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Articled teachers of Technology: an evaluation of the first year of the North-West Consortium programme

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Abstract
In 1990 the North-West Consortium in the Articled Teacher Scheme admitted its first cohort of students. The Wigan LEA elected to focus its attention on Technology in collaboration with the University of Manchester. The paper evaluates the recruitment, course planning, delivery and student attitude changes during the first year of this two-year course. The course has presented some interesting problems of sequencing of activities, cost-effective groupings and logistics of matching the programmes of the two higher education institutions, two phases and four secondary shortage subjects involved.

The paper concentrates on the subject area of Technology.

The North-West articulated teacher consortium

The subject of this paper, the Articled Teacher Scheme, is an enhanced two-year PGCE course, 80% of which is based in schools, and the remainder in higher education institutions. It is one of two present government-initiated experiments in teacher education, the other being the Licensed Teacher Scheme. Sixteen Articled Teachers Schemes have been set up, including one in Wales. In one of these schemes four Local Education Authorities (Oldham, Rochdale, Salford and Wigan) and two higher education institutions (the University of Manchester and Manchester Polytechnic) form the North West Consortium. The Consortium has concentrated its effort on the shortfall areas of Science (especially Physics), Mathematics and Technology.

From the first discussions of the scheme the Wigan LEA had expressed a special interest in the training of teachers of Technology, and decided to focus all its attention on that one subject at secondary (11-18) level, with some bias also towards Science. The University of Manchester had in existence a well established one-year course of Technology teacher education. The Wigan LEA and the University formed a link for the delivery of Technology as part of the wider provision involving relationships between all six partners. For example, the articulated teachers in Wigan are also taught by Polytechnic tutors and at times work alongside articulated teachers from other LEAs.

Successful articulated teachers will gain the Postgraduate Certificate in Education awarded by the enrolling institution. For administrative convenience the Technology articulated teachers in Wigan were all enrolled at the University. The assessment is shared between the University, the Polytechnic and involved persons in the LEAs. It requires a variety of work in the form of portfolios, files, journals, etc. to show the articulated teachers' development of professional and
subject competences. Classroom teaching competence is, of course, also assessed, the main difference between the articulated teachers and one-year PGCE procedures being the increased responsibility of the schools and LEA. The assessment of competences of the articulated teachers is very similar to that of the one-year students.

Eight 11-16 comprehensive schools in the Wigan LEA scheme are participating; four joined the scheme in the first year and four in the second. Each school has appointed a "mentor" from within its existing staff to oversee the professional development of the three or four articulated teachers attached to each school. Additional finance and some supply cover are provided for the schools involved. The mentors are deputy heads, senior teachers or heads of faculty, and a full-time coordinator (popularly referred to as the supermentor) is a former secondary headteacher in the LEA.

Mentor training included a short course to increase awareness of such matters as assessment and evaluation of trainee teachers, progression through teaching practice and the relationships between subject specialism and generic education. The CATE (Council for the Accreditation of Teacher Education) criteria formed a major topic of discussion. For the Wigan mentors considerable time was required for discussing the changing nature and aims of teacher education in Technology now that the National Curriculum in Technology has been introduced.

The individual schools supply a wealth of experience for the articulated teachers, and individual teachers have given much time to them in providing a forum for debating issues and helping them develop specific skills, supplementing work done in the LEA, Polytechnic and University.

Teacher education for the National Curriculum in Technology

National Curriculum Technology (DES, 1990) has brought together several areas of study, formerly each separate subjects for teacher training purposes. Craft, Design and Technology has influenced the new subject through its traditional process base and stands alongside Art Home Economics, Business Studies and Economics and Information Technology, (together with the inevitable influence of applied science and microelectronics).

To train well an articulated teacher to cover the whole of this area in a two-year course is unrealistic, given that the postgraduate trainee will probably have strength of subject knowledge in only one area. The almost inevitable outcome of an attempt to do this would be poor competence over a wide range of subjects. A variety of models is seen developing nationally to tackle this problem, usually based on a core-plus-specialist-option arrangement. We had the advantage of the government's early development of Technology in the National Curriculum programme to aid us at our planning stage.

In terms of the breadth of the National Curriculum there can be no single definition of a well trained Technology teacher. Each individual entrant to the profession brings personal skills and attributes which must be further developed to a comprehensive awareness of the full range of the subject content and the
ability to make a useful practical contribution to teaching as much of the National Curriculum Technology as possible.

In the first year the number of applicants did not greatly exceed the number of places but, to our surprise and pleasure, the quality of applicants was high, both in personal qualities and academic qualifications. A particular surprise was that most applicants held good honours science degrees or higher degrees, many with commercial, industrial or other useful experience. We were faced with the problem of relevance. The crude CATE categorisation of relevant qualifications presently operating is inadequate as a test of suitability in these cases and each case was carefully judged on individual merit.

Discussions took place between University and Wigan LEA advisory staff on the way in which Technology is presented in the participating schools, and to identify some of the priorities and resources of the LEA and University. The Wigan LEA based its thinking on its published philosophical framework (Metropolitan Borough of Wigan, 1985). We discussed the needs of other LEAs in the light of employment of the articled teachers after training.

We realised that different attributes, both cognitive and affective, would need to be developed to different levels (eg. an awareness of the knowledge to be gained by pupils in a particular area, or knowledge of how to teach a particular topic well) on an individual basis, from each individual's personal starting point. We have seen this very much in terms of profiling. This does not exclude the need for group teaching.

**Complementary and supplementary inputs of the university and LEA**

In the first term work done in the University was supported by observation and discussion within the schools. In the University the tutors tried to develop a broad perspective of Technology Education as a foundation for cross-curricular and departmental work in the schools.

The Curriculum and Educational Methods in Technology work included familiarisation with the language, specialised terminology and content of the National Curriculum (DES, 1990), and to help develop an appropriate philosophical framework for Technology as a school subject. This was integrated with the development of key skills in the design process and communication. This in turn was supported by observation and assistance work in Technology classes. Technology examination syllabuses used in these schools were analysed to illustrate the depth and breadth of the skills and knowledge appropriate to Key Stage 4.

Other work at the beginning concentrated on preparation for the first Teaching Practice and on skills and knowledge development. Themes from the generic education programme were developed in a Technology context.

Second-year provision aims to continue to raise the awareness of the whole group, and to giving in-depth provision as needed to individuals and subgroups. Additional supply time is being made available to enable schools to provide specialised support in particular areas.
The articulated teachers are working alongside experienced Technology teachers in the schools who are having to learn new skills in order to deliver the National Curriculum in Technology, and alongside higher education tutors who are actively involved in curriculum development, research and public examination work in Technology. This provides a cross-support mechanism for integrating the various experiences.

The articulated teachers also meet together for one day a week in the LEA's Professional Development Unit, using their expertise to supplement the other inputs and to present new developments in education.

The fact that the articulated teachers are school based enables them to make detailed observations concurrently with theoretical studies (though theoretical should not be taken to mean abstract - the studies are inherently involved with practice).

The inputs are both complementary and supplementary. One example might be an electronics design project initiated in the University in the first term. Most of the articulated teachers have little experience in this field. Practical work in the University illustrating electronic control is supported by LEA advisers who provide a "beginners" electronics course. The LEA centre is open to the articulated teachers to use its facilities. (This principle applies to most of the LEA facilities). Another example relates to the University provision of the study of Technology in an industrial context with the LEA organising one week's industrial experience for each articulated teacher.

Other examples include looking at the management of learning and teaching styles needed for open ended project work, commercial resources available for the teaching of Technology, special needs work in Technology, etc. They are continuing to develop their skills in the use of interactive teaching methods using their own group as the laboratory. For example, with LEA support they planned a three-day Technology residential course held in the University School of Education field studies centre at Satterthwaite in the Lake District. During block Teaching Practice the articulated teachers are encouraged to observe practical classes and other subject teachers, to aid in identifying the teaching skills aspects developed so far. The articulated teachers can use opportunity for informal activities in both the University and LEA to enhance their teacher education. For example they have worked with children on the Technology Bus as part of a project organised by the B.P. Education Service and used optional University "open workshop" sessions.

Information Technology

All articulated teachers on the Technology course follow a personal study course in Information Technology which takes them, during the six terms, through the use of simple wordprocessors and text editors, data bases and spreadsheets into the use of specialised Information Technology relevant to their first and second subject interests. This is to develop personal knowledge of Information Technology to supplement the teaching of Information Technology as it appears in Attainment Target 5 of the National Curriculum in Technology (DES, 1990).

The LEA has assisted in this provision with activities for individuals and for
small groups, and the University work blends into a skills audit of Information Technology ensuring adequate experience in this field (NCC, 1990).

Second subject and subsidiary subject provision

We faced a conflict between provision of a traditional second subject and the use of time to offer greater diversity. The latter was considered attractive if the second subject elements could be supportive of the main subject Technology. We rejected the option of having no second subject.

The decision to have a modular second subject enabled individual articulated teachers to take those modules best suited to their interests and qualifications. Each articulated teacher takes two second subject modules. These are chosen to give a sensible arrangement for each individual.

The Mathematics module is based in the Polytechnic. In the second year another module covers problem solving, information technology and applications studies. This ties in nicely with the Technology course.

Some second subject modules (including science) are integrated with the one-year PGCE provision of the University. Many of the Technology Articled Teachers have a scientific background or a degree in science. The University input does not comprise the complete second subject course in science (because of its content orientation) and support is given by the schools to give balance. Other University options being taken include Business Studies with Economics.

The LEA can offer second subject provision on an individual basis in the schools, to allow for interests in which the articulated teacher might have some special qualification or expertise but the provision of classes for which would be uneconomic. This has so far not been used, but some have requested support for the teaching of Physics or Chemistry to university entrance level.

Commentary

The initial planning has proved workable though some changes are needed outside the Technology subject area (eg, to make the generic education input more directly related to the Technology course). We have also found benefit in moving much further towards individually planned programmes than we initially envisaged. Some changes are to be made to account for the presence of both first-year and second-year Articled Teachers on the course together.

The liaison between higher education and the mentors and coordinator is developing well. Preliminary thoughts that responsibility might easily be divided have not proved workable, and demarcation of teaching responsibilities is not as strictly drawn as was first envisaged.

One of our key problems has been the short time between the decision to run the course and the start of the taught programme. We had a very short period of time to put together a coherent programme. Staffing and resource limitations and the small number of articulated teachers have meant that the articulated teacher course
is partly integrated with the PGCE one-year programme. Though the scheme was perhaps conceived in haste, it has been supported by a high level of enthusiasm, professionalism and commitment in both training institutions and schools. The empowerment of the articled teachers in determining their own progress has been surprisingly successful. As they have become reflective in their consideration of teaching, their knowledge of Technology and their individual technological skills, they are becoming able to decide on their own needs as developing professionals - surely an excellent thing in its own right. There is a built-in scheme for the continual audit of the CATE criteria by both the course providers and also by individual articled teachers.

As will be realised, the student workload is quite high.

This is proving to be a stimulating teacher education course, and though the coordination of the detail is proving quite difficult, the coordination of the main elements of the course is being achieved well. We look forward hopefully to the second cohorts arrival!

Footnote

An extended article including some other aspects of the Articled Teacher Scheme in Technology appears in this summer's edition of the European Journal of Education.

References

