

Problem-Based learning in collaboration and network resources for medical education

Committee on the Application of Information Technologies in Medical Education

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1. First

The problem-based learning (PBL) is well known as an effective method also for medical education. Network environments and medical resources (multimedia projects or database) on the network are used as powerful tools to carry out PBL. In this paper, we will show some examples of medical resources on the network used in JAPAN. Besides, we introduce a distant learning (distant mini-symposium) experiment between the universities of different specialty (Medical school and School of Nutrition). This experiment was effective to raise the motivation of the students in both universities.

2. Network Environments and resources on the network

We provide a lot of Information outlet (RJ-45 type) to all lecture rooms, conference rooms, research laboratories or study rooms in our campus. IP address is controlled automatically by using DHCP (dynamic host configuration protocol). So, faculty staffs or students can access the campus network quite easily and use following resources to study medicine on the campus network or the Internet.

1) Database

Recently, many medical professions pay attentions to Evidence-based Medicine. The break through of the medical education in Japan is the gratuitous (free) disclosure of MEDLINE on the Internet. Even our university, many faculty staffs try to carry out PBL for the students by using MEDLINE (Pub-MED system). Unfortunately (?) to Japanese students, MEDLINE is written in English. So, students use the electronic dictionary tools or on Web (simplified) English Japanese part translation system (LSD project; life sciences dictionary database; <http://lsd.pharm.kyoto-u.ac.jp/index-J.html>). Now, Japanese medical database IGAKU CHUO ZASSHI is also available on the Internet (commercial-based, pay site). It is easily conceivable that the application of these databases play an important role to the improvement of education for medicine.

2) Multimedia projects

The multimedia projects on the network are easy to retrieve like database system. So, students show a strong interest to them. We are making an effort to develop new multimedia projects in our faculty or purchase the license of various commercial-based projects available on the network. In our university, students can access following multimedia projects by using campus network system.

i) An electronic library system

Students can retrieve the electronic dictionary of medicine, English-Japanese or KOJIEN (EPWING version, Concurrently 10 users for each dictionary) without installing any CD-ROM dictionaries for local PCs.

ii) Commercial-based multimedia projects for medical education in Japanese

Today's medical treatment, Internal medicine resident reference, Hyper clinical internal medicine, Super Hospital pediatrics, etc.

iii) Resources on our Intranet (Web)

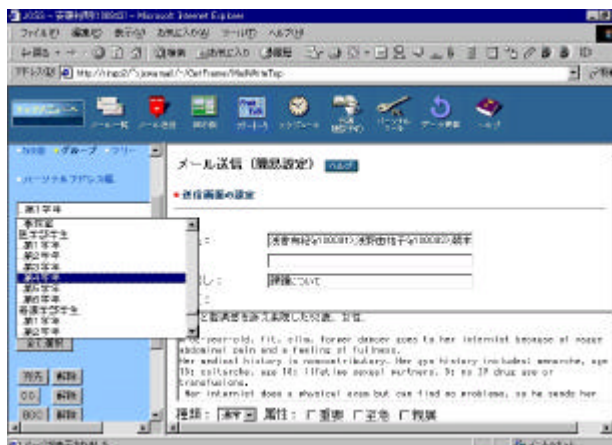
Some faculty staffs make homepages or PowerPoint presentation files for medical education.

iv) Computer Assisted Instruction (CAI) system

Web-based CAI system that contains about 26,000 questions based on Japanese National Examination for Medical doctor.

3) Groupware

E-mail is used as the communication tool between the students and faculty staffs. However, popular e-mail system based on POP (Post Office Protocol) has some problem such as user authentication or it's privacy (security). We introduced a groupware in 1989. Our groupware's web-based e-mail system can authenticate each students by their user IDs and passwords. The e-mail in the groupware is applied to the communications between the students and faculty staffs or the submission of reports.



3. Distant learning experiment between the universities of different specialties

We participated a distant learning experiment by using the satellite communication, produced by JUCE in 1998. This distant learning experiment between the universities of different specialty (Medical school and School of Nutrition) took the form of the mini symposium. Plural faculty staffs lectured about the common theme of "Lifestyle related diseases (diabetes, hypertension etc.)", each other with the view of their specialties. The reputations from the faculty staffs or students were very good.



Students commented in the following. "I could take part in the lectures of various fields", "The coordination of the physician and dietitian will be useful in the future", "I listened to lectures of professors which specialty is not got in our university", "I've got many information and knowledge by this experiment", "Distant learning between the universities of different specialty was interesting", etc.

4. Concluded Remarks

The use of the network or the Internet in medical education progressed largely by the free access of MEDLINE database (PubMed, IGM) in Japan. On the other hand, digitalized data or multimedia projects on the network can be replicated easily (and sometimes, illegally). Accordingly, the problems of the copyright control become more important. In Japan there are no guidelines like fair use of multimedia project for use of education. So, we (Japanese faculty) have to discuss and upgrade the mechanism of the copyright control or costs of network licenses about multimedia projects in the education field.