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Discussion of information technology based english teaching system for biological chemistry

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ABSTRACT

At present, biological chemistry engineering science and technology is applied in many areas in China. English is a useful tool for engineers to have international exchange. And biological chemistry engineering science and technology English teaching system based on information technology is becoming very popular method for engineering science and engineers. But the research on IT based English teaching system is ignored by education and industry. Firstly, the research status and development tendency of information technology based English teaching system is discussed; secondly, the main methods of information technology based English teaching system is analyzed; thirdly, we described a new English Teaching System based on information technology model for biological chemistry engineering science and technology; finally, the conclusions of information technology based English teaching system are put forward.

KEYWORDS

Biological chemistry; Engineering science and technology; English teaching system; Information technology.



INTRODUCTION

For a long time, English Teaching is applied in general education. Like other disciplines, English educations mainly focus on listening, speaking, reading and writing etc. English education for professional training is still not enough. In chemical engineering, for example, application of chemical engineering in the real life and the society is very extensive. In our practice teaching, we found that many science and engineering students of English foundation is not good. English teaching is more focused on the subject of the education of students. For chemical engineering students, they need to acquire practical knowledge. Therefore, English teaching specific system is very necessary.

INFORMATION TECHNOLOGY FOR BIOLOGICAL CHEMISTRY

Application of information technology in the teaching of chemistry is very extensive. Li Hongchun et al. developed and designed clinical biochemistry and biochemical tests online teaching system, which based on ASP + ADO technology; by using Microsoft IIS5.1 server, it can be added to the database via a browser; delete, modify, query and update operation is very easy. Clinical Biochemistry and Biochemistry test online teaching system includes: online learning, online tests, interactive learning, teaching and management^[1]. Take a virtual teaching system of organic chemistry as an example, the aim of this research is to solve the expression of basic knowledge of organic chemistry. Organic chemistry experiment is difficult to understand; its experiment is cost, risk and high toxicity; Jin Yongsheng et al put forward the development of virtual reality technology in organic chemistry and interactive 3D virtual teaching system. Among them, the basic knowledge is based on three-dimensional image presentation; organic chemistry experiment for classic can be real-time operated; in order to further improve the effectiveness of teaching, construct learning community use virtual learning scene for organic chemistry experiment^[2]. Mao lei et al give full play to the role of computer multimedia's teaching information capacity; their teaching is high efficiency, easy maintenance; in order to expand knowledge, students should meet the needs of different levels based on different students' learning needs; in order to improve the simulation laboratory facilities, make students hands-on preview study, the simulation teaching is out of the classroom by extension in time and space; survey shows that 55% of students request to extend the time of use, 74.5% of the students hope to repeated intensive training; the simulation practice is combining with the practice in factories; and after all, simulation practice cannot completely replace the actual practice factory; but practice has proved that the simulation experiment and practice on the computer can fully mobilize the initiative of students, train students' comprehensive ability, improve teaching effect and level; the simulation experiment and practice can be a professional basic course of technology for advanced undergraduate and graduate teaching and professional practice teaching^[3]. Zhao Qiwen et al introduce a new chemical engineering remote experiment system, and the system is used at Qinghai University for Chemical Engineering (Chemical Reaction Engineering Experiment); by using the application, successful experience, they get the following conclusions: provide students with a new way of learning, improve test efficiency, stimulate interest in learning, teaching time shortened, so that students can master the experiment to achieve the purpose of the content in the shortest possible time; reasonable arrangements help students plan their own learning, initiative to students at any time, any place access to education, to teach mainly to achieve the main changes to the school, reflects the people-centered teaching philosophy; get real experiment feelings, remote control experiment is operation control real laboratory equipment, so students can fully experience the true feelings of the experiment; make full use of limited laboratory equipment resources, existing laboratory equipment to be effective, and can be implemented in different laboratories^[4]. And about chemistry education, there are also some foreign researches, such as: rankings of chemical education and science education journals by faculty engaged in chemical education research^[5], teaching and learning science: the national research council weighs in on discipline-based education research^[6], a psychometric evaluation of the Colorado learning attitudes about science survey for use in chemistry^[7], chemistry of Pompeii and Herculaneum - a case study course in chemistry at the interface of ancient

technology and archeological conservation^[8]. These studies were useful for chemical engineering based on IT applications.

INFORMATION TECHNOLOGY FOR ENGLISH TEACHING

The second section of this paper discussed the chemistry science engineering based on information technology. This section, we will focus on English teaching based on information technology. Intelligent teaching system because it provides incentives such as timely and flexible feedback and active learners, it plays an important role in modern English teaching and learning. Based on the research on domestic and foreign intelligent teaching system and analysis of Chinese and English teaching requirements, CSIEC system is designed and developed with the characters of the constructivism, behaviorism and situated learning theory. In the original offer dialogue part, chat robot can use the intelligent test function of English vocabulary and curriculum management functions, so that it can better serve the needs of English Teaching in middle schools in china^[9]. Wang Jingjing et al. designed a complete English teaching system; the system provides analog classroom environment in the network; the network English teaching and classroom teaching are well combined; on one hand, based on reasonable design and through reading and writing module, it provides a management information about English learning platform for teachers; on the other hand, through the reasonable annotation of existing data and text analysis applications, it enhance network data to conduct a detailed survey for the development status of students' learning ability to guide foreign English teaching system; based on the theoretical investigation, an automatic recognition scheme based on corpus of English phrases is introduced; then, according to the characteristics of English teaching, the system gets the detailed design scheme of phrases and sentences learning function module and the realization of the process, to highlight the advantages of two modules and the existing network teaching system. It is not only provides an easy to use tool management teaching resources for teachers, more importantly, the design makes these data better to guide students in self-learning^[10]. Through in-depth study, Wu Canghai et al established the application model of unified modeling language in the design of web based English teaching system in colleges, the system includes the following several aspects: 1) the system function is complete, the personalized and interactive college English teaching system is realized; 2) the system development cycle is short with a low development costs; 3) the design process of software system is relatively clear; reliability of software design can guarantee; 4) the rate of code reuse and maintainability is good. Research in the design phase of the system, they designed the teachers, students, teaching management and other functional modules; the system has the following characteristics: 1) based on object oriented modeling, the system creates teacher model, student model and support model; 2) based on knowledge component design knowledge base is constructed^[11]. In the context of intelligent, personalized teaching English background, Chen Ying et al use information technology and curriculum integration as a guide to improve the quality and effectiveness of teaching; the relevant theory and literature analysis curriculum theory and other disciplines; field surveys and other research methods to explore the application of artificial intelligence in teaching high school English, and from the perspective of modern educational technology majors of view based on natural language understanding, machine learning and artificial intelligence techniques such as intelligent search; they try to design for high school English teaching artificial intelligence system module, and explore specific implementation conditions and ideas of the system; they designed to optimize the high school English teaching methods and effects^[12]. And about biological chemistry teaching, there are also some foreign researches, such as: incorporating biological mass spectrometry into undergraduate teaching labs, part 2: peptide identification via molecular mass determination, biological mass spectrometry into undergraduate teaching labs, part 2: peptide identification via molecular mass determination, biological mass

spectrometry into undergraduate teaching labs, part 1: identifying proteins based on molecular mass, confchem conference on case-based studies in chemical education: the future of case study teaching in science, implementing and evaluating mentored chemistry-biology technology lab modules to promote early interest in science. These studies were useful for biological chemistry teaching.

CONCLUSION

Related researches show that the teaching reform is necessary for biochemistry. Information technology and biochemistry combined application is very extensive. We analyzed domestic and foreign research progress that had the following points summarize as the conclusions: 1) Using the latest information technology applied to education is essential in biochemistry. We can use technology to build WEB based system, which is most popular learning management system, improve the efficiency of the teacher's teaching to enhance students' interest in learning. 2) For biochemistry teaching, using specialized databases is essential. Because of biochemistry is a very professional disciplines needed to build strong professional knowledge specialized databases. 3) Education system is based on a combination of theory and practice. Due to the design and implementation of teaching system is theory-based; therefore, we need to be modified and updated constantly.

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