

FINAL-YEAR PROJECTS IN SCIENCE COMMUNICATION

Public engagement is an increasingly important issue in the biological sciences. With such rapid developments in science and technology, effective communication regarding the benefits and risks of scientific progress has never been more important. UK Research Councils, industry and charitable bodies are making substantial investment to improve the communication of science by practicing scientists. Recent developments in postgraduate and postdoctoral training have also stressed the importance of science communication activities alongside the development of research skills. Clearly, it is important that the science communication agenda also penetrates the undergraduate science curriculum; the challenge is to fit it into practically-based degree programmes with competing priorities, and a very busy timetable for students and staff.

In the Department of Biosciences at the University of Kent, we have introduced science communication activities to the undergraduate curriculum as part of the final year research project. Communication Projects were introduced in 2005 to complement our existing portfolio of final year project types. Students undertaking Communication Projects complete an extended period of in-depth research on a topical, controversial or poorly-understood area of science (examples include: the use of stem cells in medical research; the use of performance enhancing drugs in sport; and the risks of biological warfare), and then develop strategies for communicating the research to a non-scientific audience. Both of these elements are assessed: students write a dissertation for a scientific readership, and also prepare an oral presentation aimed at a non-scientific audience. The former ensures that students can achieve a depth of knowledge equivalent to those undertaking more traditional projects

(e.g. those based in the laboratory), while the latter addresses the unique learning outcomes of the communication project, i.e. to communicate science effectively to a general audience.

The highpoint of the Communication Projects is the delivery of the oral presentation. The talks are delivered in local schools to students of mixed ability and age as part of National Science Week. Some of these students will be studying science at post-GCSE level, but many will not; for example, talks have been delivered to students of Philosophy and Ethics, Sport and Recreation, Information Technology in addition to those studying pre- and post-GCSE science. The presentations must cover scientific concepts in an accessible and interactive manner but assume no prior scientific knowledge. The challenge for the project students is to deliver insightful scientific facts and ideas in an interesting, accessible and inspiring way without being superficial and sacrificing depth.

The schools we have approached are invariably very keen to engage with the scheme, not least because it gives their own students the opportunity to hear about topics that are not part of a rigid National Curriculum. The school teachers are also an integral part of the assessment process; they contribute to the marking of the presentations, which gives them ownership of the scheme. As part of a broader departmental and university-wide widening participation strategy, we are increasingly targeting schools with low participation rates in both post-GCSE science and higher education in general. While we are too early in the cycle to determine whether this has had any real mutual benefits, many of the teachers in the schools have been delighted with the effect the projects have had on the attitudes of their own students towards science and university. At the very least, we hope the scheme encourages people to think about how scientific issues affect their own lives, even if they choose not to study it further.

Another particularly positive outcome has been *Student Science News*, a newsletter that features topical scientific articles aimed at the 14-18 age group. *Student Science News* was founded by Communication Project students in 2005 and is written, edited and published by the students themselves. A new publication team is assembled each year and they publish two issues of the newsletter annually. They receive no academic credit for this work; at a time when students regard coursework marks as currency, this is a further measure of their enthusiasm for science communication. The circulation of the *Student Science News* is currently 6,000 and the fourth issue is currently in preparation.

Ultimately, the major benefit is for the students undertaking Communication Projects. They are instilled with a sense that effective communication of their subject is part of a scientist's responsibility in society. The projects allow students to be rewarded for skills that are just as important for the future of science as the ability to undertake experimental work. The students also have the opportunity to develop and demonstrate skills that are often required by graduate employers, while the projects also allow for the fact that some students who may demonstrate less ability in the laboratory can be excellent science communicators. The imagination and talent for some of our students in this regard has been inspiring, and demonstrate that our graduates can be a huge resource in raising the profile of science nationally.

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For the trialling of technology to support student learning. See: <http://www.bioscience.heacademy.ac.uk/issues/wp/heat.htm>