The Development of a Computer—Assisted Course in Historical Methodology

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Introduction

The History Department at Barnard College, Columbia University, developed a course that employs microcomputers in support of undergraduate instruction in American history. The primary goals of the use of computers were to get students to think of history as an ongoing intellectual activity, to acquaint them with various methods, particularly quantitative methods used by historians, and to train them in how to arrive at conclusions of their own. Using SPSS/PC, students analyze datasets to test a number of historical interpretations that have been especially influential in the discipline. By this method, students construct their own interpretations of an historical development which they can then set against the standing ones. To the extent that students seize the means to both write and interpret history, they take a giant step in their intellectual empowerment. This we take as the primary goal of an undergraduate liberal arts education.

The History Department at Barnard College, the undergraduate women's college affiliated with Columbia University, embarked in 1983 to introduce undergraduate students to historical analysis with the aid of computers. During the planning process there were a number of alternatives to the structure of the course, "Reckoning With the Past: History, Historians, and the Computer." First, we could have developed a project where the social and political structures of past places and societies could have been replicated on machine. Students can then manipulate these structures, (for instance, by changing income distributions or patterns of ethnicity) to see how these in turn may have influenced events. This approach allows students to see how different aspects of a society and culture are interconnected, how changes in one aspect of society affects others, and how, in turn, the course of history may reflect subtle social and political modifications over time. This approach has the advantage of showing to the student that historical changes do exist, and it gives them a clear picture of how politics, social structures, and events may be intertwined. For all its power, however, this approach has a fatal flaw: it comes dangerously close to speculative historicism. Historians are more interested in explaining *why* an event happened where and when it did rather than in *what would have happened* if conditions were different. In short, historians are concerned with explaining events that actually occurred. For example, the historian is more likely to ask why did Hitler attack Poland in 1939 rather than would he have won the war if Germany deployed V—2 rockets in 1942. Another problem with such an approach is that there is little or no examination and explanation of the emergence of historical

interpretations——why historians write what they do. Students, thus, run the risk of not really understanding why and what historians write.

As an alternative, we could have offered a simple quantitative methods course. Such a course would instruct students in a good deal of computer—assisted quantitative techniques. This would appeal to graduate students who are embarking on dissertations, but an undergraduate course using this method might lapse into little more than a "cookbook" approach to studying and writing history. We did not feel that we could teach historical methodology in any thorough way until the students had a firm grasp and critical viewpoint not only on historiography, but also on historical methodology in general. Undergraduates, generally, are not such equipped. Our goal was not to get students to produce historical research reports, but rather to understand how history is written, how events are interpreted over time, and the effects of those interpretations on subsequent literature.

That left us with the idea of allowing the student to replicate the work of an established historian. For instance, we could have replicated the same datasets that a social or urban historian used, and asked the students to analyze these sources themselves. Some courses in the history of science employ this approach. One course in the history of biology allows students to replicate the seminal experiments in the field. Though this is a popular approach, it is not without its pedagogical problems——not the least of which is that it does not allow the student to understand the roles that a research community——rather than an individual——plays in the generation of new knowledge. Further, although the computer was to play an integral part in this aspect of the course, we did not want to rely on it too much. That is to say, we did not want to tell the students, "Look at what this historian could have done if only s/he had a microcomputer." Such an attitude would instill in the student a false notion of "progress" in methodology. Our contention was that methodology changes, but that it does not necessarily progress. Thus we were faced with the idea of having the student replicate research in some form, but we wanted to do far more than mere methodological imitation.

The Early Structure and Goals of the Course

When the course was first introduced in the History Department's curriculum in the fall of 1984, its structure was intended to reflect and reinforce its twin objectives: to get students to think about history not only as "the past" but as an ongoing intellectual activity, and to acquaint them with various methods, particularly but not exclusively quantitative methods, used by historians in the pursuit of that activity. What is it that historians do and how do they do it in framing questions and posing answers about the past that they do in common with others engaged in intellectual discourse, and what is it that they do that is distinctive to them? The traditional and most common way of responding to these questions is through a course in historiography (or "great issues"); another, somewhat less commonly encountered, is to provide a course in historical methods; a third, almost unheard of as part of an undergraduate program, a course in the sociology of history.

Our first approach combined all three kinds of courses by addressing six major interpretive issues as a course in historiography might; by taking up several methodological approaches but emphasizing, without proselytizing on behalf of, those that make use of the manipulation of quantifiable sources of evidence; by persistently if not explicitly dealing with these interpretive and methodological issues in terms of what Robert Merton has called a scholarly discipline's "sociological regularities." In sum, the course outlined for students the important historiographical debates, while at the same time providing them with a functional rationale for acquiring sufficient familiarity with historical methodology, including computer—assisted statistical methodology, to allow for the critical consideration of the choice and the evaluation of evidence, as well as the argumentation of a work of history.

The first rendering of the course was composed of six lecture units devoted to a single historical interpretation. Each of the lecture units had as its center an historian whose writings on a particular aspect of American history have been sufficiently influential to permit an ordering of earlier and subsequent writings in terms of those interpretations. The six were:

I.   Perry Miller's Puritans
II.   Bernard Bailyn's Revolutionaries
III.   Charles Beard's Founding Fathers
IV.   Arthur Schlesinger, Jr.'s Jacksonians
V.   U.B. Phillips's Planters and Slaves
VI.   Stephan Thernstrom's Urban Americans

We also scheduled weekly laboratory sessions that examined and analyzed historical methodology in general, and the methodologies employed by the above historians in particular. The laboratory sessions introduced students to alternative strategies by which empirical data can be evaluated in support of theoretical arguments. Further, the laboratory sessions introduced students to various quantitative methods by which they could test interpretations, as well as the computer hardware and software needed to support such analyses. The sessions were divided into two parts: The first examined and assessed how a historian frames a question, and the steps, both logical and methodological, that s/he must take in order to answer the question, construct a thesis, and arrive at a conclusion; in the second part students began to employ their own methods, manipulate their own data, and compare their conclusions with those of one of the above historians.

Only two of these paradigmatic interpretations, Beard's and Thernstrom's, are explicitly quantitative, and of these Beard's was advanced five decades before historians began using computers in their work. Moreover, Miller and Schlesinger have expressed decidedly negative views about quantification. Still another, Bailyn, did some quantitative work early in his career but subsequently went on to write major works in American history employing more qualitative methodologies. Yet the interpretations of all six historians possessed two crucial characteristics: they have been immensely influential in determining the questions their generation of historians deemed important and, they have drawn criticism from revisionists who have invoked quantitatively—based arguments in their attempts to upset these interpretations.

The Choice of Historians

By starting with Miller, the course allowed students to confront the work of perhaps the most conspicuous exemplar of the American historian as the historian of ideas. The readings included selections from Miller's own work, as well as that of historians who have preceded Miller in his studies of 17th and early 18th–Century New England. Miller also permitted the lectures to raise issues relating to the institutional context within which Miller operated––Harvard in the 1930s to 1950s––and those which characterize historians who have since the late 1950s challenged his views.

If the first unit impressed upon students the fact that major historical interpretations and the revisionist efforts they inevitably inspire develop with a specific professional and even psychological context, the second demonstrated the distinctive and determinative role played by the availability of sources in the historical process. Bernard Bailyn's rendering of the ideological origins of the American Revolution, with the crucial importance he places on the pamphlet literature attending the rise of resistance to imperial rule in North America, as against both the views that prevailed earlier and those that have since stressed far more than he the role of the "inarticulate," was nicely suited to this purpose.

From here to the end of the semester each interpretation the class considered became the occasion to discuss its substantive implications, the methodological issues in dispute, and the computational skills required to enter into the interpretive process both on an intellectual and critical level. Consideration of Beard's pioneering analysis of the economic interests of the delegates to the Philadelphia Constitutional Convention in 1787, for example, allowed discussion of the changing fortunes theories of economic determinism experienced since Beard advanced his own work back in 1913, while it also allows the class to consider the utility of collective profiles, career–line studies, and other biographical techniques to which Beard gave currency. One such work that we studied in detail was that of Stanley Elkins and Eric McKitrick "The Founding Fathers: Young Men of the Revolution," (1961).

This piece, an influential, thoughtful, and considerable work in American historiography, exploded the Beard thesis and replaced it with one of its own: namely, that those who supported the Constitution, the Federalists, were younger than those who wanted to maintain the existing arrangement of a relatively weak confederacy of states. Elkins and McKitrick maintained that the younger members of the Constitutional Convention in 1787 had a different outlook on the future of the young nation that can be explained by the differences in their experiences. Students in the class tested this hypothesis by referring to a computer–readable dataset of the members of the Constitution Convention comparing the average age of the Federalists and anti–Federalists using SPSS/PC on a microcomputer. The students saw that age alone could not explain who did or did not support the Constitution. More important, they began to realize that a single variable in isolation usually does not explain actions or social conditions. The students were faced with constructing alternative explanations.

Arthur Schlesinger's interpretations of the Jacksonians permitted consideration of the non–quantitative historiographical issue of the possibly distortive impact of an

historian's own politics--in this case Schlesinger's preoccupation with the politics of the New Deal with its popular emphasis on the "common man"--on his or her rendering of past politics. It also, in taking up the arguments of Schlesinger's leading critics, obliged the class to grapple with several highly quantitative voting-behavior studies, Lee Benson's of the New York voting electorate between 1816 and 1844 being the prototype.

An examination of U.B. Phillips's *American Negro Slavery* (1918) brought the class to the effective beginning of two of the longest running and most emotional-laden debates in 20th-Century American historiography: (1) the economic viability of the Southern slave economy on the eve of the Civil War and, (2) the immediate and long-term impact of slavery upon American Blacks. Always carrying regional and ideological baggage, both debates of late have taken an increasing quantitative turn, though they have become no less contentious for this. Indeed, the introduction of competing quantitative strategies has only intensified the debate. It was an explicit intention of the course to render these debates accessible, open to criticism, and, to some degree, technically replicable--especially if one considers the quantitative data used by Robert W. Fogel and Stanley Engerman in their now largely discredited work *Time on the Cross*, (1974).

The course concluded with a consideration of Stephan Thernstrom's *Poverty and Progress: Social Mobility in a Nineteenth-Century City* (1964) and the many even more highly quantitative studies in urban social history and social mobility that Thernstrom's book inspired. Thernstrom, the youngest of the historians whose work serves as a paradigmatic interpretation, and the only one who has not yet confronted a full-blown revisionist challenge, provided an apt occasion for attempting to draw a trial balance wherein the contributions of quantitative methods to the historical enterprise are tallied up against the now more clearly acknowledged distortive potential of these methods.

Organization of the Laboratory Sessions

The laboratory sessions were not to be mere workshops, rather they were to provide a parallel chorus to the lectures that raised theoretical methodological issues as well as the practical experience of using a microcomputer to assist in the generation of historical statistics. In support of this we prepared an extensive guide that contained theoretical essays on historical methodology, as well as a step-by-step approach to using a microcomputer. Finally, we also used a standard social statistics textbook to introduce students to the rudiments of statistical thinking.

During the opening weeks of the laboratory sessions we introduced students to the major methodological issues facing American historians today. We discussed the sorts of works that have employed quantitative techniques in support of their arguments, (by no means are these techniques limited to computer-assisted quantitative analysis), outlined the major disputes, and examine the usefulness, or lack thereof, of the various methods.

The lab sessions then focused on the problems both the researcher employing quantitative methods and the reader examining the finished work are likely to encounter. These problems are related to the sorts of evidence employed, their evaluation, their use, and the inferences the researcher makes from his or her evidence. During the next few weeks the laboratory sessions continued the discussion of methods by critically evaluating as a case study Stephan Thernstrom's *Poverty and Progress*. The goals of these sessions were to examine Thernstrom's quantitative and qualitative methods, and to isolate and criticize his choice, use, and evaluation of evidence in buttressing his thesis and building his conclusions.

The second phase of the laboratory sessions introduced students to quantitative methods at first–hand by having them manipulate data and form conclusions from their data. Some datasets, such as the demographic data from nineteenth–century Newark, New Jersey, were compiled by the instructor. Others were derived from datasets help at the Inter–University Consortium of Social and Political Research at the University of Michigan.

As a final project, students selected a dataset, analyzed it using a statistical package (SPSS/PC) on an IBM microcomputer, and compared their findings with those of an established historian. We focused on five datasets collected every five years from the Newark, New Jersey City Directory from 1835 to 1855 and compared Newark's mobility patterns with Thernstrom's findings in Newburyport, Massachusetts. Not only would this assignment allow students to discover for themselves how to write a small research paper, but also to replicate, to some degree, the same sorts of methodological issues and intellectual questions that Thernstrom himself faced. Further, students learned for themselves the relationship between the choice of evidence and the construction of historical conclusions. Perhaps most important, we wanted to instill in the students an appreciation for the limits of evidence. We hoped that it would become clear to students just what selected evidence can explain, and what it cannot.

Lessons Learned

No course is without its lessons. The major flaw in the course was the separation of the lab sessions, which stressed methodological issues——including the use of the computer——from the substantive lectures. Most students consider laboratory sessions to be little more than workshops where the emphasis is on doing rather than on thinking. Though we stressed methodological issues in the laboratory sessions, many of the students assumed that this was less important than trying to get some output from their micros. As a consequence, it was difficult to control the students' feeling that they could do "instant history" as soon as a crosstabulation using historical evidence appeared on a screen. This is, they were so taken with the generation of numbers that it was a struggle to get them to critically analyze their results. Of course, this is a problem that was common to many historians——especially in the mid–1960s and most of the 1970s when quantitative methods were in vogue——but something that we had hoped to overcome in the seminar at Barnard.

Further, many students did not feel that they needed laboratory sessions in order to learn the workings of the IBM PC/XT, PCDOS, or SPSS/PC. Many students had

learned basic computer concepts before this course, and those who did not have any computing experience learned the basics very quickly. In fact, succeeding classes picked up the principles of computer operation more quickly than their predecessors. This came to us as a surprise since we thought that our most intractable teaching obstacle would be in trying to get students overcome any fears they may have of using a computer. Though this may be speculative, it might be an indication of the rising level of computer literacy in the student population in general——a competence that may, for some reason, be independent of actual computing experience and training.

By the Fall of 1986 we maintained the same pedagogical goals, but we revised the structure of the course in two ways: first, the course was divided into three units and, second, we did away with most of the laboratory sessions. The practical aspects of the lab sessions were replaced with individual and small group meetings in the instructor's office. Each student was to meet with the instructor, either singly or in a small group, at least 1 1/2 hours per week. There such issues as how to use PCDOS and SPSS/PC were introduced and explained. The methodological and theoretical discussions that formerly were part of the laboratory sessions were incorporated into the lecture and discussion units.

The first unit, which lasted a little less than a third of the semester, introduced students to the major methodological and theoretical issues that would play an important role in the seminar for the entire semester. Our idea was to give students an appreciation of the importance of theoretical issues that underlie cognitive change. In addition to rudimentary statistics, we covered such issues as the definition of a research community, and the generation of interpretations and "facts," the diffusion of knowledge within a community of scholars, the life cycle of ideas, and the filiation of methodologies in other fields, such as sociology and the "hard" sciences, with historical methodology. To support our goals here, we discussed the writings of such writers as Hegel, Marx, Max Weber, Thomas Kuhn, Ludwig Fleck, and Robert Merton as they related to the generation and diffusion of knowledge. Though this section of the class was by no means a substitute for a course in the sociology of knowledge, the intention was to give students a basic understanding of the theoretical issues behind the writing, interpretations, and diffusion of historical analyses. We felt that without at least a rudimentary understanding of how facts are generated and interpreted, the relationship between theory choice and choice of evidence, and the temporal and cognitive constraints that scholars experience when evaluating evidence, students could never use a computer in historical research as a tool in enhancing that research. At the end of this section of the class the students took an exam that tested their quantitative abilities, and they wrote an essay that discussed one aspect of the growth and diffusion of historical knowledge.

During the second part of the course we discussed the work of four important American historians: David Donald's "Toward a Reconstruction of the Abolitionists" (1947), Richard Hofstadter's "The Status Revolution and Progressive Leaders" (1955), Robert Fogel and Stanley Engerman *Time on the Cross*, v. 1, (1974), and Herbert Gutman's *The Black Family in Slavery Freedom, 1750–1925*, (1975). Donald and Hofstadter, two of the most prominent historians in the 1950s and early 1960s, were paired because they explain two different reform movements——which seemingly bears

no relationship to each other whatsoever——by using the theory of "status anxiety," a popular social theory of the late 1940s and early 1950s. These readings illustrate to the students how one discipline can borrow from another, and how in that borrowing process the original idea may be transformed. Further, the Donald piece illustrates the pitfalls of adhering to a single social theory in order to explain complex events. From a more quantitative point of view, both articles exhibit problems in both sample selection and representativeness. These problems could not have been solved if Donald or Hofstadter had access to computer processing because there were intellectual choices that imposed limits of the data, not temporal constraints caused by the size of datasets or complexity of numerical analysis. The idea was to get students to see that computer power, in itself, could not improve flaws in statistical methodology.

Fogel and Engerman and Gutman are paired because they both address some of the same issues in slavery, both use quantitative techniques, and both arrived at virtually diametrically opposed conclusions. The Fogel and Engerman piece is a good example, among others, of illustrating how certain aspects of slavery could and should not be quantified. For instance, Fogel and Engerman count the number of lashmarks on a slave's back as one method to establish the level of exploitation on a plantation. Gutman engages in some quantitative techniques, but is almost too self-conscious in his approach. One outstanding example of the evaluation of evidence, however, appears in his book when he looks at kinship records in two different ways and establishes how a historian can arrive at two opposed conclusions by the *evaluation* of evidence.

At the end of this section of the course, the students are required to write an essay discussing three of the works. This essay was to analyze the propositions of the works, how those propositions were structured into working hypotheses, what kinds of evidence were used to support the hypotheses, and how the evidence was evaluated. Further, the students were asked to pose alternative explanations, and what sorts of evidence would be needed in order to test those explanations. Finally, they had to discuss not only the problems, but the strengths of the works as well.

During the last third of the class we discussed in detail a single monograph, Thomas Kessner's *The Golden Door: Italian and Jewish Mobility in 1880–1915*. During this period students tested Kessner's thesis on a number of levels: first, they explored his basic assumptions and propositions; second, they examined how Kessner selected and evaluated evidence——both quantitative and qualitative evidence——in support of a thesis; third, they compared the mobility patterns discerned by Kessner with those derived from their own datasets on the population of Newark, New Jersey during a comparable period.

As a final project, each student wrote a paper where s/he compared Kessner's findings with their own from their own datasets. Though they worked individually on the papers, we discussed each week the issues and problems that each student found in writing their papers. The class then resembled a graduate research seminar where students discussed the problems and strengths of a work (in this case Kessner's), examine the larger historical and methodological issues, and construct their own styles of research.

Conclusion

The role that the computer played in this seminar was to support intellectual endeavors that on the face of it seemed only tangential to computer—assisted historical methodology. By comparing their own datasets with those used by established and respected historians, the students could begin to understand not only that historical scholarship depends on the interpretations of facts, but that explanations can be questioned and alternative hypotheses explaining the same phenomena can be posed and tested as well.

Computer—assisted historical methodology, however, is not tangentially related to theoretical methodological issues: rather, the two are inextricably bound, for the computer allows students to arrive at conclusions at relatively breathtaking speed. This is both good and bad. As we saw with the first class, unless students have a clear idea of how to use the computer to support a method, and the method is rigorously tied to testing a hypothesis, their work becomes little more than instant history——a set of statistical measures that describe phenomena, but do little in explaining them. But precisely because the computer can assist researchers and students in posing alternative explanations, to test results, to hold one or another variable constant, with little or no effort, it can be an essential tool in forming, testing, and re—testing hypotheses. The dialectic testing of hypotheses, evaluation of evidence, and proposition construction is relatively easy to do with quantitative evidence than it is with qualitative evidence such as diaries and private papers. By forcing students to use both qualitative and quantitative evidence, we did more than teach statistics or computer literacy. We helped them learn how to read critically and thoughtfully the works of history, and to undertake research on their own. That students could now seize the means to both interpret and write history——through the use of computer—assisted research and hard thinking——is a quantum leap in their intellectual empowerment. This we take as the primary goal of an undergraduate liberal arts education.

Acknowledgements