

## "HIGH TECH" AND THE FRESHMAN:

### USING COMPUTERS IN LOWER DIVISION HISTORY COURSES

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Technology has often produced educational innovation. One can imagine a Medieval professor fretting that by making books cheap and common the printing press was going to take away his livelihood. In the 1960s the technical threat to professorial security was television. Today it is the computer. The computer, however, is only a tool that can help in teaching just as technical innovations have in the past. Unfortunately historians and their students often regard computers with distrust and suspicion.

Those historians who have begun to quantify their research have also begun to use the computer for teaching. They have successfully involved students in research projects that include statistical analysis of numerical data such as census reports. This is a valuable technique because it involves students in the process of historical study, but it calls for a level of interest and knowledge that many of us do not find among our pupils. Reports of such projects include remarks like "any standard one- or two-volume text will provide an introduction to the general skeleton of American history."<sup>1</sup> Several more specialized volumes are then necessary to zero in on the topic to be investigated.

Historians are often faced with bored, uninterested students who are taking the course because it is required. They will drop an especially demanding course and take another instructor next term, or if they are in a "Chinese menu" curriculum--i.e., one from column A and two from column B--just avoid history rather than read several books on the promise of a fascinating research project to come. I am finding that by using simpler kinds of computerized instruction the interest of such students can be caught, they can be led into learning some basic ideas and facts, and I hope, in at least a few cases, led into more advanced courses and more sophisticated projects. The computer offers three fairly easily created types of programs for such students: tutorials, guessing games, and simulations.

Such programs are used at a few universities, but they have not been widely discussed within the profession.<sup>2</sup> The History Teacher, one of the major periodicals concerned with instruction in history, has in the last decade published five articles about quantified research projects, several on the use of classroom games, and one on bibliographic data bases, but none on computerized tutorials or games.<sup>3</sup> The other major journal in this area, Teaching History, has not in the same period concerned itself with the use of computers.

The use of tutorial, game, and simulation programs offers several advantages. Generally they are fun, and although -- "Sesame Street" notwithstanding--learning cannot all be fun, it helps if some parts can. The machine has infinite patience in tutoring, while few professors have time to sit down with each of their students and go through a series of questions to see if there has been adequate preparation. With games and simulations there is a competitive factor, and the desire to beat the machine can be exploited.<sup>4</sup> The program may even include an occasional mild taunt at a student who has not studied enough to handle the questions

of a mindless machine. While care is needed to avoid reinforcing a sense of failure, properly done this can be quite a spur. It certainly draws many an extra quarter in the arcades.

Programs can easily be made to be, in the jargon of computer scientists, interactive. This means that the user is asked for his name and addressed by it thereafter. His sense of personal involvement and/or competition is enhanced. The program can also be written to keep score and give an immediate response that varies according to the user's score. The score can be simply based on the ratio of right and wrong answers or if the program doubles back to re-ask missed question on the number of attempts required to answer all of the questions. Although the programming is a bit more elaborate, the computer can be instructed to store the name of each user and his score for each time he runs the program. The professor can then check on who used the program and how well each person did by having the machine print out the records.

Other advantages are that games and tutorials help get a student accustomed to learning at a terminal and can provide a great deal of information. The amount of data the computer will produce is limited only by the professor's time and energy for typing it into the memory along with instructions about when to print it back out. Errors can be corrected and right answers explained.

Fort Valley State College students have responded very positively to information in this form, frequently asking that courses include more work with the computer.<sup>5</sup> This response does not suggest, however, that computers will take over education. Many of us enjoyed books and still needed our instructors. The very best students have always been able to use books and other aids to learning with relatively little instruction or encouragement, but the vast majority need guidance and explanation. Furthermore, the machine can never supply the lesson, and no matter how complete or sophisticated the data base, it can provide education only if asked the right questions. Tutorials and games that help teach basic information can free instructional time for dealing with the key questions.

I initiated computer assisted instruction in required survey history courses in the winter quarter of 1982--some departments, notably Developmental Studies, had already done so--and have been joined by two of my colleagues. Tutorials have been used in sections of U.S. history with significant success. Students have shown greatly increased learning, and they have been so pleased that I had to hear from several sections before I really believed them.

The tutorials have been used in two ways: in combination with reading assignments in the text to make the initial presentation of some sections of the course material and as a review for examination. In the former case quizzes in class have been used to check on the students' progress. In four classes under two different instructors average grades on quizzes over the computerized material rose dramatically, in one case by 20%.<sup>6</sup> In the course in which the computer assignments were used to review for examinations, the average grade rose from 69.7 to 79.2.<sup>7</sup> In both situations, informal checking among students who did particularly badly on the computerized material revealed that they had not gotten around to visiting the computer center to try the tutorial. Overall the results indicate that virtually all the students did the assignments and profited from them.

Encouraged by the initial success, Fort Valley historians are introducing new activities. Currently being placed into memory are a

series of games similar to what children call twenty questions. The student is asked a question or to identify some person or event. As a succession of hints make the answer easier to get, the point value of the question decreases. Each wrong answer draws a new hint till the game is lost and the answer revealed by the computer. Although more fun for the student, these are more limited than the tutorials in that once the answer is learned the suspense is gone. Like the tutorials, the games can be interactive and the score kept if desired.

We are also developing a simulation based on slave life in the old South because the Slave Community by John Blassingame is required reading in all sections covering the first half of U.S. history. The simulation will describe a variety of situations that a typical slave could have faced and expect the student to decide how to resolve the problem. Like the real slave his object will be to avoid punishment while having the best life possible. The player will win or lose points according to whether his solutions work. If he sticks to the safe but submissive course, he can be fairly certain to stay in the game but he will not get many points. A dangerous solution, if it works, will produce many points but will be more likely to result in punishment and hence the loss of points. The odds against a solution like open rebellion can be set by basing the chance of success on the value of a random number. In this way the student who decides on open rebellion can be rewarded if it works but not have much chance of success.

The simulation will do more than just encourage reading by providing a fun reward at the end. It will force a student to look at the problems that a slave faced and to consider the options that existed. If he can be involved in the game, the realities of the past will become more vivid than they are on the printed page. If Pac Man can create tension by gobbling dots, the effort to keep a simulated character alive and well while dealing with the temptation to risk all in a bid for freedom and victory in the game should too.

I have chosen, for a variety of reasons, to learn enough programming to prepare class projects myself. There is, however, some software on humanities and particularly history available, but by writing my own programs, I can adapt the computer work to the materials and outlines of our courses. Since a common syllabus is used for lower division courses at Fort Valley State, a program can serve several sections at once, and so the work of preparation can be shared. I have worked in the very simple computer language called BASIC rather than any of those designed for computer assisted instruction (CAI).<sup>10</sup> I have done so because I preferred flexibility to convenience. CAI languages such as AUTHOR and TUTOR impose some restrictions on question length and structure.<sup>11</sup> Such languages do however, allow someone with very little knowledge of programming to prepare tutorial programs. They also reduce the time needed for preparations. Many teachers particularly if they have no desire to get involved in more sophisticated use of computers, may prefer the CAI languages.

As Fort Valley State College is part of the University System of Georgia, I have used the System's computer network. This is convenient and permits access by many students at the same time. A school not connected to such a system could, however, do the same projects, though not some of those involving statistical analysis, with microcomputers or a minicomputer. Most of these will accept at least one of the CAI languages as well as some version of BASIC.



As the United States moves through that part of the educational cycle in which science and technology are the most highly emphasized subjects, historians have a major challenge to meet. Introductory courses become more important than ever because most students will not take any others. If the educated population is to have the benefits of an understanding of historical development, the basis must be laid in the one or two courses that the majority will take. If computer assisted instruction can significantly increase what is learned in basic courses, and I believe it can, then historians would be foolish indeed not to use it. A second challenge is to get at least a few students to take upper level courses. Given the employment outlook for humanities graduates, history majors will be few, but if students learn enough in required courses to begin to see how a knowledge of history opens their understanding of the world, they may be sold on some history electives or even a minor. To get students this far requires making courses both stimulating and enjoyable. I think that creative use of the computer can do both.

#### NOTES

<sup>1</sup>Orville Vernon Burton, "Using the Computer and Manuscript Census Returns to Teach American Social History," The History Teacher, 13 (Nov. 1979): 78; for another example see Elaine Keuhn, "Demythologizing the Modernized European Family with Quantitative Data," *ibid.*, 15 (Feb. 1982): 168-69.

<sup>2</sup>Robert G. Schafer, "Computer in the [History] Classroom," A.H.A. Newsletter (Oct. 1977), pp. 9-10.

<sup>3</sup>In addition to articles in Note No.1 see James Whittenburg, "The Computer as a Teaching Aid: A Report on Two Class Projects," The History Teacher, 9 (May 1979): 433-42; Michael P. Weber, "Quantification and the teaching of American Urban History," *ibid.*, 8 (May 1975), 391-402; Robert S. Feldman, "A Manual Retrieval System Using Computer Punch Cards for Qualitative Historical Research," *ibid.*, 6 (May 1973): 383-85; Clair Keller, "Role Playing and Simulation in History Courses," *ibid.*, 8 (Aug. 1975): 573-81; Michael McCarthy, "Teaching Urban History in Games," *ibid.*, 7 (Nov. 1973): 62-66; Joyce D. Falk, "In Search of History: The Bibliographic Data Bases," *ibid.*, 15 (Aug. 1982): 523-44.

<sup>4</sup>Schafer, "Computer in the Classroom," pp. 9-10.

<sup>5</sup>Surveys of classes using computer tutorials taken by Dr. Donald L. Grant and Dr. Fred R. van Hartesveldt show an approval rate of 90% or better.

<sup>6</sup>These comparisons were made on sections of U.S. History taught by Dr. Donald L. Grant and Dr. Fred R. van Hartesveldt in the Winter and Fall quarter of 1982.

<sup>7</sup>This class was a section of U.S. History taught by Dr. Lee Pendergrass, Fall Quarter 1982.

<sup>8</sup>John Blassingame, The Slave Community, Rev. Ed. (New York: Oxford University Press, 1979).

<sup>9</sup>The McKilligan Supply Corp., has a catalog, free to schools, of educational software. Write to 435 Main St., Johnson City, N.Y., 13790. There are of course many other sources of such material.

<sup>10</sup>An introduction to BASIC can be found in Joseph M. Vles, Computer Fundamentals for Nonspecialists (New York: AMACOM, 1981), pp. 79-96; or Donald D. Spencer, Introduction to Information Processing, 3rd ed. (Columbus, Ohio: Charles E. Merrill, 1981), pp. 372-97.

<sup>11</sup>Gordon Schleicher, "Authoring Systems Can Save Time in Development of CAI," Electronic Education, 2 (Nov. 1982): 20, 27.