ELECTRONIC PROJECTS FOR FINAL-YEAR STUDENTS

Laboratory or library-based projects frequently form a large component of the final year for Biosciences students. I have been using electronic projects where students create a learning technology (LT) resource for a number of years. These projects give students a transferable set of IT skills, meet the benchmark criteria of conventional projects and the materials created may then provide additional teaching resources.

These projects are carefully structured so that students can submit, and be assessed, against the criteria of conventional projects. Projects follow the following stages:

1. CHOICE OF TOPIC AND TARGET AUDIENCE

Topics include: "Chromosome painting", "DNA Fingerprinting", "Cystic Fibrosis" and the level specified e.g. second year undergraduates doing genetics.

2. EVALUATION OF EXISTING TEACHING MATERIALS FROM THE INTERNET/INTRANET

Students construct their own evaluation criteria and systematically report on a range of materials in terms of:

"Target audience", "subject content", "features", "appearance", "navigation", "menu options", and "ease of understanding".

3. SELECTION OF AUTHORING TOOLS

Presentation (PowerPoint) and web authoring software (e.g. HTML, HotMetal, FrontPage, Dreamweaver, Flash) are evaluated:

Ease of use, help files, and resources (animation, buttons, graphic handling, form creation) were major criterion for selection.

4. LITERATURE SEARCH

The stage is analogous to that of a conventional lab-based project forming a 2-3,000 word section of the final report and provides content for the development project.

5. SPECIFICATION, DESIGN AND CONSTRUCTION OF THE RESOURCE

The structure, content, navigation and the appearance of materials are specified and initial prototypes developed. Content is largely created from information gathered during the literature search but students frequently identify gaps in their understanding and do extensive further research. Teaching is a recognised way of testing one's own understanding as the need to explain a topic clearly identifies omissions of understanding. Students also gain a wide range of the technical skills necessary to build their web site. Typically these include: creating graphics, file size, accessibility issues, use of the chosen authoring package and, possibly, Flash for animations.

6. PROTOTYPE, DEBUG AND RUN PROGRAMME

Analytical and programming skills are developed during this phase, particularly where faults occur, and their source is identified and rectified. Students may also collect and analyse feedback on the site from their colleagues, for example one created three individual prototype designs using a web form to identify the most attractive.

7. PROJECT REPORT

The process of writing the final report is analogous to a conventional project and the resource is generally submitted on CD-ROM. Students are encouraged to include an evaluation of the process and product of their project in their final report.

These projects have been extremely successful; they are popular with students whilst providing a rigorous alternative to laboratory projects that promotes active, independent learning, and attract high marks. Students gain transferable skills, leading to employment or further studies in bio-computing and bio-communication. Advantages for the tutor include an inexpensive project and potential teaching resources for future students.

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CONCERNED ABOUT THE MATHEMATICAL SKILLS OF BIO-SCIENCE ENTRANTS?

Vicki Tariq was awarded a National Teaching Fellowship earlier this year. The aims of her project are to define more accurately the problems bioscience students encounter with mathematics and to evaluate the impact of a variety of intervention strategies on students' mathematical skills. If you are interested in the project aims and are eager to share and exchange practice with others, Vicki would like to hear from you.

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