Electronic tools for teaching

WebLearn in the Department of Earth Sciences

WebLearn offers electronic tools to support teaching, learning, and research.

This case study demonstrates how various WebLearn tools have been customised to meet student needs

"I've been playing with putting teaching materials on the web since 1996, so I pre-date WebLearn.
I have been through an entire cycle of WebLearn and am now using WebLearn—Sakai ."

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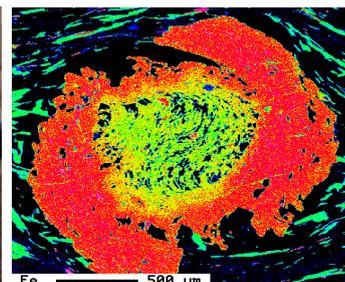
Introduction

Dr Dave Waters is a University Lecturer in Metamorphic Petrology in the Department of Earth Sciences. Dave has been using electronic technology to support student learning for many years, even coding his own quizzes in HTML. He shared with the WebLearn User Group what he has done in terms of experimenting with the following tools in WebLearn:

1. Quizzes (**Tests tool**): to offer self tests to support a conceptually difficult course
2. **Wiki:** to compile instructions, help and tips on using a particular piece of research software required by fourth-year undergraduates for their projects
3. Repositories (**Resources tool**): to share data and results among a group and provide feedback to fourth-year undergraduates on their analytical work.

Challenge 1

- Undergraduates need to learn a lot of terminology, as well as many new concepts and skills
- Students would benefit from revision questions in a self-test quiz that they can complete in their own time before the examinations in January

Innovation 1

The **Tests** tool in WebLearn allows a lecturer to set a revision test using questions in various formats. The questions can be randomly drawn from various question pools. In the case of the Earth Sciences students, the questions tested the ability to visualise three dimensional structures from two dimensional representations (e.g. maps and contours), and to identify different geological features, such as dipping strata, faults and folds. The questions were graded from simple to complex.
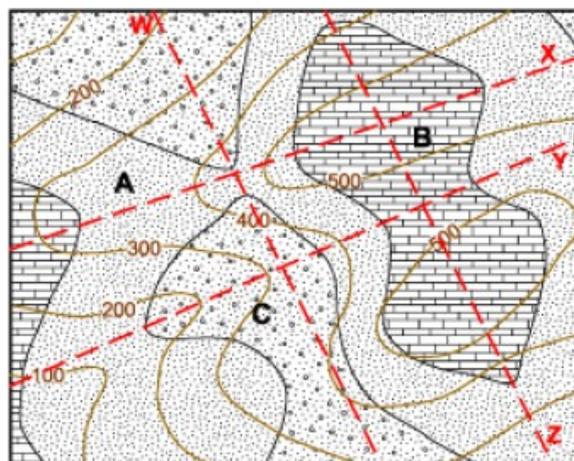
Dave ran the optional revisions tests during the term to consolidate the first five weeks' work and there was a 100% response rate (36 students).

Challenge 2

A group of researchers (called the **Hard Rock Group**) consisting of three academic staff, four post-graduate students and final-year undergraduate students doing project work needed to collaborate and communicate with each other and to build a sense of community and identity.

Innovation 2: A site was set up in WebLearn using the following tools:
- **Announcements** — with email notification — this turned out to be the best way of communicating with each other
- **Wiki** — dedicated to creating help material for a software tool used by the group
- **Resources** — repositories:
    * SEM tools — repository of useful files related to mineral analysis on their equipment
    * Discussion papers — repository of topical publications or critical comments, e.g. for use at group meetings
    * Data exchange — repository of analytical data for sharing and comment

The **Wiki** has worked well in building up a library of local tips for using the THERMOCALC software. The software package is not particularly intuitive, plus there is a steep learning curve in understanding difficult theoretical concepts. The postgraduate students in the group created the wiki pages which provide worked examples of procedures and a guide to other sources of help. Junior users are able to add notes and comments from their own experiences of using the software.
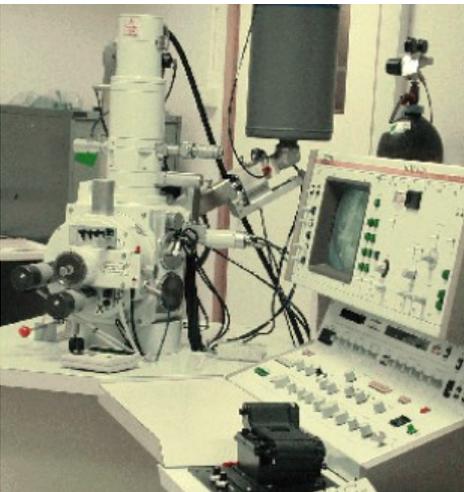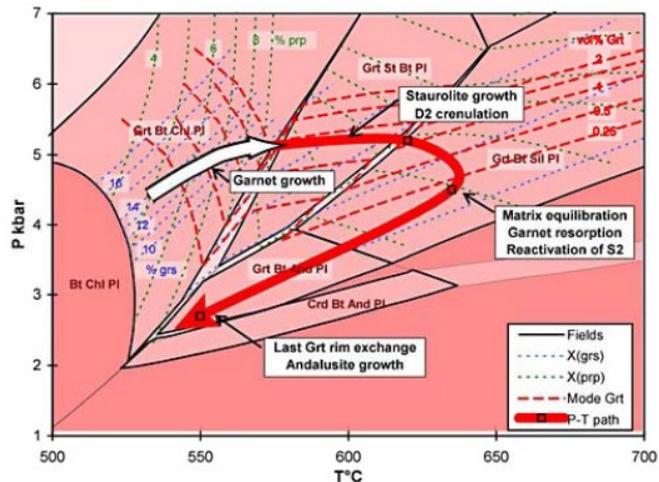
The **Data Exchange** repository is used by the fourth-year undergraduates to share and compare analytical data from their projects. They are novice researchers who have no problem in using the electron microscope, but they may need help in evaluating and interpreting the data. Expert analysts review the data which is uploaded as Excel spreadsheets, and provide annotations and feedback.

Advantages of the Data Exchange: the asynchronous nature of the online repository is convenient and saves making face-to-face appointments. Problems can be caught early, any user of the site can comment on the data, and all users can view the advice.

Dave says: "This has served another year with activity in all areas of the site. We had a record number of six fourth-year undergraduate researchers. We added an 'Active Projects' section to the repository as there was a need for sharing material of a more varied nature than the analytical results in the Data Exchange."

Has it been successful?

1. **Quizzes**: yes, these have been popular and effective for revision. Dave intends to expand the use of the tests in the current year and to collect feedback from the students.
2. **Wiki**: it is actively growing and instructions can be tailored to local needs.
3. **Data Exchange**: the ability to seek advice from peers and experts, and to share specifics about data analysis are really valuable.

More Information?

See 'WLUG Presentations' at https://weblearn.ox.ac.uk/info/eas

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Dave Waters and Jill Fresen, August 2012