Computing for history undergraduates: a strategy for database integration

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A Strategy for Database Integration

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Until very recently, the contribution of computation to undergraduate history teaching in Britain has been decidedly modest. Very much the preserve of the individual enthusiast ploughing a lonely furrow, computer assisted teaching has usually arisen as a response to the demands of particular source materials and, equally often, has been obliged to endure unfriendly and over-burdened mainframe environments. At last, things appear to be changing, prompted certainly by technological advances, and by consequent changing demands in the workplace, but also by developments within the discipline of history itself; by changes in attitude which affect research and teaching methodologies. There is a steadily strengthening recognition among historians that computation can no longer be ignored; that far from being an alien intrusion into an humanities degree, it can be an invaluable asset to teaching, enriching an undergraduate's study of history, enabling him to derive more intellectual satisfaction from his work and to perform better when examined. Such shifts in attitude do not occur overnight and there arc many who are not yet - indeed, who probably never will be - embraced by them, but a change in outlook is clearly perceptible, to the extent that it has already manifested itself in the history degree syllabuses of a number of British universities. Courses involving the use of computers are appearing like mushrooms on a dewy spring morning. A miscellany of new courses - introductions to historical computation« and conventional history courses with a computing component - is unequivocal evidence of the growing commitment to historical computing in higher education; but such hasty initiatives often appear to suffer from a lack of clear strategic planning. For the potential of computation in undergraduate history teaching to be properly realised, a carefully defined strategy is absolutely essential. The purpose of this paper is to explain the strategy underlying the initiative launched in the autumn of 1987 by the History Department at the University of Hull. (1)

The aim of the new teaching programme at Hull is the thorough integration of computation into the undergraduate history syllabus: in*

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tegration as complete as the subject matter of individual courses will al-
low, and involving all history undergraduates, not just a courageous mi-·
nority. The strategy of integration consists of three key elements. The first
is the provision of instruction in historical computation for all
single-honours history undergraduates from the very start of their univer-
sity careers, so that by the end of their first year, they have become com-
petent users of several pieces of software, and in particular the database
package, Reflex. This involves more than simply acquiring of a basic me-
chanical proficiency with the software: they need to develop a sound, sy-
stematic approach to data analysis. The learning of the essentials of data-
base design and usage, together with a broader appreciation of the many
ways in which computers can contribute to the study of history, is the
broad aim of a first year foundation course, »History and Computings (2)
It is an intensive and demanding course, amounting to about a quarter of a
first year student's overall workload and covering a wide range of com-
puting facilities relevant to the work of the historian. Thus, although the
bulk of the course is concerned with exploring the potential of conventio-
nal flat-file databases on the PC, the students are also introduced to more
sophisticated database structures, such as textbases, and to the stimulating
possibilities offered by mapping software. In addition, they gain an insight
into the world of communications and become competent users of a
word-processing package.

The second cornerstone of our strategy is the provision of relevant com-
puterised materials for all suitable courses throughout the degree program-
me. It is of the utmost importance that students are provided with plentiful
opportunities to use the skills which they have acquired during their first
year. This must not be done clumsily: databases integrated into second and
third year courses should be perceived by the students to be directly rele-·
vant to important aspects of those courses, and not contrived aftert-
houghts. The secret to successful database integration is clearly the crea-
tion of a favourable environment; in short, databases must be presented as
a natural study resource, their use becoming as normal a part of a student's
working day as consulting books in the library or attending a lecture. Whe-
ther preparing for a seminar or assembling information and ideas for an
essay, a suitable database from the departmental stock, like a relevant
book, can be plucked from the shelf and interrogated. Databases will be
seen as complementing traditional study methods; frequently of course,
the database will substantially supplement, and often question, what is to
be found in secondary sources. This is because an environment in which
databases are regarded as an everyday study resource, is also one in which
students are brought into regular, direct contact with primary sources. The
traditional history degree at British universities attempts detailed, critical
examination of sources only in the final year special subject; even then,

many unmanageable collections of important source materials are inaccessible to students (and will remain so until computerised). In marked contrast, undergraduates at Hull have already grappled with several bulky and complex types of source material by the end of their first year; (3) and the availability of suitable databases enables source-based study to become a serious ingredient of many second and third year courses. Thus, for example, a database of Baltic trade statistics is used by students taking a second year option »The Dutch Republic«, and a database of wool and cloth export figures, has been incorporated into the »Late Medieval English Society« course. (4) Such regular contact with the raw materials of history should make for better motivated and better informed students, who have a fuller, more sophisticated understanding, not based entirely on ideas culled from secondary sources or lectures.

The third salient feature of our strategy provides an appropriate climax. Final year students can choose to write a dissertation resting upon the analysis of a substantial database; they may either use an existing departmental database, or construct one themselves from scratch. The dissertation may be undertaken as part of a special subject, or in place of one of their other third year courses. In either case, it counts as a full finals paper. If the other elements of our strategy have been successful, this is likely to be a popular option, and one which our students will be well qualified to exploit to the full. They will, after all, arrive at their final year with a solid background of database design and usage. At the core of the first year foundation course are four database projects, each involving data analysis and a written essay. For their third project everyone creates a database of their own from scratch, based upon sources of their own choosing. This is a particularly beneficial exercise, as it requires a thorough understanding of the data and clear thinking about database structure. These small-scale, yet serious, projects enable students to master the essentials of database design and interrogation; they represent, therefore, an admirable preparation for a more extended piece of work in the final year.

This kind of specialised database work in a student's final year is not a compulsory element of the degree course; it can only succeed if it is based upon willing participation. Compulsion does, however, have a place in the strategy outlined here. The first year foundation course is compulsory: this ensures that all have the opportunity to learn - not just the bold or the experienced. It is of equal status to the other three first year courses, to ensure that all take it seriously and apply themselves fully. If the course was optional, some students - the faint-hearted, the sceptical or the lazy - would opt-out; many of these can be won over during the course of the year. A modest, compulsory use of databases in other first year courses helps to underline the lessons of the foundation course, but at the end of the year, compulsion ceases and students choose for themselves whether

they wish to pursue historical computation any further. If the first year foundation course has succeeded in its aims, then most students will need no further prompting.

Having completed the first year of the new teaching initiative at Hull, it is possible to perceive a number of difficulties inherent in a strategy of thorough database integration. It will be apparent that the success of the overall strategy depends very much on the effectiveness of the first year foundation course. By its very nature, however, such a course involves an intensive and time-consuming teaching commitment. Microlab groups consist of at least a dozen students and it is therefore impossible for tutors to give prolonged attention to individuals during classes, despite the fact that careful individual tuition is precisely what less able and less motivated students (together with those who have missed classes through illness) require. Thus, there is a need for individual tutorials and for a readiness to help individual students in the microlab throughout the working day. In fact, tutorials are useful whatever a student's level of expertise. Microlab classes can deal only with basics; more refined aspects of the software can best be shown individually to the »high-flyers«. This kind of intensive tuition is only required for the first year foundation course, but it is a teaching commitment very different from that usually expected from university lecturers. Those running such a course may need to be relieved of some or all of their other teaching commitments, a situation which neither the lecturers involved nor their colleagues are likely to find acceptable for any length of time, especially in a department with a modest complement, such as our's at Hull. One solution would seem to be the appointment of specialist staff: either a lecturer in historical computation or a microlab manager with a historian's training.

Taking the strategy of database integration beyond the first year foundation course requires a number of not inconsiderable problems to be overcome. The most obvious is the pressure of increasing demand on a finite supply of hardware. The resources of a microlab which satisfied the requirements of the foundation course, may be severely strained by the simultaneous demands of first, second and third year students. But, for the consultation of databases to become a natural part of a student's scheme of working, rather more than an impressive cluster of micros is needed: the department must be in possession of an adequate stock of suitable databases. Flat-file databases of relatively modest dimensions, appropriate for integration into undergraduate courses, are not necessarily difficult to prepare. It certainly helps to have a supply of resourceful data entry personnel for this (we have been fortunate in this respect), but their work needs to be checked and documentation for users of the databases must be written. All this is time-consuming (and, once again, not what is usually expected of a history lecturer) but not to the extent that each database becomes a major research project in itself.

Textbases are quite a different matter. From the point of view of both lecturer and student, these are by far the most stimulating kinds of databases to use. They tend, however, to involve a far greater amount of preparation than conventional flat-file databases. In particular, the structuring of a text - the devising of a scheme of coded markers and their insertion into the text can be a very time consuming exercise; such an expenditure of time can usually only be justified if the textbase also forms part of a genuine research project. (5) Providing a sophisticated mapping dimension to any kind of database, particularly if pre-modern data is involved, is an equally complex task. Many data sets possess mapping potential, and there is no doubt that mapping facilities can provide a most flexible and revealing means of exploring data. But if the aim is for something more than the simple plotting of points - and if the data to be handled is medieval or early-modern - then the task of creating boundary files must be faced: that is, it will be necessary to establish the location of boundaries and then digitise them. This can be a time consuming, not to say tedious task, and again, one which could probably only be justified as part of a major research project. In the case of modern data, it may be possible to use existing files of digitised boundaries.

An abundant stock of departmental databases will be worth very little unless exploited by staff and students. The establishment of a strategy of database integration, such as that proposed here, may necessitate a major revision of the history degree syllabus, but success will depend not so much on structural changes, as upon the active participation of a significant proportion of the teaching staff in the department. At the very least, they should be prepared to advise on suitable materials for databases; then they must decide how the databases can be worked into their courses in a natural way, perhaps linking them to particular seminars or essays. One cannot expect to be met by an overwhelming wave of enthusiasm, for the history departments of British universities are bastions of traditional methods. There will be expressions of interest »in principles but an unwillingness to alter existing courses or to take over the running of microlab classes. Like some students, one's colleagues can only be won over slowly. But if the process of persuasion must, by necessity, be gradual; the strategy demands that this process ultimately succeeds.

Perhaps, however, the greatest obstacle to the full and successful integration of databases into the history degree syllabus of the 1990s arises from the attitude of the students themselves. At the start of their first year many students are wary of computers and inclined to regard historical computation as a separate entity, requiring skills and an attitude of mind quite different from those demanded by »conventional history«. The foundation course, reinforced by a modest amount of database work integrated into the other first year courses, is designed to sweep away such

misconceptions. It is, therefore, intended as much a psychological as a technical and intellectual preparation for the serious use of computerised materials awaiting them in their second and third years. It will be several years before we can be certain whether this preparation - and, indeed, our whole strategy - has been successful.

Notes

1) The initiative (under the direction of Dr. John Palmer) was based upon a UGC/Computer Board grant, as part of the Computers in Teaching Initiative; this covered the cost of equipping a microlab and paid salaries of support staff for the first year.

2) For a detailed discussion of the foundation course, see this author's paper in History and Computing 3 (Manchester University Press, forthcoming).

3) Microlab class work and database projects for the foundation course bring all students into contact with Victorian census materials, Domesday Book and the pay records of English royal armies involved in the Hundred Years War, in addition to a further data set of their own choosing.

4) The Baltic Trade database is derived from the tables in N. Ellinger Bang and G. Korst, Tabeller over Skibsfart og Varetransport gennem Oresund, 1497-1783 (7 vols., 1906-1953); the Wool and Cloth Trade database was constructed from the tables in England's Export Trade, 1275-1547, ed. E. M. Carus-Wilson and Olive Coleman (Oxford, 1963).

5) See, for example, George Slater, »The Hull Domesday Textbase: a programmer's view«, University Computing 10, 1988, 2-8.