LOCAL POPULATION STUDIES IN SCHOOLS (4)

Computer aided study

In LPS 30 Andrew Garner drew attention to the role of computers in handling large amounts of information and referred to the work in this area carried out by Beverley Labbett. Beverley Labbett, currently working at the Centre for Applied Research in Education, University of East Anglia, has kindly supplied the following material as an appropriate follow-up to Andrew Garner's article, and an indication to readers of the impact of computers in the school classroom.

In 1975 the National Development Programme in Computer Assisted Learning funded an experiment in the use of computerised information in rural Suffolk. The subject area was local history. The project was The Local History Classroom Project. Its concern was to explore possibilities raised for the teaching of history by the existence and availability of a computerised information retrieval bank. The information was evidence of the local past, static unchanging information, already conveniently structured, and about people — the 1851 census returns of some ten Suffolk communities. The information bank was designed and constructed by project personnel. Discussions with teachers revealed a variety of ways in which the information could have been structured for input into the machine. One told us, "As well as giving us the place of birth of each individual, I'd like to know how far the birthplace was from the community where X was living in 1851." The implications of that reasonable request were enormous for our work-load. In forecasting ahead about user needs, we decided in the end to structure the information for computer input to form as near as possible a replica of the original document itself. The notion of too much coded information was more than our historical stomachs could tolerate then. Preserving as much of the richness of the original documents in English was the criterion by which we proceeded.

The information was stored on an ICL 1903 at the Suffolk College, Ipswich; and the ICL software package FIND was used as information manipulator, ordering the required information in response to questions posed by teachers and pupils in primary, middle and upper schools, local historians and other students of nineteenth-century Suffolk. The project acted as a provider of information used for individual, group, class and public examination project work (CSE, O and A Level). It wasn't difficult for users to see that the computer does make possible the storage of vast amounts of information, and that such information was available for use.
While individual users imposed their own purposes for using the facility, the Project explored the following question, if the computer equipment can be programmed to act as information manipulator, what opportunities does that create for classroom work?

1. **Question-Posing**

Census returns, computerised, allow the pupil more time to be concerned with the problem of what questions to ask. Questions could now be asked that had not been asked before, because we would have had to spend hours manually ordering the information in order to explore them. The computer equipment could now be made to do that job. But its use demanded a challenging precision in the specification of those questions. There were now increased opportunities for work in the classroom learning to ask questions. What range of questions may we ask of the available computerised information? One fourteen year old boy asked:

‘Look. There’s a nine year old agricultural labourer in this 1851 census. I want to find out what jobs the under-sixteens were doing if they were not at school.’

2. **Hypothesis-Making**

Census returns, computerised, allow more time to be spent generating hypotheses, and testing their degree of validity against increasing amounts of information from different communities. Pupils were asked to try to formulate questions, study the computerised information, venture some interpretative statements, and then see how far those statements held against similar information from other communities. That was new ground for us.

‘All the shepherds living in this 1851 village were born more than ten miles away. Is this true of shepherds in other villages?’ (Eleven year old girl.)

3. **Generalisation, Sample and Comparison**

Census returns, computerised, allow more time to be spent exploring the idea of generalisation, and facing the problem of sample and comparison. That was new ground, too. Consider this example from four fourteen year old girls, studying child-bearing and the age of marriage.

‘Our sample was too small. A wider sample needs to be taken ... but was the Victorian era as moral as was generally suggested?’

4. **Classification and the Writing of History**

Census returns, computerised, offer a richer information source for pupils to confront the problem of classification, and attempt to write history. In
one lesson the teacher explored with the class the idea of the self-sufficient community. Working in groups, pupils were asked to define (classify) those occupations it would be necessary for a community to have to qualify as self-sufficient. They then studied the print-out of occupations from different communities to see which qualified by their various definitions ... and could then go on from that to pieces of writing. This example comes from some fifteen year olds.

'There is no indication of the village producing its own materials (but because they used animals off farms for the butchers, perhaps the hides were used to make shoes and clothes). Once the raw materials were in the village ... there was no shortage of workers to make clothes for the use of the people. There were three tailors, four dress-makers, one needlewoman, three staymakers, two cordwainers and four shoemakers. Putting all the facts together ... there was a small industry in dress-making and tailoring.'

'Writing History' became the theme of the Project's work; and as pupils engaged in that difficult enterprise, some wrote about those moments of surprise in historical research when expectations about results are not fulfilled.

'This information shows a greater mobility of population than might be expected, bearing in mind the limited transport facilities.'

'I was surprised that the number of male scholars was only fractionally larger than the number of female scholars. I expected the difference to be much greater because ... a female was a lower class of citizen who was hardly worth educating.'

'One would naturally believe that most old people would be receiving and living on outdoor relief but counts reveal that only thirteen ... are dependent on their parish.'

On many occasions, the available census information didn't warrant conclusions. Pupils were left with unresolved questions. This was frustrating, but the very raising of those questions offered other avenues. One of the exciting discoveries for us was the utility of the computer as an information manipulator to facilitate the raising of questions across a range of historical themes — education, railways, workhouses etc.; questions raised from the fact that we were dealing with rather limited, barebone information. If we could get pupils to raise questions from the print-outs they used, the way was open to use the history textbook as a resource in seeking a wider exploration of those questions. That happened. They did raise questions.

'What factors explain this decrease in population? Were the farmers of Haughley small, thereby feeling the effects of economic difficulties more quickly? Is the decrease due to greater efficiency and thereby less employment? or what?'
The whole experience was leading us into areas of that endlessly rich world of history, where we had not before travelled. And the new possibilities began to put the idea of 'content' in the teaching of history into a different perspective. In using the computer, we were no longer working within everyday notions of historical content. Relieved of the necessity of manually ordering the census information, we had time to confront at a modest level a major historical problem — the search for interpretation. Now, we were talking about hypotheses, validity, generalisation. We were no longer dealing with what was, in the classroom lessons we conducted; rather, we were having to deal with the problem of how do you write about what was, when you use census as one form of evidence. We were getting more and more into the problem of just how far we could legitimately squeeze evidence about the past, as we tried with pupils to write history in the classroom. (As we faced that problem, the computer had served its function. The generous size print-out lay in the classroom in multiple or single copies. Batch-processing has its advantages.) The uncomplicated nature of census information was allowing us to work with children aged eight upwards; and they experienced some of the basic mechanics by which historical content is created. By making claims in the form of written statements from information delivered from the computer in response to their questions, and by having those claims looked at by pupils in the same class, studying the same information, they began to experience something of the debate, argument and question-raising that can go into the creation of historical content.

The pupils who used the print-outs never saw the machine that delivered them. They may be described as users of information created in the nineteenth-century, and made available to them in computerised form a century later. The ICL 1903 acted as the unseen manipulator of information. Towards the end of the Project, however, some of them began to peer a little behind the scenes into what is involved in the design and construction of computerised information. I say that because some transcribed the census returns of parishes near their own school-gates, for input into the central bank at Ipswich. An instruction booklet, demonstrating correct procedures for transferring the original information onto the data capture sheets was provided. Pupils checked each other's transcription work before the sheets were sent to Ipswich for punching on cards. A print-out was made, and returned to them for correction. Pupils were experiencing now something of the processes involved in the creation of a computerised information bank, as project personnel had done earlier. But for other users of the information, transcribed by pupils, questions were beginning to be asked, that had not been asked of us. 'How accurate are these pupils' transcriptions?' Others went further in their questioning. 'How accurate is the original information itself?' 'I feel uneasy about trying to write history on the basis of computer evidence I have not been responsible for.'

Such questions as these brought home to us just how much in practice we had allowed pupils to act only as users of information created by people in 1851. Yes, we were doing classroom work that dealt with hypothesis-making, question-posing and generalisation. But who were those anony-
mous figures upon whom the storage of computerised census data had become possible at all? How had the information been collected? How accurate was it? Who had devised the questions that led to the very creation of the original information? The experience of exploring the question, How had the original census information been collected? led us into the engine-room processes of information creation. Different people had been involved over time and their roles in relation to the creation of census information were different. The information creators decided the questions to be asked, the form the answers should be given in, and decided the instructions for the information collectors and providers to follow. The latter two groups had a different role. Their role was to interpret those instructions working within boundaries specified by the information creators. The manipulators worked within similar boundaries, synthesising and collating the information according to agreed specifications and categories of occupations.

Our excursion back to 1851 to describe the information creation and information handling procedures in the Census had the intention of placing the work of the Project within the wider perspective of the 1980's. Computer developments are now giving greater exposure to the idea of information as a resource in our educational endeavours. We are promised untold access to information. CEEFAX, PRESTEL, VIEWDATA see the educational market as one with a rich future. Pupils will become increasingly aware that the computer can store unbelievably large amounts of information. And they will have opportunities to use that information. Such a situation takes the debate way beyond the concerns of any one subject area.

We happened to use computerised information under the timetable heading, HISTORY. Looking back, it seems reasonable to say that we could have been working under a different, but equally appropriate title, INFORMATION USAGE. Under the former title, pupils tried to write history. Under the latter, we could have claimed they were experiencing something about the uses and abuses to which information can be put. Had we done that, it would be vital now to make clear what the boundary of that something was. And we can do that, particularly if the reader of this article will imagine himself in a classroom full of pupils, and with access to computerised information. (And I am talking here about information that feeds the subjects in the school curriculum.)

As the pupils look at that information, thinking about how it might be used, what they are seeing is only the public face of information. As they talk about the census print-out or such information as may in future fill the TV screen at the press of a button what they see is an already packaged end-product. What they do not see are those prior, behind-the-scenes processes that have gone into the making of information; those unseen processes that have involved the critical and creative energies of information creators.

Our experience of using the computer for its information processing
capabilities has led us to being more directly concerned with that more private world of computerised information for public use. In the Project, we used a mainframe computer whose physical separation from the classroom necessitated batch-processing. Now disc-based micro-computing equipment has arrived whose physical accessibility permits users to enter as well as process information and thereby experience all the processes of information creation.

NOTES

1. For details of how the information was structured for input into the computer, see ‘Computerised Nineteenth Century Census Returns’, Computer Education, 32, June 1979, pp. 16-18. If anyone with access to FIND software would like to have some of the computerised census data produced by the project they should write to The Local History Classroom Project, Centre for Applied Research in Education, University of East Anglia, Norwich, NR4 7TJ.