

Exploration of Clinical Regional Anatomy Teaching Mode By Online and Offline Hybrid Team Collaboration Using Surgical Videos

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Abstract

Based on the importance and characteristics of regional anatomy courses, this article proposes a clinical regional anatomy teaching model by online and offline hybrid team collaboration using surgical videos. In this mode, the online and offline seamless connection technology and its team collaboration model can be effective improve teaching efficiency and solve the current shortage of teachers. At the same time, the offline recording of expert surgery videos, which are edited into partial teaching videos and uploaded to the internet, not only facilitates unlimited review of students, but also greatly strengthens medical students' understanding of local clinical knowledge. Based on the resource sharing mechanism of the teaching platform, the process evaluation system of the course, and the multi-form survey feedback mechanism, the closed-loop optimization of pre-class-in-class-after-class can be carried out more effectively. The actual teaching process shows that the effect of this model is obvious and can be popularized and used.

Keywords

Clinical regional anatomy; Online and offline mixed teaching; Surgical videos; Resource sharing; Team collaboration.

1. Introduction

Online teaching is a new thing, and its flexibility and practicality have been fully reflected during the new crown epidemic. How to teach online? How to effectively combine online and offline teaching? There are many teaching platforms. How can we achieve seamless connection so that information technology can truly serve the classroom and teachers and students? How can teachers obtain students' feedback in a timely and effective manner to improve classroom efficiency? These problems need to be solved in specific teaching practice([1-7]).

Regional anatomy is a bridge between basic medicine and clinical medicine, and it is an important foundation of surgery, obstetrics and gynecology, medical imaging and other disciplines. Learning regional anatomy, a professional basic course, is of great practical significance for medical students. However, the content of regional anatomy is detailed and complicated. It is not easy for the lower-grade medical students to grasp the hierarchical structure of each region, the location of the organs, the shape and the adjacency, let alone the clinical significance of each level and structure.

In addition, the heavy teaching tasks of the clinical regional anatomy teaching and research section and the lack of teachers are also an obvious current situation.

Inspired by the division of labor([8-9]), a clinical regional anatomy teaching model using online and offline hybrid team collaboration using surgical videos is proposed, that is, team members collaborate, and local teaching videos constructed based on expert surgical videos are used as the introduction point, and online and offline hybrid teaching is adopted. Method and evaluation system to explore a new model of clinical local anatomy teaching.

2. Concept of New Teaching Model of Clinical Local Anatomy

The clinical local anatomy teaching model of online and offline mixed team collaboration using surgical videos has the following keywords: teamwork, online and online hybrid teaching, and disassembly of local knowledge points based on expert surgical videos.

2.1. Teamwork Cooperation

According to the advantages of the group members, the division of work is clearly defined and teamwork is carried out; the same content is taught once and the students learn together to improve teaching efficiency and solve the problem of insufficient teachers. In addition, local knowledge points-basic and clinical bridging-local anatomy practice, forming an interactive closed-loop teaching.

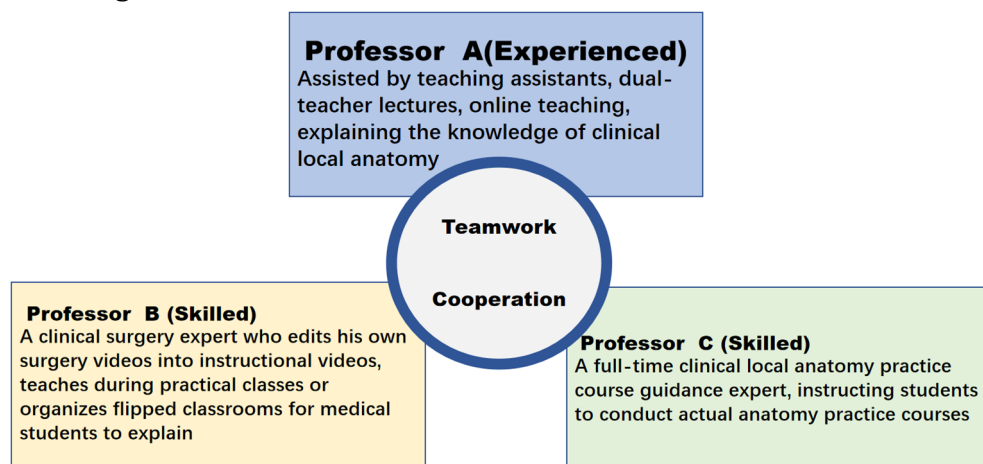


Figure 1. Diagram of teamwork cooperation mode

2.2. Online and Offline Hybrid Mode

Offline preparation, online teaching, offline practical operation, and seamless connection between multiple communication platforms in teaching activities.

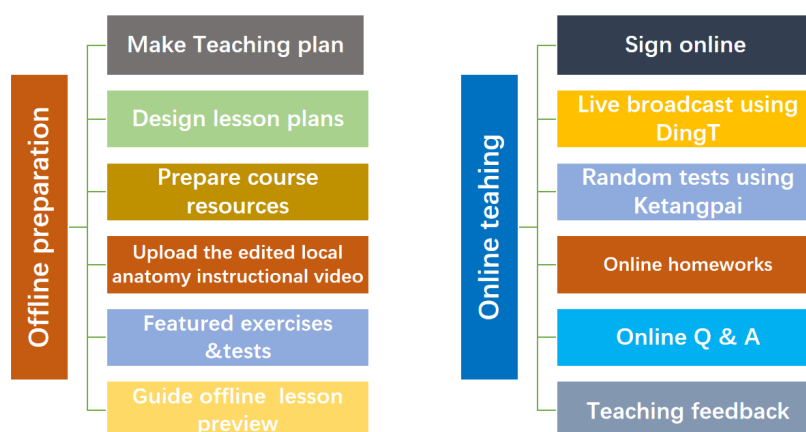


Figure 2. Diagram of online and offline mixed teaching mode

2.3. Using Surgical Video to Enhance Medical Students Understanding of Clinical Interpretation Knowledge

This part is mainly implemented by clinical surgery experts, who edit their own surgery videos into local interpretation teaching videos, and number each step of the operation, and publish it online in advance. The teacher teaches during the practical operation class, or organizes a flipped class to allow medical students to explain the levels and anatomical structures involved in each step of the operation.

3. Implementation Plan of Teaching Mode

The content of clinical bureau interpretation is complicated, involving all systems and organs of the whole body, and the teaching arrangement combined with specific teaching practice is completed simultaneously. Let's take the teaching of neck localization as an example to illustrate the specific implementation plan of the teaching model

3.1. Online Teaching Part

Lectures by experience professors with teaching experience, assistants to assist in completing the collection and presentation of electronic materials and undertaking classroom interactions, forming a double-teacher lecture hall, online teaching, teaching clinical bureau interpretation knowledge points; the same content is taught once, all students participating in the new mode of teaching Study together, the lecture videos can be watched repeatedly by students, and at the same time, in specific teaching links, a seamless connection technology based on multiple platforms and a procedural evaluation system are implemented to realize the intelligent, diversified and closed-loop optimization of teaching:

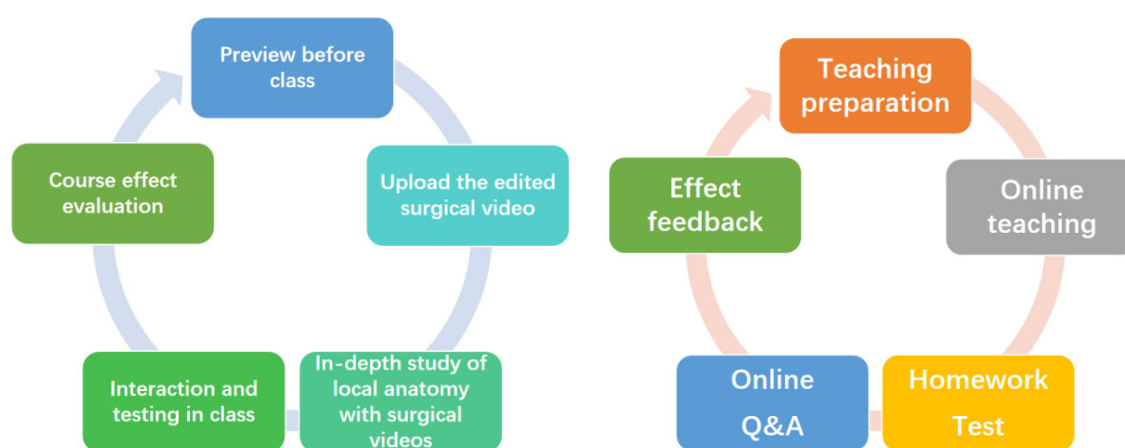


Figure 3. Teaching closed loop diagram

3.1.1. Build An Information Sharing Resource Database to Realize Resource Sharing

- ①. Establish the teaching resource database of clinical local anatomy.
- ②. Make electronic materials such as teaching courseware, electronic teaching plans, online homework and tests, and upload them to the shared resource library to enrich the existing network resources

3.1.2. Make Full Use of the Platform Function Tools, Electronic Homework and Testing, and Promote the Realization of Intelligent Teaching

- ①. Divide the knowledge points into multiple-choice questions, judgment questions, question and answer questions and case analysis questions in advance.

②. Electronic test of knowledge points: Subjective questions (multiple choice, judgment questions) can be automatically corrected by using the platform, which is conducive to teachers to immediately obtain students' grasp of information, provide targeted feedback, and improve classroom efficiency.

3.1.3. Using Multi Platform Real-time Interactive Teaching Means to Promote the Diversification of Teaching Modes

①. Build mainstream platforms such as class wechat group, QQ group and nailing class group for students to answer questions and publish class group information separately.

②. Choose a stable live broadcasting platform, such as nail live broadcasting and Tencent classroom for online interactive teaching.

③. Class dispatch, rain class and WPS online forms for attendance, testing and related statistics.

3.1.4. Build A Questionnaire, Carry Out Effect Feedback Statistics, and Optimize Teaching

①. Create the corresponding information questionnaire according to the closed-loop teaching process. Use WPS online form platform to create questionnaires, such as weekly learning questionnaire, weekly test questionnaire, curriculum design questionnaire and curriculum mastery questionnaire, so as to conduct surveys and obtain data.

②. According to statistical data and students' information feedback, teachers can make adjustments to the plan in time to continuously improve the closed-loop teaching process.

3.2. Offline Teaching Part

3.2.1. Use Surgical Videos to Strengthen Medical Students' Understanding of Clinical Interpretation Knowledge

①. Edit the surgical video into local explanation teaching videos. For example, the process of conventional thyroid surgery to expose the thyroid gland explains the hierarchical structure of the neck and the fascia of the neck. Lymph node dissection explains the sternocleidomastoid muscle area and the base of the neck. V-area lymph node dissection explains the anatomy of the lateral cervical area; explains the neck muscles from a new perspective through the axillary airless thyroid surgery; and explains every step of the operation and the operation of the part. The main organization structure displayed is numbered on the screen, which is helpful for flipping the description of medical students in the classroom. Release the produced video online in advance.

②. Upload the produced video in advance.

③. Teachers will explain the video during practical exercises, or organize flipped classrooms for medical students to explain the levels and anatomical structures involved in each step of the operation.

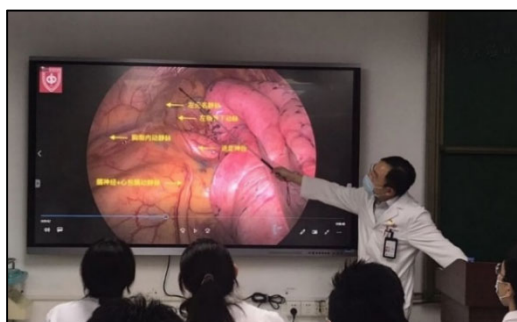


Figure 4. Using surgical videos to demonstrate offline teaching

3.2.2. Practice Class

The clinical local anatomy practice class is similar to the current traditional local interpretation practice teaching, but it is necessary to abandon the structure that overemphasizes the

significance of clinical practice and is difficult to dissect, such as the neck loop; mainly full-time local interpretation practice guidance experts participate in the teaching, clinical surgery Experts can assist in participating in this part of the teaching activities.

4. Conclusion

This paper proposes a clinical local anatomy teaching model using online and offline hybrid team collaboration using surgical videos. The team collaboration mode can effectively alleviate the current situation of heavy teaching tasks in the anatomy teaching and research section and fewer teachers; the online and offline mixed teaching mode based on multiple platforms can get rid of the constraints of time and space and effectively promote to diversify and intelligentize teaching; online local teaching videos edited based on real surgeries by experts greatly strengthen medical students' understanding of local clinical knowledge; resource sharing mechanisms based on teaching platforms and the course's procedural evaluation system with multi-form survey feedback mechanism can more effectively carry out the closed-loop optimization of pre-class, in-class, and after-class. This mode changes the original traditional mode of teaching breaks. The actual teaching process shows that this mode has obvious effects and can be promoted and used.

Acknowledgments

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