



NUI MAYNOOTH

Ollscoil na hÉireann Má Nuad

DEPARTMENT OF BIOLOGY

QUALITY REVIEW 1996

PEER REVIEW REPORT 1996

Quality Assurance Pilot Project: Peer Review Group Report

**Department of Biology
Saint Patrick's College, Maynooth**

**May 29th and 30th, 1996
(Prof S J Martin and Prof E C Cocking)**

This review was completed before the enactment of the Universities Act, 1997. At that time this department was formally part of St. Patrick's College Maynooth.

The General Background

We noted that one of the recommendations of the Five Year Plan - Towards the Next Century, Maynooth's Plan for Growth and Development was the formation of a Quality Promotion Unit (QPU), and that the formation of this Unit in September 1995 coincided with the submission by the Conference of Heads of Irish Universities (CHIU) to the Higher Education Authority of a document entitled "Proposal for a Process of Quality Improvement and Quality Assurance". Quality Assurance was seen to typically involve, objectives identified and endorsed by the academic community, production of a self-evaluation report and a peer-group assessment. The first phase of the CHIU pilot programme is an internal review, the format of which is to be self-assessment, involving all staff members (academic and support) in a small number of Departments who should volunteer to participate in the exercise. The outcome of this self-assessment exercise for a department is a self-assessment report; internal review will consider the interrelated activities of teaching, research, support services, relationship with national and international scholarly community and external relationships with society and with the professions. Detailed guidelines and criteria for the two Departments (Geography and Biology) conducting this self-assessment exercise were prepared by the QPU (Guidelines for a Pilot Quality Review Exercise in St Patrick's College, Maynooth),

The Background of the Peer Review Group for the Quality Assessment Exercise

We noted that the relevant College document states that the Review Group in its external assessment will 'identify opportunities for quality improvement, make recommendations for change and list the resources required to implement recommendations' We also noted the wish for us to comment on the Department of Biology's self-assessment of its perceived strengths and weaknesses and achievements to date.

We have also noted that this current exercise is a pilot project in which the Department of Biology (and Geography) have volunteered their participation; the feed-back from this pilot stage will feed into the formulation of a procedure for St Patrick's College Maynooth as a whole to realise its full potential in the National University of Ireland.

The Peer Review Group Exercise

We were supplied with a copy of the Department of Biology's Quality Review Exercise prior to our arrival in Maynooth and the detailed Programme for our Peer Review was as described on the enclosed sheet. This programme schedule provided us with opportunities for initial informal discussions with the Master, Members of the Quality Promotion Committee and Members of the Department of Biology. This also enabled us to have the required detailed separate discussions with Professor Peter Whittaker, the Head of the Department, and with Academic Staff and with Support Staff (including both technical and secretarial). It also enabled us to have a meeting with undergraduates and postgraduates, and to see at first hand the facilities of the new building of the Department of Biology and to have discussions in the various laboratories with postgraduate and technical staff. At the meeting with the Master and the Dean of the Faculty of Science at the end of the Peer Review Group visit we were able to have a further dialogue on the background to this Peer Review and its relationship to:

1. The Site Inspection of the Department of Biology and discussions with postgraduate researchers and postdoctorals in the various laboratories.
2. The meeting with the Head of Department.
3. The meeting with undergraduates and postgraduates.
4. The meeting with Academic Staff.
5. The meeting with Support Staff.

General Comments

The Guidelines established by the College cover a wide range of interests that allow for a comprehensive analysis of the ongoing activities of the Departments under assessment. The principles inherent in the scheme of assessment are valid and especially the attempt to maintain a direct link between teaching and research and to ensure that the self assessment process is matched by a peer review visitation. This process we have found to be mutually satisfying and of value, providing excellent opportunities for discussions at all levels on an exhaustive range of issues. The relaxed and yet open and frank exchange of views made our visit both rewarding and instructive. Throughout our visit and our conversations with students, academic and support staff there was a wide general perception of the value and usefulness of the self-assessment exercise which is a credit to the College and the Head of Department for the manner in which this exercise has been conducted.

At the outset we thought that the College itself should provide a Mission Statement as the basis upon which the Departments will development their aims and objectives. As they stand the Guidelines allows the departments to interpret their functions in a variety of ways and hence may provide strikingly different responses and approaches from different Departments. The approach that Biology has taken is to be admired, but in a competitive world may not be sufficiently self-promoting. The general style of the questions and prompts in the guidelines correctly engender a self-critical response, but some additional encouragement for staff to project and promote their achievements and successes should be given. In addition, the question/answer approach that the Biology Department followed failed to provide the reader of the Report with a quantitative feeling for the Department's activities. Although the information is available in the text, it is not easy to extract relevant quantitative aspects. We therefore suggest that the Guidelines would be enhanced by inclusion of a section requesting a quantitative summary of the various strands of the Departmental activities. This summary in Table format should also give some indication of the balance of the varying contributions of individual staff to the Department, College, Local Community, Ireland and the International Scene. Readily accessible quantitative information on student numbers, course take up and staff student ratios, the productivity of staff in terms of publications and conferences attendance, invited papers and the refereeing commitments, applications made, grant income etc. would be useful. It is this accumulative 'load' that sets the College apart, and in the competitive years ahead, should become visible, and being visible, will in addition provide targets and guidelines for forward planning.

Accommodation and Facilities

The College is to be congratulated on its foresight at providing the new exciting accommodation for Biology. This is a critical time for the sciences in the world at large and any future University must have a strong core of fundamental biological sciences to retain credibility. There is a high quality to the design and finish to the laboratories and the Callan Building provides an excellent and pleasing environment to work in. The responsive attitude of both students and staff that we talked to was indicative of their appreciation of their pleasant surroundings.

Unfortunately, the increase in student numbers has created a situation that already puts the teaching facilities under pressure for space. In particular there are three areas that would require attention, namely a large lecture theatre, an additional advanced teaching laboratory, and enhanced access to computer facilities for undergraduates, including multi-media.

Academic support and Administration

The administrative staff (currently one full-time and one half-time) work under very intense conditions and the continual interaction with staff and students has become a problem. This is a side-effect of the increase number of students that are now focused on the Office. We suggest that if possible some structural changes should be considered with the provision of an additional a room for general reception area and additional secretarial staff employed. This should be done in line with the very important recommendation that there should be a Departmental Administrator. Throughout our visit we are conscious of the immense work load on Professor Whittaker and strongly add our support to this recommendation so that he can regain, before it is too late, an active personal input into his research.

There is a very highly dedicated team of technical staff who provide excellent support to the Department. The quality of their work and support is greatly appreciated by the academic staff we spoke to. Michael and his team clearly take a great pride in the Callan Building and consider it the jewel in the crown of Maynooth! Underlining the gloss of the recent establishment of the new facilities and equipment is a major concern about the future. There appears to be no source of funding available for maintenance and repair which as the years go on will inevitably be required with the level of sophisticated equipment that is now essential for biological sciences. The College should devise a general strategy for protecting this long-term investment as Departments will not be able to afford to maintain their equipment in running order if their sole source of financing is their current consumable budget. Also, with the increased awareness of safety, especially in relation to biohazard hoods for use with pathogens, it is important to have maintenance contracts by specialists who can ensure the efficiency of these units. This will become more important as genetic engineering and biotechnology becomes more practised in the Department.

Undergraduate Teaching

The course outlines that we have seen demonstrate a strong and dedicated commitment to the undergraduate teaching programme which is well balanced, providing breadth and yet, especially in the fourth year, sufficient depth for the promotion of a specialised career among a wide range of biological themes. The launch of a denominated Biotechnology Degree programme should greatly enhance the profile of the College and is timely.

Our discussions with a representative group of students raised a number of points that are worth commenting on. First of all the students were appreciative of the interest and dedication of the staff, and especially as they reach higher years there was obviously a relaxed and excellent rapport among staff and students. However, again, mainly due to the sudden increase in the

number of students going through the Department, there were strong negative vibrations from 1st and 2nd year students about staff interaction. Throughout the British Isles the same problem

exists, with students coming up to University from small classes in School into large 200+ intakes. There is a difficult settling-in period. We think from what we hear that more could be done at Maynooth at both College and Department level to try and ease new students through this emotional and for some quite harrowing period. With students, the early impressions linger and irrespective of what is done later the first impressions are remembered. It seems essential that some type of Tuttee Scheme is introduced, or re-established, and that all students very quickly after coming up to College come to know and have a 'friendly face' on the staff that they can focus on if need be. We were surprised that students did not have, or at least did not know that they had, a personal *advisor of studies*. A second feature that was obviously lacking was a Tutorial Scheme of some type that would allow students more close contact with teaching staff where they can get to know staff. Staff were defensive about this on a numerical basis, but whereas the traditional tutorial is no longer feasible, there are innovative approaches to tutorial-like work, guided access to computer-assisted teaching is just one example or timetabled small group discussions within the practical class schedule that should be considered. It is a pity that if due to the mass intake, potentially good students are switched off due to factors that are unrelated to the subject matter. A third feature that appeared to be lacking in relation to teaching was the absence of a Staff-Student Committee. This if managed by an enthusiastic member of staff can have an immense positive impact on the student body, and provide useful feedback for course and staff development.

From our experience of the teaching assessment procedures which have been developing in the UK we should remark on the value of maintaining annual course reviews involving student comments. Such reviews, coming via the Staff-Student Committee, provide a valuable focus and student input which may prove useful to have in place in the long term.

The possibility of employing temporary Teaching Assistants to undertake some of the undergraduate teaching at early years is to be recommended. If this could be linked to a research training scheme, there would be the potential of increasing the number of part time PhD students, However, the core academic staff must not be encouraged to forego their responsibilities in dealing with the basic core teaching, and Teaching Assistants should retain a close involvement with specific staff for their teaching commitment, both in content and its assessment and review. This will avoid the current view of 1st year students that demonstrators run the practicals. The responsible member of staff needs to be seen and known by the students. Chatting with a member of staff during the practical sessions also provides opportunities to tell them about the interests of the department etc which the group we met were anxious to know about. We sensed a strong negative attitude to some of the intensive early practical sessions in systematics where perhaps there is need for adopting more modern approaches by making more extensive use of computer

assisted learning systems. It is a sad fact that in many incidences the modern secondary school is leaving the Universities behind in providing suitable facilities for multimedia teaching etc. We recommend that this is an area that should be greatly enhanced for the biology students. It may be possible to develop appropriate links with the neighbouring computing department.

Bioethics was mentioned in passing; but there would be a unique opportunity for Maynooth to develop this interest in Ireland and become a Centre for Bioethics. Its traditional role as a religious institution would provide a fertile framework for dealing with the immense ethical and moral problems that the new biotechnologies have placed before us. There is little doubt that the next century will at least begin as the Gene Age and Maynooth could become an important setting as an International Centre for Bioethics.

Research

Biology at Maynooth has a great opportunity, not afforded to many Departments at this time. There is a new building, providing an excellent environment for forefront science. There is a young cohort of staff, few of whom have yet got cluttered with administrative chores. There is a dynamic pool of biologists throughout Ireland keen to be trained in research, and a host of Irish postdocs across the world keen to return to Ireland. However, to fully exploit this the Department needs a strategy, a strategy for 2000PLUS. Our initial reading of the Self Assessment Review gave us a picture of a traditional individualistic academic research culture. Also our visit to the research laboratories demonstrated a tendency for self-sufficiency. Although this is admirable and highly compatible with individual staff development, the rate of progress of modern biology has made 'Research Groups' become a key factor in major developments. Research Groups have major advantages, not only in the local organisation, but in the provision of the external profile that the Department may wish to project. We suggest that within the context of the existing research interests of the Department that up to four Research Groups could be readily created, namely in the areas of Nematodes, Plant Genetics, Infection/Immunity and Microbial Genetics. It is unlikely that the projected development of the Department during the next decade would merit more than four groups and this should be taken into account in new appointments. Of course, the creation of Research Groups should not restrict interaction of staff with external collaborators, or carrying on individual research activities, but there would be an internal alignment of activities, funding, facilities and discussions that would enhance the intellectual atmosphere for academic research. Also, external funding agencies will have more confidence in funding an active Research Group that has built up a reputation. The promotional advantages of Groups, however, must not be allowed to overshadow their potential dangers. On the one hand weak individuals may be carried, unjustifiably, by an active Group, without their making a reasonable contribution, and hence the importance of a dynamic group leader. Alternatively, promotion committees may unjustifiably overlook individuals because they work 'with' the group leader and their efforts not be recognised. Should the College encourage the creation of Research Groups then in turn they must ensure that they do not introduce divisive administrative strategies that result in the fragmentation and demise of Research Groups.

Throughout our discussions, and especially during our visit to the laboratories, we had ample opportunity to meet and discuss with postgraduate students. They showed a high degree of enthusiasm and were benefiting from the close contact with their supervisors and were receiving a high standard of supervision. However, it is clear that there is a need for more PhD students and postdoctorals to maintain the continuity of expertise that the various laboratories are now building up. One route for this would be to introduce a flexible appointment scheme for Teaching Assistants which would be well justified regarding the number of undergraduates and the level of academic staff available.

Staff Meeting

We had a very constructive meeting with staff for over three hours. We considered their views of the Guidelines and the Self-Assessment Exercise, We have already addressed many of the comments above, but some additional aspects are mentioned here.

Academic Standards

Although the original intention of the self-assessment exercise was to examine the Department as a whole it was recognised that it was difficult not to carry out procedures that would expose both the strengths and weaknesses of individuals. In fact the Department is merely the sum of the human components that make it up. Although we had planned to have discussions with individual staff, time did not permit this, but future assessments should include provision for this important aspect. In their written personal profiles, members of staff were highly circumspect, sometimes to the level of dullness. We feel it important for staff to be actively encouraged to realistically express themselves with confidence and demonstrate their achievements and aspirations. Balanced and realistic self-promotion has unfortunately become part of modern academic life! In part, this aspect would be covered by the quantitative approach that we mentioned above, but we consider that in addressing this personal issue it would be beneficial if individuals have the opportunity of providing a more holistic profile involving teaching, research, administration and external commitments. This style of assessment may well be important, and if Ireland wishes to retain the concept of an academic, then an holistic approach may be better than the sectoral approach operating in the UK which will inevitably divide academics into teachers and researchers.

Employment

Feed back from employers is quite a difficult thing to get in any comprehensive way and should be a scheme that the College should organise, especially as the College moves towards modularisation. What are people doing after 10 years is the real information needed, but is much more difficult to obtain.

New Courses

The scheme operating appears similar to normal practice.

Examination Reports

In contrast to the mechanisms of dealing with the reports of external examiners in the UK the reporting scheme used at Maynooth would seem to be very deficient. No reports are apparently received by the College from the central University. Although traditional verbal reports are generally given to heads of department, it would be advantageous to have more detailed reports written that can be discussed by staff and which are a practical encouragement to change and increase standards. Furthermore the demand for full written reports from external examiners provides a space for fruitful and reflective thought as an immediate follow-up of the intensive examination period, which few external examiners would resent having to do.

Promotion of Staff development

As a small Department the close interaction with the HOD provides a 'family-like' atmosphere and staff generally felt little need for a formal appraisal scheme as was introduced into the UK a few years ago. They were happy with seeing staff development being an ongoing process acted out in an informal atmosphere, avoiding paper and hassle. Without meeting staff individually, it is of course difficult to say, but we did not get any vibrations of frustration or discontent among the staff. Biology, under the leadership of Peter Whittaker appears to be a happy family. Long may it last!

In further addressing the issues discussed above we would identify particularly in relation to the Opportunities for Quality Improvement

(i) Teaching

We see the need for improvements in the handling of the new intake of students involving amongst other things improvements in the tutorial system coupled with the potential ready adaptation of a modular system for Biology. Our view is that the enhancement of the Department's Research Profile (see (ii) Research) coupled with the introduction of Biotechnology as a vocational course will result in Maynooth attracting a higher quality student intake. We are also of the view that the 4 year degree system for Honours in Biology (and Biotechnology) at Maynooth is already providing a quality of teaching which is very positively impacting on the merit and usefulness of the Honours degree at Maynooth for the future employment of students, and also for higher degree studies. We also see the consideration of Bioethics as a cross-College venture as a development with key teaching quality improvement potential.

(ii) Research

We have noted the existing high standard of PhD supervision provided to research students by individual members of staff in their speciality research laboratories. However, recognising the need for more postdoctoral and postgraduate researchers, and the opportunity to enhance the Department's Research profile from existing strengths, we feel that this could be achieved by organisation into Research Groups arising from the existing research specialisations in the Yeast, Infection and Immunity and Medical Microbiology Laboratories, the Plant Cell Culture and Plant Development Laboratories and the Biological Control of Pest and Pathogens, Nematode Genetics and Genetics and Physiology of Bacterial Stress laboratories into, say, four Research Groups.

Specifically we would recommend:

(i) Teaching: Improvements in the Tutorial System

(ii) Research: Organisation into maximum of 4 Research Groups following discussions of the HOD with all the academic staff. To foster the impact of these Groups they should be advertised at the entrance to the Department. This formation of Research Groups, which will also facilitate the more efficient use of equipment, is likely to have major impact on the research reputation of Maynooth.

We have identified the major resource needs required for our recommendations as in (i) Teaching and (ii) Research above and the improvements required and highlighted in our Report.

1. The need for the appointment of a Departmental Administrator. This appointment will greatly facilitate the required improvements in the teaching profile of the Department. Also by relieving the HOD of many of his administrative duties this appointment will also facilitate the successful operation of the Research Groups.
2. The need for adequate funding for the servicing of equipment in this new Department. £25-50,000 will probably be required over the next few years to maintain equipment in workable order.
3. The need for adequate funding for new teaching equipment for the new Biotechnology degree.
4. The need for support for re-organisation of arrangements for handling of undergraduate administration (new office etc.). As a minimum improvement, new visual aids in the existing lecture theatres, and ideally a new suitably large lecture theatre and an additional advanced teaching laboratory, are needed.
5. The need for improved arrangements for Teaching Assistant appointments (and help with tutorials), and for the security of the Callan Building.

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