應用虛擬顯微鏡於醫學系之病理實驗教學的研究和探討

The Evaluation Of Virtual Microscopic Teaching In Pathology Course For Medical Students

中文摘要

目的和動機

本研究是利用“虛擬顯微鏡於醫學系之病理實驗教學”系統開發建構來探討及評估網路教育未來引用在醫學教育上的可行性。主要是針對目前傳統醫學教育作革新，製作一套模擬顯微鏡的教學系統，作為課後輔助教材，縮短學習時間、增加學習能力、快速連貫應用，最後達到增強其思考，自我發揮之啓發性教學。最後針對(一)修課學生之學習成果和看法，(二)授課老師之教學成果和看法，(三)非同步遠距輔助教學是否適合於醫學教育，幾個重要議題作評估。

方法和步驟

本研究係以台北醫學院附設醫院及台北市立萬芳醫院的標本來源，製作成切片，經確定診斷後，數位攝影納入電腦，再作分析，資料規納整合，程式編寫測試，開發病理臨床切片輔助教學系統和架構，並利用其來評估網路教育未來引用在醫學教育上的可行性，其方法除了針對網路醫學課程的可行性異題作問卷調查，並針對學生上網型態的改變作評估，評估對像為臺北醫師院醫學系及牙醫系三年級全班同學。

結論和建議

評估結果本系統對課前預習及課後複習有很大的幫助，但因為目前傳輸頻寬尚不夠，許多同學上網學習的意願不很高。本研究在醫學教育有很大的貢獻和革新。把數十位臨床醫師的經驗和知識的累積，以快速有效之方法傳於年輕醫生是本研究的目標。未來教育部在教材改編時因朝非同步網路遠距教育這目標，可以節省許多重複性的浪費。在教師升調評鑑上不可只限於研究論文，更應考量該員的教材，給予鼓勵和上推動作未來醫學教育的革新和推展。

英文摘要

Purpose and Aims:

The Ministry of Education of Taiwan had announced "an university without wall, learning without limitation" as the educational perspective in the end of last century. Network education, virtual classroom and distance learning system had applied to Taiwan teaching system in the past century, but only few of them are related to technology and scientific courses, except in computer information. It is more conservative if the education is related to medicine. To obtain high quality of scholarship, the network education must go towards the development of high-tech education in the future.

Methods:

In our research, we had built a "architecture and a system, namely Virtual microscopic teaching in Pathology course for medical students" as a guide to evaluate and analyze the value of network education while integrate into medical education system. The aim of research is to build a new teaching method, which will shorten study time, increase learning ability, increase interactivity and satisfaction, compare to the traditional education method. The outcome variables that we evaluated were:

1. The help of this system in pre-class and post-class review compare
2. The satisfaction of users
3. The behavior changes after use of this system

Conclusion:

This "Virtual microscopic teaching in Pathology course for medical students" was created with the teaching slides from our affiliated hospital. The slides were digitized and contents were integrated and created in a web-based architecture, we use LivePicture technology in our image server in which the graph in our web can be magnified or moved as seen under microscopy. This new teaching method was then used as the aid of teaching material after class or lectures. This system made contributed and reformed traditional teaching in which it accumulated the knowledge of 10 experienced clinical doctors and used a faster teaching method to pass the knowledge to the next generation. Since one was unable to learn from many teachers in one's life, we tried to use this network teaching system as the media to overcome the limitation of distance and time. By using the interactive and multimedia characteristics of a computer, we made it realistic for the students to get the first hand medical knowledge.