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# **The Lucent science teacher initiative: A mentoring project for trainee teachers of second-level science**

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## **1. Introduction**

This paper describes an innovative project in the University of Limerick for trainee science teachers in Irish second-level schools. This three-year project has received funding from Lucent Technologies Foundation K-16 programme and is due to run from 2000-2003. The University of Limerick is a major provider of second-level science teachers through four-year concurrent degree programmes with an annual intake of 40-50 students. During their course students have two extended periods of full-time Teaching Practice (TP) placement in schools: six weeks in semester 4 and ten weeks in semester 7. This teaching practice is monitored and assessed by visits from university-based tutors, one each in education and science. In the second year practice 4 visits are scheduled and in the fourth year practice 5 visits. This gives only limited opportunities for helping students to improve and develop their teaching skills. Students have cooperating teachers whose classes they take, but there has been no formal structure for mentoring by these teachers. The recent report of the Task Force on the Physical Sciences (2002) has highlighted the importance of good pre-service training for science teachers.

### **Project goals and structure**

The Lucent Science Teacher Initiative (LSTI) aims to set up a programme of school-based mentoring by experienced science teachers of the student teachers, in collaboration with the university-based tutors.

The goals of the project are to involve schools as equal partners with the University in the professional training of student teachers. Experienced teachers are given training in relevant skills and, on completion of this process, are given certification as Lucent Mentor Teachers (LMTs). Training has involved participation in week-long summer schools the summer vacation, drawing on the best theory and practice in mentoring. An initial summer school prepares the teachers for mentoring, and during the following year the aim is that they would have at least one period of mentoring a student. In the second year there is a second summer school to consolidate the experiences gained during the year. The paper will provide details of the Summer School programme. The Lucent Mentor Teachers (LMT) are required to write a report evaluating their mentoring experience. On successful completion of the two summer schools and the report, the teachers receive certification as LMTs.

During TP the Lucent Mentor Teacher provides an accessible source of advice and the ongoing support of a trained professional. There is frequent contact between the LMT, the student, and the University supervisors. Before each session of TP there is a meeting between the mentor teachers, students and UL staff to introduce the scheme and make sure everyone knows what to expect. There is a follow-up meeting after completion of the TP. In addition

the school principals, teachers and students have completed evaluative questionnaires on their experiences, and as a control students not involved in the project have also completed questionnaires.

### **Research Questions**

This project was set up to run initially over three years with the aim of developing and evaluating an effective science teacher mentoring project in Ireland, using the University of Limerick as a pilot project. We set out to answer two major research questions:

1. How can an effective science mentoring programme be developed and evaluated in Irish schools?
2. How effective is school-based mentoring in improving the in-school teaching experience and performance of science students?

## **2. Methodology**

It was decided to evaluate the project during its development and at the end, mainly through a mixture of questionnaires and interviews of participating teachers and students. The response of students to the mentoring experience was compared with the control group of their peers who were not receiving formal mentoring. Each batch of mentor teachers (two so far) and each group of students (two different groups each year) were surveyed. This work is ongoing and this paper presents the interim findings.

At key stages the project has been evaluated and assessed by various instruments. These consist of:

- A questionnaire for students, LMT and non-LMT students.
- A questionnaire for participating schools, LMTs and non-LMTs (co-operating teachers).
- A meeting of LMTs and University tutors to evaluate the programme in the light of their experience.
- A meeting of the Board of Management to consider the above and prepare a report for submission to the NCSE and Lucent Technologies Foundation.

## **3. Results**

This programme has been running since November 2000. A Steering Group, consisting of the first four authors of this paper, directs the project under the oversight of a Management Group, which includes representatives of the 10 schools involved in the first phase. Two groups of teachers (totalling 29) from 20 schools have participated in training; one group has achieved certification. Over four sessions of TP 19 students and 12 teachers have had practical experience of mentoring in schools. It is hoped to run the project for at least one more academic year, subject to funding, to complete the certification of the second batch of teachers and to ensure that all the LMTs have at least one and preferably two experiences of mentoring.

Initial results, including feedback from students and LMTs, are very positive. Table 1 shows a preliminary analysis of a questionnaire administered to the first group of teachers (LMT01).

Table 1. The strong/good points of the 2001-2002 mentoring project (LMT01's)  
(N = frequency of responses from teacher)

<b>Mentor-Mentee Interaction</b>	N
Active involvement with student teacher; sharing experiences: teaching, learning and assessment	4
Team Teaching	3
Strong link with UL and tutors (Summer school & meetings)	2
<b>Benefits for Mentor Teacher</b>	
Encouraged mentor to rethink own teaching strategies	4
Learning new strategies from student teacher	2
Learned more about student evaluation (very helpful)	2
Encouraged mentor to rethink classroom management	1
<b>Staff benefits</b>	
Interaction between student teacher and other staff (co-operating teachers) v. good	3
More consultation between principal, mentor and co-operating teachers re: mentee timetable	1
<b>Mentee benefits</b>	
Mentor involvement in mentee assessment/evaluation/TP observation encouraged	3
Student was clear on the mentors role, which made one more approachable	3
Weekly review, very beneficial	2
Opportunity to pass on experience to a young professional	1
Self evaluation carried out by the mentee	1
Briefing session prior to TP very helpful re: SOW, textbooks, discipline, ethos	1

Work is still continuing on the collection and analysis of data as the project is not complete and it is intended to report on the results to date.

#### 4. Conclusion

Indications so far are that this initiative has improved the experience of the trainee teachers during teaching practice and has contributed significantly to the professional development of the participating teachers. It is intended that this programme will serve as a model for the future training of teachers of science in UL and it is hoped that this may be extended to other subjects and institutions. There is no comparable mentoring scheme in operation in Ireland and it is hoped that the results from this project will provide an incentive and valuable guidelines for the implementation of mentoring schemes for all second-level trainee teachers in Ireland.

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