Online learning in Conservation Statistics: a wild success

Upskilling opportunities for conservationists in the field are rare

Wildlife conservationists in the developing world are the keepers of biodiversity, yet they frequently lack access to training in research techniques to support their valuable work. Dr Lucy Tallents from the Wildlife Conservation Research Unit (WildCRU, Department of Zoology) saw a real opportunity to offer conservationists the chance to study online. This would mean that students could develop important new skills without the need to interrupt conservation work or to pay the costs of overseas travel.

An online system that works wherever, whenever

'Conservation statistics' is a 9-week postgraduate course created by Lucy and taught entirely through WebLearn. Between 20 and 25 wildlife conservation practitioners study part-time (10 hrs/week) to enhance their professional skills. The course aims to provide team activities and engaging learning materials, meaning that students from around the world work together to learn how solutions developed on a different continent can help species in their locality. Furthermore, feedback from their tutor and fellow students helps participants to evaluate the impact of their work using scientific methods.
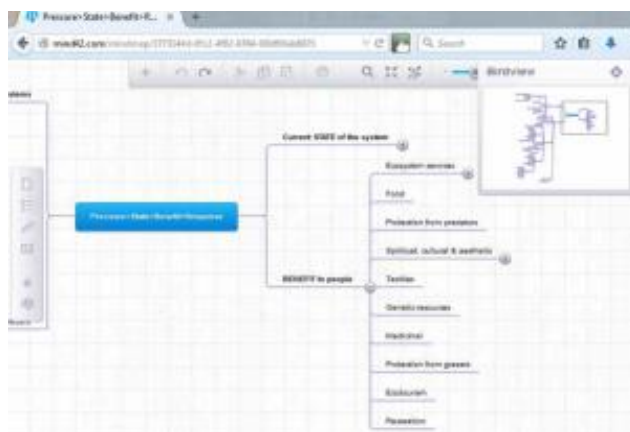

Figure 1 The collaboratively edited mindmap

The course goals are to:
1. encourage students to develop and refine their own conservation research;
2. expose them to new techniques for visualising and analysing their field data using open source software;
3. encourage them to reflect on what they have learnt and apply their new skills;

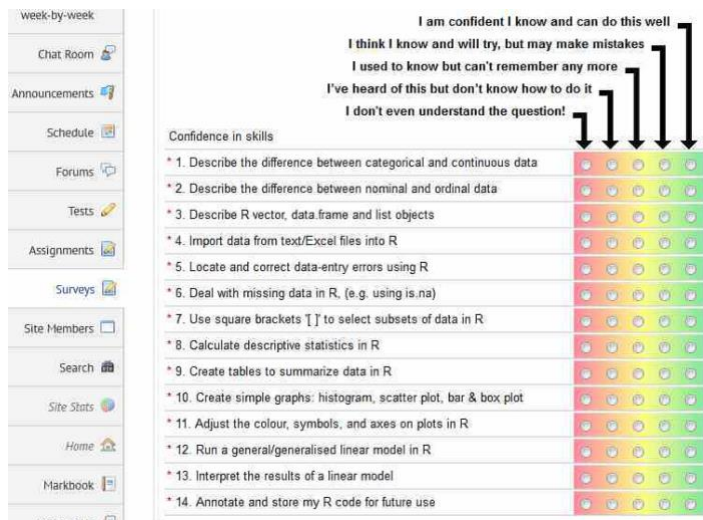4. provide opportunities to collaborate across cultures, regions and professional backgrounds.

Figure 2 Skills audit as a Survey so anonymized results can be shared with the group

The learning outcomes are for students to:
1. articulate their understanding and identify gaps in their knowledge;
2. develop and critically evaluate research questions relevant to their own work;
3. select and apply the appropriate statistical technique, and justify their choice;
4. interpret their results and present visual, text and numeric evidence to support their conclusions.

Lucy has tailored her approach to follow particular pedagogical principles. She believes learning is most effective when student-centred and problem-based, with multiple opportunities for reflection, discussion and application of skills. Knowledge should be constructed within a community as students learn from each other and develop their own professional judgement. Feedback should be prompt to affirm understanding and support efforts to correct errors. To achieve these, she based the course around a spiral curriculum to regularly revisit concepts and skills.

Pioneering use of WebLearn

Lucy had already run an online course through Moodle with the Department for Continuing Education. However, she wanted to have more control of the site and valued WebLearn for its diverse tool set and. She has used it to present engaging, well-organised content, to foster the development of a learning community, and encourage deep learning. She collaborated with Rajan Amin at the Zoological Society of London (ZSL) to create content. The Oxford University WebLearn team provided training and technical assistance on WebLearn.

Within WebLearn, Lucy has made particular use of:
- **The Lesson tool** to guide students through activities, prompting reflection through questions. Collaboratively edited student lessons allow feedback through public peer review.
- **Forums** to allow students to explore ideas, share resources, and support and challenge their peers. WebLearn allows them to view conversations in different

ways, and keep track of new posts. Teams brainstorm and refine plans in private discussions before sharing them.

- Formative **Tests** and summative **Assignments** provide students with immediate feedback on their understanding and application of techniques.
- **Markbook** collates each student's marks, making it straightforward to summarise and communicate their performance to them.
- **Surveys** collect feedback on the learning activities and tutor input, and promote reflection through a skills audit.
- **Chat** allows live troubleshooting of software code without requiring high bandwidth, and archives solutions for reference.
- The **Site stats** tool is invaluable for monitoring progress and offering assistance if someone hasn't accessed the course or a particular activity
- **Announcements** introduce weekly topics and remind students about deadlines.
- **WebDAV** allows updates resources to be easily uploaded.

To keep a level playing field, she chose to avoid synchronous video or audio, so those who can't receive streamed content don't feel excluded.
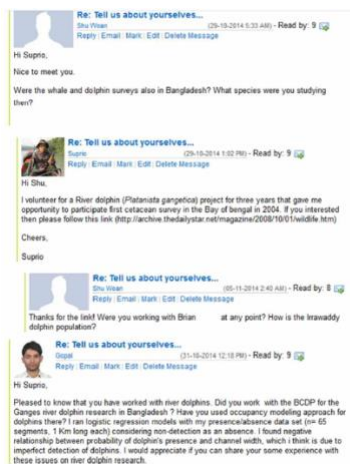
Figure 3 Self-introductions and spontaneous clusters

At the start of the course, students introduce themselves and spontaneously cluster into friendly groups working on the same issue or species on arrival. They share previous experiences of learning statistics and reassure those who express anxiety. Students have multiple opportunities to collaborate, ranging from standard practice to more innovative exercises, including chat rooms and a troubleshooting forum for asynchronous problem-solving. They can easily share resources in forums or on student pages, posting scientific papers (including their own publications), links to useful conservation guidance and equipment, their organisation's home page, TED talks and local news articles.

Favourable feedback

A mid-course survey response was run with very positive responses. Out of 15 respondents, 87% agreed or strongly agreed with the statement that 'The course contains a good balance of independent study and reflection, group discussions and practical exercises.' This is reflected in high levels of engagement with the course. The 'What to research, and why?' forum is active and popular with 56 messages in 12 conversations. All students replied to Lucy's invitation to introduce themselves, two-thirds initiated at least one conversation, and 80% posted in at least one of the forums created by other students. Within individual

forums, 50-55% of students were engaged in a given forum. Many students commented very favourably on the course:

'Excellent. The use of "smileys" and casual language and content (e.g. the weather in the UK) make for a relaxed learning environment, and therefore a more cooperative one.'
'It was fascinating to read about where other students come from and what they do.'

'I think the Mind42 map of Pressure-State-Response-Benefit tool was great and helped to really visualise and categorise the broad subject of conservation in a single object. … it was a fantastic visualisation tool.'

'The discussion on 'what to research and why?' is a good forum, as there are many students trying to answer similar questions, but in different ways and under different conditions.'

'I think the learning materials were very manageable in terms of splitting the week's activities and exercises across multiple PDFs allowed participants to find natural breaks in work, and made it more "digestible". Also, by being able to download the guides, they will be usable in the future and, therefore useful to refer back to if required.'

Figure 4 Example of automated feedback from formative Tests

Further information

- View an online demo of the Conservation Statistics course.
- For further information about WebLearn, and to find out how you can use it in your teaching, whether with Oxford-based students or distance learners, contact the WebLearn team.
- To find out more about Dr Lucy Tallents, you can visit her website and follow her on Twitter: @LucyTallents.

Winner, OxTALENT 2015 award for use of WebLearn. The text and images in this case study have been adapted from Lucy Tallents' entry for the OxTALENT competition.