lives, to take part in stimulating learning experiences. In this context, information and communication technology (ICTs) has been transforming a large part of society and there is little reason to believe that it will not be the definitive transformative innovation for higher education in the 21st century. Technology can help education to meet the expectations of better quality, while saving costs in an era of reduced funding and many political impasses facing educational issues in many countries.[1] In March 2020, the COVID-19 pandemic demanded the immediate closure of face-to-face dental education to comply with social isolation standards, bearing in mind that clinical activity in dentistry occupies a unique place among those with the greatest potential for spreading the infection. Many dental schools faced the challenge of effectively involving students through virtual learning.[2]

Also called web-based learning, online learning, computer-aided instruction, computer-assisted learning and internet-assisted learning, e-learning has the potential to produce a paradigm shift from passive teacher-centered learning to active learner-centered learning. In 2016, a systematic review carried out to provide a synthesis of the effectiveness of e-learning in oral radiology, when compared to the traditional classroom, suggested that e-learning is at least as effective as traditional learning methods and that students have positive attitudes about e-learning.[3]

Asynchronous online learning does not require students and teachers to be online at the same time, offering more flexibility to access and interaction with a specific activity, which may include for example, video lectures and automatically graded online assignments, but also communicative activities such as discussion forums or emails.[4] Asynchronous activities, despite offering greater autonomy to the student, can bring feelings of isolation, hindering collaborative learning.[5] In synchronous online learning, students and teachers meet in real time, in a live environment, such as videoconference or chat, with the meeting being pre-programmed and with a defined time, allowing the student to establish visual and voice communication with the teacher and other course participants, in addition to establishing a collaborative learning environment, resembling the traditional classroom, favoring greater student motivation, as well as creating a sense of community.[6] In this way, both asynchronous and synchronous activities are important, as they have different purposes and can complement each other: "Synchronous e-learning increases excitement and motivation, while asynchronous e-learning increases the ability to process information".[5]

One promising pedagogical approach for combining asynchronous and synchronous online learning is the online flipped classroom model. Inspired by the traditional flipped classroom approach [7], students are encouraged to watch video lectures at home as preparation for joint meetings. However, unlike the original flipped classroom model, students and teachers will not be meeting physically, but online. [4] This model, centered on the student, requires them to be responsible for participating in class with prior knowledge of the students, so that they can collaborate in discussions and activities in class. Content acquisition is individualized and self-guided. Faculty members act as learning facilitators, organizing content, developing interactive experiences, challenging students to think critically and providing feedback all the time.[8] Bergmann and Sams[7] stated that rich and open experiences within the classroom prepare students for success, foster critical cognitive development and promote innovation through collaboration. Chen et al.[9] assessed dentistry students' perceptions of distance learning strategies during the COVID-19 pandemic and their preferences between recorded lectures or other online course formats. Overall, students reported that learning formats such as flipped classrooms and creative uses of technology would be most beneficial for their virtual learning. However, regarding teaching activities in dental school clinics, no e-learning strategies can replace experience with patients, since online simulation with dental training manikins is extremely difficult.[10] In conclusion, the combination of synchronous and asynchronous components of distance education, such as the online flipped classroom, is a promise for future dental courses, in a blended learning format, where all theory content is done online and only clinical practice is performed in a face-to-face stage. The COVID-19 pandemic highlights the need for further research in this area.

***Correspondence to:**
Maria Augusta Visconti
Universidade Federal do Rio de Janeiro, Departamento de Patologia e Diagnóstico Oral
Address:Rua Professor Rodolpho Paulo Rocco, 325, Cidade Universitária
Zip code: 21941-617 - Rio de Janeiro, RJ, Brazil
Phones: +55 (21) 988899383; +55 (21) 39382045
E-mail: gutavisconti@odonto.ufrj.br

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