Enhancing the communication and speaking skills of mathematics undergraduates

James Groves
Department of Mathematics & Statistics
Lancaster University
j.groves@lancaster.ac.uk

Summit recommendation:
Development of maths-focused resources equivalent to already published generic resources on improving students’ communication skills.

Project interim report

In June 2011, Lancaster University delivered a substantially enhanced course in Communication and Presentation Skills to 108 second-year undergraduate mathematicians. The course was delivered jointly by staff in the Department of Mathematics and Statistics and CETAD, the Centre for Training and Development. Funding for the course and its increased staffing requirement came from our HE Curriculum Innovation Fund grant of £5,000. The course formed part of Lancaster’s credit-bearing MATH390 Project Skills module.

Students were divided into four classes, with roughly 27 in each class – within each class, students formed themselves into six groups. Each class was taught by two tutors – one from the Department of Mathematics and Statistics and one from CETAD. Each student participated in five learning sessions, taking place over three successive Fridays, covering:

- What makes a good communicator?
- Formative assessment: given a previously-unseen article from a magazine, your group has two and a half hours to prepare and deliver a 5-minute presentation on the article. You may not use visual aids.
- What makes a good oral presentation?
- Summative assessment: your group has one week to prepare and deliver a 10-minute presentation on a mathematical result of your choice. You may use visual aids.
- What is teamwork?
- The learning cycle.
- Team exercise: coding and codebreaking.

Students had nine hours’ contact time with tutors over the duration of the course.

Feedback on both the formative and summative assessments was given by a group of their peers (immediately following the presentations) and by their tutors (within a week of their presentations). Participants were encouraged to reflect on their performances.
Participants were able to use their recently-acquired skills in mathematical typesetting using LaTeX, which they had been learning that month as another component of the MATH390 module, to produce high quality slides for their summative presentations.

CETAD devised a detailed marking grid to assess both the formative and summative presentations. The summative presentation marks contribute 10% of the students’ overall marks for the MATH390 module.

Between June and November 2011, students will be working on Group Projects. They will be expected to make 15-minute presentations on their projects in November, making use of the skills they have developed in the Communication and Presentation Skills course. CETAD has devised the marking grid to assess the group presentations.

Feedback from the participants was very encouraging. Of the 59 who completed a feedback form: 58 (98%) felt their presentation skills had improved; 43 (73%) rated the quality of the teaching “excellent”, with a further 13 (22%) rating it “good”; and 34 (58%) rated the course overall as “excellent”, with a further 21 (36%) rating it “good”.

CETAD and the Department of Mathematics and Statistics are now working on a project report, which will include materials for dissemination amongst the academic community.

Throughout the development of this project, emphasis has been placed on:

- The incremental development of communication skills;
- The importance of direct personal experience;
- Regular peer and tutor feedback; and
- Opportunities for reflection as a basis for learning.

Call for Papers - HEA Annual STEM Conference

The Higher Education Academy’s first annual learning and teaching STEM conference will take place on 12 and 13 April 2012 at Imperial College London. ‘Aiming for excellence in STEM learning and teaching’ has the following themes:

- innovative practice in STEM learning and teaching;
- gender issues in STEM subjects;
- Mathematics and Statistics in an interdisciplinary context;
- work-based learning in STEM subjects;
- teaching and assessing large classes;
- assessment and feedback;
- employability;
- flexible learning;
- internationalisation;
- retention and success.

Abstracts are requested by Friday 16 December 2011 that apply to specific STEM disciplines as well as generically, across all STEM subjects.

For more information please go to www.heacademy.ac.uk/events/detail/2012/academyevents/STEM_annual_conf