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Perspective

An innovative interactive presentation for oral clinico-pathological conference

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The higher grades of dental classes often focus on the clinical skills. Thus, the students may gradually disregard the basic knowledge even though they learned the skills to treat patients. This situation is also true in the Oral Diagnosis (OD) course. A study showed that after 5–11 months, the mean basic science retention the medical students remember was 60%. The authors concluded that medical educators should make better instructional strategies like retrieval practice to promote long-term learning for the students.¹ Previous studies also proposed a “cognitive integration” medical education for the individual learner to achieve an integrated understanding of basic and clinical sciences within the mind.^{2,3}

Oral Embryology and Histology (OEH), Oral Pathology (OP), and OD are three highly correlated curriculums in

dental education. It is necessary to incorporate the knowledge of three courses with each other to achieve complete oral diagnostics training. Clinico-pathological Conference (CPC) is one of the OD training courses that involve OEH and OP expertise. Traditional CPC requires group discussion, which needs a tutor’s guide to proceed. However, tutors are not readily available. In such a situation, CPC will be moved in a lecture form by a single tutor. Presents a CPC case by single-way lecture is easy to lead poor interaction with the participants, especially the undergraduate students. They are usually waiting for the answers, not familiar with the basic scientific knowledge and do not think in advance about the case. As such, creating a new CPC theme is mandatory to improve this situation.

A meta-analysis study showed a more outstanding academic achievement of flipped classroom learning than lecture-based learning.⁴ Besides, practical tips on writing a case that engage learners in active learning and discussion have been proposed.⁵ Here, I will present an innovative CPC teaching material that combines basic and clinical knowledge, flipping classroom, and interactive teaching methods. Students could clearly understand how to integrate basic and clinical knowledge in oral diagnostics through this innovative case-based learning design.

I chose the oral lichen planus (OLP) as a CPC case for demonstration. This innovative CPC case design involves traditional lecture, online learning, and flipped classroom. Students must review the relevant parts of oral histology and oral pathology on the online course platform of Chung Shan Medical University (CSMU) before attending class.^{6,7} The topic of CPC discussion focused on the differential diagnosis of oral white lesions, especially the oral

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potentially malignant disorders that are commonly seen in Taiwan. The fundamental concepts of the design were demonstrated below. The videos of this specially designed CPC's brief and entire procedure were available at numbers 2.3 and 2.5 on the website of CSMU.⁸ The case was a 54-year-old female who has white lesions on both cheeks. The CPC presentation began by showing the clinical photos and the chief complaints of the patient. Subsequently, the students were asked whether more information was required to make a diagnosis. If you asked it in a traditional way, students often looked at each other, and no one raised his/her hand to answer. To improve this situation, I used the flop game (like memory game), a function of PowerPoint (PPT), with the covered information needed for diagnosis on the slide. There were two reasons to use this flop game function instead of the conventional way to present the answers in order using the animation function of PPT. Firstly, it may enhance their motivation and willingness to participate in the discussion. Secondly, the ideas they came up may not always match the order on the slides. By using the flop game function, we could disclose the answer key by moving the cursor to certain item but did not have to reveal them in sequence. This design not only could increase the interactive interest but also allow students to engage in active thinking. Next is the basic part, the histologic picture, which addressed the color difference of the oral mucosa in this case. Two factors determine the color of the oral mucosa: epithelium and connective tissue, which was a basic knowledge they learned 3 years before. We didn't know whether the student's answer was epithelium or connective tissue first. If you made a general animation of PPT, establishing 1 and 2 the animation sequence, it only appeared in order. If you used a flop game, you could overcome this problem. Another critical tip to design this was to use picture coverage so that students couldn't see where the answer was. The same design was also used to question the 3 most common autoimmune diseases that may present desquamative gingivitis when discussing OLP.

Another interactive software is Poll Everywhere that contains many interactive designs, including multiple-choice, word cloud, Q&A, rank order, clickable image, and competition. For example, the "word cloud" is real-time interaction. The words (diagnosis) entered will appear on the screen. The more terms entered repeatedly, the bigger the word will change, and the words on the screen will vary with different arrangement forms. This animation-like interaction may attract the student's attention and encourage them to take part in the conference. With this CPC teaching material, I have presented it in 3 different meetings. The total grade of satisfaction was 98% from 66 participants (Table 1).

This innovative CPC teaching material is designed to improve the teaching quality of oral diagnostics, stimulate

Table 1 Participants' satisfaction to the innovative interactive clinico-pathological conference presentation.

Grade of satisfaction (%)		
Very satisfied	Satisfied	Dissatisfied
89	9	2
Response rate: 65% (66/102).		

students' interest in learning, promote their engagement in study and discussion, and enhance their learning effectiveness by combining basic and clinical knowledge. It is necessary to have more practice for this CPC to confirm its validation in the future.

Declaration of competing interest

The author has no conflicts of interest relevant to this article.

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