

ABSTRACT

Traditional face-to-face teaching and learning methods in craniofacial anatomy typically include lectures, cadaveric dissection, and inspection of prosected plastinated specimens, models, and surface anatomy. While these methods are effective teaching modality, the COVID-19 pandemic has necessitated the development of new online approaches. There is evidence that traditional methods with online interactive teaching and learning components are beneficial to students in improving their understanding. Craniofacial anatomy is taught in the School of Dental Sciences of Universiti Sains Malaysia during the first year of study, with the course learning outcomes including knowledge, performance in practical sessions, and the ability to think critically and solve problems. To address these course learning outcomes, collaborative teaching and learning activities combining traditional methods and online resources were used. Traditional methods are used for lectures and practical sessions, whereas seminars, tutorials, quizzes, and e-learning sessions have used either a hybrid of face-to-face and online teaching or entirely online teaching. Among the tools used during online sessions are Genially interactive learning, Jamboard interactive learning, and Kahoot interactive quizzes. These interactive resources are embedded in Moodle eLearn@USM platform. Students are fully engaged in all sessions and their knowledge and skill are assessed through continuous assessment. Academic staff facilitate all sessions and provide feedback on the questions given in the activities. Students appreciated the collaborative teaching and learning methods, which improved their understanding of the subjects. In conclusion, collaborative hybrid teaching and learning methods have been shown not only in enhancing students' understanding of craniofacial anatomy subjects but also increased their active participation during sessions.

Keywords: craniofacial anatomy; interactive learning; online learning; collaborative teaching; immersive teaching

INTRODUCTION

Craniofacial anatomy is taught at the School of Dental Sciences of Universiti Sains Malaysia during the first year of study. It introduces the normal structure and function of human craniofacial system, the brain, and nervous tissues. The learning outcomes are knowledge, performance in practical sessions, and the ability to think critically and solve problems. To address these learning outcomes, collaborative immersive teaching and learning activities combining traditional methods and online resources are used.

MOTIVATION

While these face-to-face methods are often effective teaching modalities, students were often not engaged during classes where the lecturers are the ones talking during classes. Often students are not confident to answer questions during face-to-face teachings.

OBJECTIVE

The objective of collaborative immersive teaching is to improve students understanding of the subjects through active participation in teaching and learning activities.



FACE TO FACE LECTURES & PRACTICALS

Traditional lectures were given to provide students with an overview of the key concepts in craniofacial anatomy subjects. Lectures are supplemented with visual aids such as photographs, anatomical diagrams, and videos.

Practical classes provide students with hands-on experience in examining anatomical models and plastinated specimens of the craniofacial structures. This will enable students to gain deeper understanding of the structures and functions of the craniofacial anatomy. The academic staff will help students in explaining questions students may have during these sessions.



ONLINE LEARNING

E-learning is an online platform that enable students to access course materials. E-learning sessions can take various forms, including live webinars, interactive online courses, interactive quizzes, gamification and multimedia content.

Self-directed learning materials were created using the Genially platform, which included interactive elements. These sessions are interactive and engaging which can keep students motivated and interested.

One of the key benefits of e-learning sessions is flexibility, as students can access course materials and instruction from anywhere, at any time. This makes it easier for them to balance their studies with other obligations. Additionally, e-learning platforms can provide students with instant feedback on their performance, which can help them to identify areas where they need to focus their attention.



TUTORIALS & SEMINARS

Tutorials and seminars are intended to provide students with additional resources and support in addition to lectures and practical classes. Moreover, seminars give the opportunity of self-directed learning. Students work in groups and presents topics through a hybrid of face-to-face and interactive platforms using Jamboard, Kahoot, and Canva platforms to make these sessions more engaging and interactive. When conducted online, tutorials and seminars are conducted using video conferencing tools such as Zoom or WebEx and can be recorded for later viewing.

All materials are embedded in the Moodle eLearn@USM platform



ADDED VALUE & IMPACT

The added value and impact of these collaborative teaching and learning methods are students can gain more comprehensive understanding of craniofacial anatomy subjects, retain knowledge for a longer period and have a more engaging and interactive learning experience which can enhance motivation and improve student outcomes. Academic staff are encouraged to keep themselves updated and explore the latest teaching technologies to provide their students with an enhanced learning experience.



CONCLUSIONS

In conclusion, students appreciated the collaborative teaching and learning methods, which improved their understanding of the subjects. Collaborative hybrid teaching and learning methods have been shown not only in enhancing students' understanding of craniofacial anatomy subjects but also increased their active participation during sessions.



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