CATEGORY: Technology Abstract ID: 10-114

A MODEL TO INTEGRATE PATHOLOGY TEACHING USING TECHNOLOGY.

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PURPOSE

To develop a model for integration in teaching pathology in the third year courses of medical school using technology. Traditionally in Kenya the first two years of medical school are considered basic, anatomy, physiology and biochemistry, introduction to immunology and pharmacology while the third year has been for teaching the abnormal, pathology. The teaching of pathology historically has been done by the departments of pathology, immunology, haematology, microbiology, histopathology and biochemistry. Major deficiencies have been noted in that students are not able to integrate the teaching from all these departments. To address this problem we developed a model to integrate the various aspects of the different departments by providing additional cases and materials in the thin client computer laboratory. All the information is on the central server which provides it to the sixty terminals. This controls what material students can access, prevents students from surfing the web, and requires maintenance of only the server rather than sixty separate computers.

METHODS

Eight week course of general pathology has been chosen for this model. This is based on the fact that this is the first course in pathology and has available teaching materials in the computer server. The faculty member who teaches the course is the course director. Three practical sessions are usually given to each of the following departments: histopathology, microbiology, haematology, immunology and clinical chemistry. Additional information was made available to students in the new thin client computer laboratory funded by Prof. Smith. A questionnaire to evaluate student opinions of the new format was administered at the end of the course to all the students. It targeted three areas: computer technology as a teaching tool, quality of materials and relevance.

RESULTS

Feed back of students was analysed. A second analysis will compare the continuous assessment tests (CATs), also known as end of term one exams (ETE 1) results performance with those of the same time last year.

CONCLUSIONS

The results will be used to develop a model to integrate teaching of pathology using computer technology. This will later be extended to include basic courses; anatomy, biochemistry, immunology and physiology.

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CATEGORY: Technology Abstract ID: 10-131
Award Nominee

INTEGRATION OF ONLINE LEARNING SYSTEM RESOURCES IN A PROBLEM BASED ANATOMY COURSE

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PURPOSE

In Drexel University College of Medicine's Problem Based Learning (PBL) curriculum, anatomy (including embryology, gross anatomy and microanatomy) is taught within the framework of 15 clinical case scenarios and includes both lab and lecture based resource sessions. Last year, we supplemented the course with an online resource developed within the Blackboard Vista (Bbvista) learning system. The resource provides students with self-study learning modules, microanatomy laboratory assignments (including virtual slides), practice assessments, and supplementary lecture material, all organized within their case-based framework. Relevant materials become available to students as new cases begin and self-assessments automatically activate at the end of each case.

METHODS

Data on student (N=68) usage and self-assessments were collected automatically within Bbvista. Correlation coefficients and t-tests were used to test for relationships between various measures of Bbvista usage and performance on practical and multiple-choice exams.

RESULTS

Average time spent on Bbvista was 36 hrs 31 minutes (+/- .67) per student. Students who opted not to take online assessments performed significantly lower on both practical and multiple-choice examinations, as did those who, on average, failed the online assessments. Students who spent the least amount of time on Bbvista overall performed significantly lower on practical exams.

CONCLUSIONS

The use of an online learning system provides flexible access to resources for students in a PBL curriculum. Students can choose which resources to utilize and when. In-class laboratory time, particularly in microanatomy, is used more effectively, serving as a time to review and discuss. Amount of time spent on Bbvista, and usage of the self-assessments both correlated positively with student performance. The predictive value of the self-assessments could be a useful tool for identifying at risk students early in the term.

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CATEGORY: Technology eDemo Abstract ID: 10-148

ENHANCEMENT OF ONLINE LIVE PRESENTATIONS WITH VISUAL ANNOTATIONS USING A TABLE MONITOR

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PURPOSE

From 2006-2009, Pathology teaching at the Indiana University School of Medicine – Evansville was conducted by a course director resident 200 miles away in Lafayette, IN. Both second year Pathology courses in Evansville and Lafayette were taught concurrently with the Evansville students having access to lectures recorded in Lafayette, as well as live online conferences and infrequent visits by the instructor. During web conferences, the instructor narrated Powerpoint presentations using a microphone and mounted webcam. However, students suggested that the live Powerpoint presentations were more difficult to follow and less effective than the recorded lectures because the instructor was able to annotate slides during lectures in the classroom, but not in the web conferencing environment.

METHODS

Using an Educational Research Grant awarded by the Indiana University School of Medicine, a tablet monitor was purchased to annotate Powerpoint presentations during the live web conferences. Students we asked to complete a survey and to evaluate the use of the tablet monitor during presentations.

RESULTS

Five of fifteen students completed the survey on the use of online resources for the course. All five report that the use of the annotations during in the online presentations was “Very Helpful”. However, when asked how helpful it would be to have access to the already annotated Powerpoint presentations for study, four students said that they would be “Somewhat helpful” and one student said “Not Very Helpful”.

CONCLUSIONS

Presentations using electronic annotations of the slides enhanced the ability of the students to focus both during live and recorded presentations, particularly when images were being described. The utility of these annotations included 1) visual stimulation to see something moving on the screen as the slide was being presented and 2) see how the instructor organized, prioritized, and emphasized information on the slide. Having slides that were already annotated were less useful to the students as compared to realtime visual changes to the slides.

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CATEGORY: Technology eDemo Abstract ID: 10-181

ENLIVEN LECTURES BY ADDING COMMENTARY TO VIDEOS FROM TV MEDICAL DRAMAS

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PURPOSE

The students in medical school today expect the quality of the lectures to be more innovative than just PowerPoint slides or chalk talks. One way to enliven the presentations is to incorporate video from popular TV medical shows to illustrate important points in the lesson. This method was used in a second year medical student course "Essentials of Endocrinology and Reproduction" and the students were surveyed on the effectiveness.

METHODS

Commercial TV shows were captured using a Direct Video Recorder and transferred to a computer where the relevant scenes were edited for presentation. The instructor comments regarding the TV scenes were incorporated into the video using green screen technology and the video editing program Premiere Elements (Adobe Systems Inc.). The video was then integrated into the PowerPoint lecture. At the end of the course the students were asked to rate the following question using a Likert scale (strongly agree to strongly disagree): "I found the videos to be interesting and useful in understanding the ER principles".

RESULTS

The student survey showed that 58% agreed or strongly agreed with the survey question while only 4.5% strongly disagreed or disagreed. In the survey we received student comments such as the following: (1)Videos in lecture are always good at cementing information into our heads. (2)Videos during lecture keep students awake. (3)Any different method of presenting the material helps me to think of it from a different angle. (4)In answer to "what I liked about the course" the response was: The videos from Dr. Smith's lectures. The one complaint from the students was that the videos were not captured by the lecture recording system (Tegrity Inc.).

CONCLUSIONS

The incorporation of short videos from commercial medical TV dramas can be used to illustrate important points during lectures. These enhancements to the usual PowerPoint lectures will hold the student's interest.

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CATEGORY: Technology eDemo Abstract ID: 10-191
Award Nominee

BIOLOGY AT THE MOLLECULAR AND CELLULAR LEVELS, A PROGRAM FOR COMPUTER ASSISTED INSTRUCTION

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PURPOSE

Biology has traditionally been taught using static flowchart images. The advent of computer animations provides a means to help students visualize the dynamic processes. A series of FlashTM animations has been composed to present molecular and cellular biology. The efficacy of these animations has been verified by favourable student evaluations and research data (Thatcher, 2006, JAOA, 106, 9-14). The animations are now being developed into an instructional program to be used as a supplemental resource for collegiate level courses.

METHODS

The program opens to a central menu allowing users to choose which animated lesson they wish to open. Each lesson opens to a topic menu allowing users to jump to any point in the lesson they wish. They can also click anywhere on the screen to progress through the lesson step by step. The lesson formats are stop action. Where appropriate, lists, tables and bit map images are incorporated. Explanatory text and narration are provided to explain concepts. Both the explanatory text and narration can be toggled on and off to serve the needs of individual users. Interactive quizzing is provided by pop up questions and by a question bank at the end of each lesson. Modular excerpts of the lessons that can be downloaded into PowerPoint slide shows will be provided with the instructional program.

RESULTS

This instructional program exploits the advantages of computerized instruction by allowing users to visualize complex, dynamic processes without overwhelming them with in depth details that are best presented by traditional textbooks.

CONCLUSIONS

The program serves as a valuable supplemental resource for collegiate level molecular and cell biology courses. It provides visual aids for lectures, and it can be employed for self-study.

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CATEGORY: Technology eDemo Abstract ID: 10-196

DEVELOPMENT OF AN ELECTRONIC MEDICAL RECORD FOR DOCUMENTATION OF AN INTERPROFESSIONAL TEAM ACTIVITY

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PURPOSE

Create a stand-alone electronic medical record (EMR) for documentation of a required interprofessional educational (IPE) activity. In this activity each team of four students was required to document the history, physical, past medical history (HPI), as well as form an assessment and patient care plan for a standardized patient (SP). The EMR yields a MS Word® document that could be easily distributed, read, reviewed and graded by the faculty involved in this project.

METHODS

The EMR was programmed with MS Visual Basic® software. The program resembles a standard medical record. The EMR software has free text boxes for students to type patient information with limited drop down boxes to facilitate the writing process. Once finished, the student can save, e-mail or print their record.

RESULTS

All year two medical (M2) and year three pharmacy (P3) students participated in a mandatory interprofessional experience (IPE). Sixty, four person teams, two M2s with two P3s, collaboratively interviewed an SP. Then they had 1 hr to research any additional info needed & complete their EMR. Students found the EMR easy to use, while prompting them to include all pertinent data. The faculty were able to review and evaluate the EMR in concert with the SP assessment of the HPI and team dynamics with the video of the SP interview.

CONCLUSIONS

The EMR provided a consistent format that was easily distributed. This was imperative to adequately assess the 60 team reports in conjunction with other team data. Continued use of the EMR will facilitate the development of the students' interviewing and written communication skills by prompting a complete review of systems with free text fields for HPI, assessment and plan.

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CATEGORY: Technology eDemo Abstract ID: 10-202

CT BASED 3-DIMENSIONAL IMAGING, A NEW TOOL FOR INSTRUCTION IN ANATOMY AND READING OF CROSS SECTIONAL IMAGES

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PURPOSE

This e-presentation will introduce a new tool for three-dimensional imaging, which can be used for instruction in anatomy, the anatomy of the biology of disease and radiology, and demonstrate its functionality.

METHODS

A radiation therapy treatment planning system (Eclipse, Varian Corp., Palo Alto, California) provides a powerful tool for three-dimensional imaging, which can be used for instruction in anatomy, the anatomy of disease and radiology. It is based on CT anatomy, and requires that structures be contoured (drawn) on sequential individual CT slices. Based on this contouring, structures can be visualized from any angle, either on digitally reconstructed radiographs (in 2D) or in 3 dimensions, with or without a translucent body surface. CT image sets obtained, and in some cases, associated PET scans &/or MRI scans, were de-identified, and then structures drawn by attending physicians, resident physicians, medical students, undergraduates and even a high school senior. The fusion tool allows structures to be contoured on MRI and PET image sets as well as CT.

RESULTS

Students report that this tool is the most effective way of learning to read CT scans they have found, and comparison of their drawings. The process of drawing teaches anatomy, & then image sets are available for interactive instruction and testing of mastery. The system is simple enough that a reasonably computer literate student or physician can learn to draw structures with less than an hour of orientation and training, with the use of a cross sectional anatomy book and occasional supervision from an experienced physician. While a library of three-dimensional images is being generated for ongoing use in instruction of anatomy of disease, learning is greatest when students draw themselves.

CONCLUSIONS

A modern radiation therapy treatment planning system provides a tremendously powerful instructional tool for lectures in anatomy, biology of disease, and diagnostic radiology, for testing of knowledge in these subjects, and for self instruction, particularly in the advanced imaging technologies.

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