WORKSHOP REPORT

Teaching Statistics in Higher Education Workshop, University of Bristol

Neville Davies & John Marriott
Royal Statistical Society Centre for Statistical Education, Plymouth University, UK

Corresponding author:
Neville Davies, The Royal Statistical Society Centre for Statistical Education, University of Plymouth, Drake Circus, Plymouth, Devon PL4 8AA, UK
Email: neville.davies@rsscse.org.uk, Phone: +44 (0)1752 585456

Abstract
A report on a workshop held at the University of Bristol on the teaching of statistics.

Keywords: teaching statistics

Introduction
More than 20 colleagues from higher education (HE) institutions in Bristol registered to attend this Higher Education Academy (HEA) Mathematics, Statistics and Operational Research workshop which was held on 28 March 2012. The workshop opened with a welcome from the local organiser, Dr Rich Harris, who also chaired the day's events. The welcome was followed by a talk by Dr Mary McAlinden in which she described her role as discipline lead for Mathematics, Statistics and Operational Research at the HEA Mathematics, Statistics and Operational Research and outlined the opportunities available for funding learning and teaching projects available from the HEA.

Workshop Sessions
John Marriott facilitated the next three sessions of the day. The first workshop session started with a general discussion of what statistics is and the role that mathematics plays in statistics. This was followed by a session exploring participants’ views of issues that are difficult to teach in their experience, or difficult for students to learn, and why they held these views. The participants’ views of topics that were easy to teach and for students to learn were also explored and a lively discussion ensued. This session ended with a discussion that explored what statistical knowledge students had when they started the modules taught by the participants and how much of this they might have acquired before they started their degree studies.

The third session started with a brief description of the Royal Statistical Society (RSS) Certificate in Teaching Statistics in HE which was designed for distance learning study and can be undertaken by HE staff who are teaching, or about to teach, statistics at university or HE level. The certificate has been accredited as a professional qualification by the RSS and
explores participants’ pedagogical needs. Past graduates of the course, many of whom were experienced statistics lecturers, have found that it provided the opportunity to look at their teaching in a different light and has proved to be a catalyst for changes that have been well received by both their colleagues and students.

For the fourth session participants worked in groups of four or five to discuss common issues faced by colleagues across their institutions. In particular different pedagogic aspects of learning, teaching and assessing statistical topics and obtaining feedback were discussed and, by sharing their personal experiences, participants considered how these issues could be addressed. At the end of each short discussion the groups fed back their thoughts to all participants. The topics that were covered in this session included discussion of:

- their approaches to assessing students’ entry levels in mathematics and statistics;
- whole-class activities that could be used to engage the interest of students in the first, introductory, class;
- how the attitudes and expectations of the lecturer can affect students, how they deal with the first lecture for a new class and what they think works in different circumstances;
- whether, in a service course like a part-time management course, Greek symbols are needed at all;
- common misunderstandings of \( p \)-values in hypothesis testing when they are automatically produced by statistical software.

Participants were also given several other activities to take away from the day’s events and were encouraged to discuss them with colleagues in their departments.

The final session was ‘What’s happening at Bristol’ – a ‘show and tell’ session for which colleagues from Bristol University gave short presentations on issues they wanted to raise and experiences they wanted to share. Much of the discussion centred around an interactive e-book being developed under www.bristol.ac.uk/cmm/research/estat/downloads/index.html and a new open unit at Bristol.

After the event participants were circulated with an email containing references to resources and publications that were mentioned during the day.

**Feedback**

Feedback from the participants revealed that 92% of them were either satisfied or very satisfied with the day’s proceedings. They came to the day with a wide range of expectations which included: networking; learning more about problems encountered in teaching statistics and ideas of good practice. The most popular reason for attending was to avail themselves of an opportunity to discuss ideas about teaching statistics with colleagues.

Over 70% said that their expectations had been met or exceeded and the majority commented on how useful they found the discussion sessions. Most of the respondents to the feedback questionnaire indicated that the workshop experience had been instrumental in motivating them to try new approaches to some aspects of their teaching.