COMPUTER EDUCATION IN IRELAND

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February 1981.

NOTES

This is a draft paper, prepared at short notice for the conference on Teacher Education and the New Information Technologies, to be held in Brussels in February 1981. It is hoped to provide an updated version of the paper shortly.

The author is most grateful to Miss Linda Gillespie who - at even shorter notice - has turned the author's manuscript into the required "typewritten statement".

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1. Introduction

Serious interest in computer education began in Ireland around 1970. The interest seems to have sprung up independently in a number of places, notably in the Government's Department of Education, in some of the universities, and among members of the Irish Mathematics Teachers' Association. It led to the establishment of a number of courses, chiefly for teachers and student-teachers. Some activity also began to take place in second level schools; after a slow start, this is now developing rapidly, with many schools having their own microcomputers and running computer studies courses or computer clubs.[1] Further expansion is now promised, for on February 18th the Minister for Education announced that "courses in computer studies were to be formally introduced into the curriculum for second level institutions."[2]

In order to understand this pattern of development, and to see what the Minister's announcement will mean for computer education in Ireland, it is necessary to look briefly at the organisation and traditions of Irish education in general. This is done in §2 of this paper, which also gives a fuller account of the events of the last ten years. Against that background, §3 examines some of the issues being debated at present. Teacher education is discussed separately in §4, and the paper concludes with §5.

2. The development of computer education in Irish schools

In the Irish education system, the curriculum is prescribed and the main examinations are conducted by the Government Department of Education.[3] There has been little tradition of curricular development or diversity, with few alternative courses provided even in subjects already forming part

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1. It is hoped to provide statistics, for example on the number (and proportion) of second level schools which have their own hardware, in a later version of this paper.

2. The Irish Times, Thursday February 19th 1981.

3. The chief second level courses are set out in the Department's Rialacha agus clar do leith Meanscoileanna (Rules and Programme for Secondary Schools) (Dublin: The Stationery Office), published annually.

of the official programme, and limited opportunities for introducing pilot projects. Of course, mechanisms for change do exist. The 1960s saw extensive modernisation of school courses, recognition of the fact that periodic review of courses would be necessary, and involvement of teachers on "syllabus committees" to advise on changes; in the early 1970s, some typical curriculum development projects were started. Since then, however - probably because of the economic recession - the rate of change has slowed down.

For a while, it seemed that the retardation had come at the wrong moment for computer education. Apart from a small pilot project supported by the Department in 1974, no official schemes were organised; teachers worked on their own, or with the help of bodies such as the Computer Education Society of Ireland (a society most members of which are second level teachers, and which has been working for the introduction of computer education since its foundation in 1973). With Computer Studies not being a "recognised" subject, opportunities for teaching it in school hours were limited; also, since very few schools had any hardware, computer-aided learning and other aspects of "educational computing"[1] had little chance to develop.

However, following the advent of the microcomputer - which first reached Irish schools in Autumn 1976 - many schools could, and did, acquire their own machines. This appears to have been the breakthrough that was needed. Computer Studies courses, though still not part of the official programme, seem to have thrived much better when based on "hands on" experience; educational computing became possible, and was boosted, albeit slowly, by the appearance of locally written software. Moreover, with microchip technology generally making a large impact in Ireland, the level of national interest was rising. Conditions were ripe for official developments.

Thus in December 1979, the Department announced an interim scheme, designed chiefly to give recognition to the work already going on in various schools: a non-examinable option in Computer Studies was included

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1. This phrase is intended to denote "the use of the computer as a resource and as a manager in education and training; in other words, teaching with computers rather than teaching about computers." (N.J. Rushby, An Introduction to Educational Computing (London: Croom Helm Ltd., 1979), p.9).

in the main senior cycle syllabus in mathematics.[1] A number of schools are now following this course and having their progress monitored by the Department. The scheme is temporary, and will eventually be replaced by some more permanent provision; the form that this might take is being considered by a Department of Education committee, which has now been working on various possibilities for over a year.

The Minister's announcement of February 18th[2] has thus marked the end of one stage and the beginning of another in what appears to be the mainstream of Irish computer education. Outside this mainstream, some other developments have taken place, apparently independently. In particular, work has been done at the Woodlands Centre, Galway, on computer based education for children with learning problems;[3] more recently, interest has also been shown in the use of computers by the physically handicapped. There is scope for more work in both areas.

3. Current issues in Irish computer education

Although computer education is now becoming more widespread in Ireland, there is no definite agreement on the form that it should take. Among the issues often raised, two are particularly prominent: one is the question of how computer education in schools should relate to existing courses (and to what age groups it should be given); the other concerns the language or languages that should be taught.

The first question is the more complex. As the official Department of Education approach has not yet been announced, the nearest thing to a "consensus" that can be identified is the viewpoint of the Computer Education Society of Ireland (CESI).[4] The evolution of this viewpoint over the last few years may give some insight into the present position. After an initial period in which the CESI considered many aspects of computer education (not only those related to formal schooling), the Society has

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1. Neither the subject area nor the level - senior cycle - has been a universally popular choice (see §3 below); however, they were convenient slots for what is only an interim scheme.

2. See §1, p.1.

3. Christina Murphy, "Computers in the Classroom", in The Irish Times, Thursday September 21st 1978.

4. The viewpoint is actually that of the Executive Committee, and other members may not agree. However, the Executive Committee does try to reflect the experience and opinions of its members.

concentrated on computer education in schools. Some interest was shown at first in educational computing, but this seemed to wane—perhaps because of the lack of hardware in schools— and for some years the pivot of the Society's policy was the introduction of Computer Studies as an independent subject[1] in second level schools, preferably at junior cycle level initially, but eventually at senior level as well. Draft syllabuses were drawn up, and presented to the Department in 1977. They are now naturally somewhat dated, and the Society has been attempting to revise them for the Department of Education committee. The revision has revealed that greater experience of computer education has led to a new breadth and variety of ideas. A less simplistic model is emerging: three aspects are being distinguished (say "computer appreciation", "computer studies", and "computer science"[2]); and the placement of some topics in existing courses, such as commerce, science, and mathematics, is being considered. The interface with educational computing is also receiving some attention again.

The second area of debate - that of the language or languages to be taught - probably offers little that is unfamiliar in other countries. While BASIC is the most widely used language at present, considerable interest is being shown in PASCAL (perhaps at senior cycle level in "computer science"?); COMAL is also attracting some attention. The role of a low-level language or pseudo-assembler, such as CSSPK[3] (a language similar to ICL's CESIL), is also provoking discussion; some people would like to use it to introduce programming, while others apparently would rather offer it only to students following a more advanced course. Perhaps this is one of the areas in which research could most usefully be carried out.

4. Teacher Education

It remains to outline the various developments that have taken place in teacher education, which for years - while school courses were struggling against lack of recognition and lack of hardware - was the most active area

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1. Ireland seems to have kept clearer than have many countries of any identification of computer studies with mathematics - at least until the introduction of the present interim scheme.
2. Cf R. Gwyn, New Information Technologies and Education (a background paper prepared as input to the meeting to be held in Brussels on Teacher Education and the New Information Technologies, February 1981), pp.5,6.
3. CSSPK (Computer Science Student Programming Kit) was developed by John Kelly from Fr. Cyril Byrne's CSSP (Computer Science Student Programming language). The evolution of the language is reported in Fr. Byrne's and John Kelly's unpublished M.Sc. dissertations submitted to Trinity College (the University of Dublin).

in Irish computer education. The developments can conveniently be examined under the two headings of preservice and inservice education.

Perhaps the most notable feature of preservice education is the extent to which the primary sector has taken part, though this has not yet been reflected in the primary schools. However, both in the Colleges of Education (which deal with the preservice education of primary teachers) and in the University Schools and Departments of Education (which play the equivalent role for secondary teachers), provision of computer education varies greatly. It seems that most, though not all, of the work is being done in the Dublin area. St. Patrick's College, Dublin, and Carysfort College, Blackrock, Co. Dublin, are the leading exponents in the primary sector; in the secondary sector, the School of Education in Trinity College Dublin (the University of Dublin) has been involved in preservice computer education since 1969.

Inservice education has received more widespread attention. The Department of Education organised the first "summer courses" for teachers, starting in 1971. These courses effectively led to the formation of the CESI; the mantle of providing short inservice courses on a regular basic has now fallen largely on that organisation, though in most years the Department has offered financial support. Latterly, there has also been a plethora of "freelance" courses, run for example by individual teachers, Teacher's Centres, and commercial organisations. More substantial provision is also being made. Trinity College, Dublin, has included a computer course in its Master in Education programme since that programme was started in 1970; in 1973, the college introduced a one-year part-time postgraduate Diploma in Computers in Education. Other institutions are now following suit. Some of the best students from the Trinity diploma course have gone on to work for an M.Sc. in Computer Practice (that is, computer education); their dissertations have provided software, and they themselves are providing leadership, to enrich computer education in Ireland.

5. Conclusion

Finally, it should be mentioned that computer education in Ireland has benefited already from contact with other countries - in particular from co-operation with ICL-CES in England, and with the Computer Education Group in Northern Ireland. We look forward to future work in a wider European context.