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A Review of Key Developments in the Scholar Project

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The Scholar Project

The Scholar Project is a variety of projects and developmental efforts to incorporate the use of computers into the everyday work life of a graduate social work faculty member. It began in 1974 with a variety of experiments with SPSS files, McBee "KeySort" Cards, and a Computer Aided Instruction (CAI) experiment with IBM's Coursewriter software. It has evolved into the full scale integration of electronic equipment into all facets of professional life.

CAI Course in Financial Management

The very first Scholar Project venture in 1974 was a set of CAI Modules in support of a Financial Management course I taught at the University of Tennessee. The items were mostly True or False vocabulary items and "fill in the blank" arithmetic problems. CAI using Coursewriter was a very intensive programming experience. It was estimated to require about 100 hours of programming time for every hour of usable coursework. This work was all done on a 133-baud teletype (TTY) terminal in the middle of a large university computing center. The effort was finally abandoned when I moved to West Virginia University in 1977. However, this effort had also shown me the potentials of text oriented applications in education.

Word Processing and Desk Top Publishing

One of the latest buzzwords in computer-related advertising is the concept of "desk-top publishing." Generally, this refers to the use of various types of sophisticated word processing software, which allow mixing text and illustrations, multiple columns and various sizes of type together with high quality laser printers to produce newsletters, annual reports, planning studies and similar types of occasional publication.

Social work faculty members engage in many desk top publishing activities in conjunction with course planning and execution. I have been "publishing" all of my course syllabi, papers and manuscripts, tests, course handouts and assorted materials in this way since 1980. The advantages are ease of revision, improved turnaround time and increased clerical productivity.

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Because of my role as "lead user" in our school, many of the techniques which I have evolved for myself are now in common use in our system. For example, I discovered 3 years ago that stencils could be cut on my dot matrix printer, enabling rapid duplication of course syllabi and handouts. Since that time, all faculty in the school--even those who are philosophically opposed to the use of computers--have adopted (through their clerical assistants) this approach, leading to as much as a 40 percent savings in time and effort.

Using Electronic Mail in Instruction

Another set of possibilities is that various kinds of electronic mail systems might be employed to facilitate the interaction between students and teachers. Electronic mail should not be seen only as a surrogate for telephone and memorandum. There also appear to be a variety of direct classroom applications for this medium. Over the past five years, I have conducted various experiments with students, for example, involving the submission of exercises, papers and other assignments via electronic mail (email) and found this to be workable in some contexts. It might be even more useful in the context of field instruction journals or logs which could be quickly and easily submitted from various remote sites, and I am aware that some schools are currently experimenting with this.

At another level, electronic mail is useful for the rapid transit of numerous types of scholarly documents, both drafts and finished texts. Several of the interest groups to which I belong are currently exploring the potentials of this approach, and I would expect that within a brief period of time we will be seeing electronic editions of journals and conference papers. The American Psychological Association has already experimented successfully with this approach at its annual meetings.

Electronic Mail Between Faculty

As many of you have already discovered, communication between faculty is also a valuable capability of electronic mail. In our case, we have two campuses, located in cities 150 miles apart. Fortunately, we have a local application (WVMAIL) and statewide network (WVNET) for using it. Even so, it has taken us most of the last year to fully implement a system between the main campus in Morgantown and our Charleston Center. The problem here was not technological, it was political. All of the access phone ports in Charleston were under the control of other, non-university institutions, and none of them wished to give us access. Moreover, university officials had other priorities. As lead user, the Dean asked me to work this out, and was none to patient with the fact that I hadn't. Finally, in desperation, I covertly obtained the phone numbers of ports at one of the institutions and used it as a bargaining chip to get access.

SOURCER

Every college faculty member everywhere probably maintains a set of bibliographic files of some sort. For most of us this has been a cumulative career-long project using some variant on 3x5 or 4x6 index cards kept in drawers, files, or whatever. Such files are used to identify, locate and describe our own readings, and as the source of bibliographies and/or reading lists handed out in class.

By now, most college faculty have probably discovered the various commercial bibliographic services (Dialogue, BRS, et. al.) which now include an electronic version of Social Work Research and Abstracts among their offerings. They may not yet have discovered the advantages of maintaining their own bibliographic holdings electronically.

SOURCER is a bibliographic resource for me and my learning groups. It is a computer data base containing about 2,700 entries on community practice, administration, rural social work, aging and long term care. It is an extension of my personal bibliographic card file, begun in graduate school in the 1960's. Although it is generally up to date, I also have approximately 1,000 old entries which have not yet been entered in the system.

SOURCER is organized on a modular basis using SPIRES on the WVNET mainframe computer. It currently occupies about 6 cylinders of 3380 disk space. This is a public disk for access by students in my classes and colleagues in the School of Social Work. The three principle modules are the Identifier (ID), Locator (LO) and Descriptor (DE). All information in the file is fitted into one of these three modules. (See Figure B). The source code for SOURCER is available for those who have access to SPIRES or who wish to attempt a comparable development in some other programming environment.

In addition to functioning as the "key" for SOURCER, the Identifier also serves as a common "structure" across various other data bases discussed below, creating in effect a semi-relational data base system of related files. (See Figure I)

[**4/23/2020 Note**: *Although the cutesy labels SOURCER and QUOTIER are long gone, this initiative described here marks the beginnings of my electronic collection of author's pre-prints. I had/have paper copies of virtually everything I've written – except for news items while reporting – back to 1961, and began collecting electronic manuscripts around 1980. While there have been a few losses as my collection migrated through various operating systems and versions of the WYLBUR text editor, MacWrite and MS Word, most are still intact. Further, through the 1980s various student volunteers helped me build an electronic bibliography of perhaps a thousand items encoded in SPIRES. In the 1990s, student volunteers, and two clerical assistants, Liz DeMasi and Penny Dailey, rekeyed numerous paper manuscripts – preprints, in the parlance – into electronic files. In particular, two book manuscripts –*

Breaking Even (1980) and The Commons (1992) were converted to electronic form in this way and around 1995 about the time the Internet was coming fully into being both were converted into HTML editions that I still have.]

QUOTIER

The second file created in the Scholar system is called QUOTES and I call the program which operates it QUOTIER. QUOTES is still somewhat experimental, and has had a variety of programs. It is currently a microcomputer based DBMaster file on 2 microcomputer disks, containing about 1900 quotations, research findings, text fragments, etc. There are also two experimental versions. One is a SPIRES file and the other is a microcomputer-based Fact Finder file. I used DBMaster for the current working version of this file both because it was available and also because it is still the only microcomputer program I had access to which allowed multi-disk files. Until I can afford a hard disk, therefore, this may be the only viable option.

The initial focus of this effort was on the development of three related "knowledge inventories" --a Propositional Inventory, a Practice Principles Inventory and a dictionary of terms. (The latter also exists in experimental form as a SPIRES file). However, determining and coding the distinctions between definitions, propositions and principles turned out to be more difficult and troublesome than anticipated.

[**4/23/2020 Note:** *The Quotier design, propositional and practice principles inventories proved too complex to maintain and were eventually abandoned; made largely obsolete and unnecessary by new software and Google search capabilities. Numerous glossaries of terms have been developed as part of this initiative in the past four decades. Kermit, described below, proved invaluable for transitioning between mainframe files and my various Macs.*]

A major consideration at this point is some degree of compatibility between microcomputer-based and mainframe versions of the files. SPIRES, for example, can be programmed to accept any type of input, and SPIRES files can be output in either SAS or Lotus 1-2-3 format, and two of my microcomputer data base programs can read 1-2-3 input. However, neither of these can except text strings beyond 65 and 250 characters, and the only program that can (DBMaster) cannot accept batch input. This problem is largely a transitional one and should be resolved in a year or two. The key to the vertical integration of micro and mainframe databases of this sort has been the ability to "upload" and "download" --to transfer data from micro to mainframe and back. In my case, this also involves transfer from Apple Macintosh to IBM. For this I use a public domain program called Kermit.

Downloading

Downloading has also turned out to be useful in another context. Like most research-oriented data users in social work education, I have a relatively large number of quantitative data sets to manage. During much of the past decade, I have stored these on a tape at our computer center and accessed them through the mainframe. For a number of years, I have felt that this arrangement was a massive pain in the neck. In our system, the procedures necessary to store and retrieve files are arcane, complex, and highly user unfriendly. Anyone who has ever attempted to master the nuances of IBM's Job Control Language (JCL) has a grasp of the problem. In our case, the problem is worsened because the JCL and SPSS are on one machine and SAS and SPIRES (which can create SAS data sets as output) are on another.

Recently, I have been bypassing the tapes entirely and downloading these data sets to PC diskettes for storage instead, using Kermit. By storing SAS Data Steps separately from the data, this approach has the additional advantage of accessibility to both mainframe and desktop computer programs. (It is easy to load a text file in ordinary data matrix format into a PC graphics program like Chart, for example.)

Future Directions

A number of future developments and extensions of these ideas are already visible. Some of these developments are only dependent upon acquisition of specific pieces of hardware and or software (a hard disk drive and optical scanning equipment, wiring for Local Area Network, etc.) while others are

Full-Text Files

Scholars in areas as different as Shakespearian studies, ancient history and language studies have already begun exploring the potentials of full-text data bases. (IBM, 1984; Wheels, 1986)   Government agencies are also beginning to use such applications (GCN, 1987) I am interested in exploring several facets of this. However, developments await full implementation of DISOSS on our university mainframe and the acquisition of software which will enable my home and office PC's to access DISOSS.

Hypertext/Hypermedia

The concept of "hypertext" is probably an unfamiliar one to most of you. Hypertext is one of the focal points of the Brown University Scholar's Workstation project, and refers to the kinds of "nonlinear text" possible only within an electronic medium. To grasp the basic idea visualize the "full" text of this paper on a word processor screen with various "buttons" or "switches"

embedded in the text (which are actually "hot spots" on a bit-mapped CRT screen). When activated each of these buttons would open a "window" in part or all of the screen containing additional explanations, illustrations, graphics, etc. (See Figures 8-11 Attached)

The footnote or reference in a conventional academic paper is a kind of manual hypertext example, with the reader doing most of the work. One application of this principle which interests me a good deal would be the construction of complex data bases in which bibliographies, extracted quotations, reviews and summaries and full texts are cross-referenced. In this way, for example, the bibliographies of papers incorporated in the system could be used to create the "genealogy" of a concept or idea, and related notes, quotations and full texts could be linked.

Such an approach has particular potentials for research specialists in limited areas. The full texts of current papers and books on the financial management of human services could be accommodated in a medium sized data base, and fully integrated in this way. The result would be an elaborate (and easy to use) variation of an annotated text. Ideally, such a system should also allow the incorporation of graphics, illustrations, maps, and other non-text materials as well. With developments in digital recording, it might even include sound and animation!

The applications of this in certain social work teaching contexts are not hard to imagine. Visualize an on-line version of an introductory social policy text, for example, containing hypertext versions of the full text of major pieces of state and federal social legislation embedded. Selection of the "button" for any particular paragraph of the Social Security Act, for example, might produce a menu offering the user a choice between different versions of the act as amended at different times, court tests of that provision, statistical tables and/or graphs of the impact of the provision, digitized pictures of key Congressional committee members or proponents and related materials.

Preparation of such "hypertexts" would, of course, be an enormous amount of research work and preparation. The more important points, however, are that such cross-referencing capability dwarfs anything possible in contemporary scholarly media, and yet all of this falls within conventional research and scholarly standards in policy research. It is only the medium of presentation which is different.

All texts in a hypertext file would not necessarily have to be on line, either. The "buttons" for some references, for example, might actually be "macros"--embedded computer programs which open communications software, auto-dial remote-site data bases containing additional text (E.g., a listing of recent court decisions) together with search routines related to finding the reference in the remote data base.)

Hypermedia

It is only a small conceptual leap from the applications of hypertext to the broader concept of hypermedia, which involves integration of several media. Developments in videodisk technology being presented at this conference probably mean that at least some of us will be making this leap in the foreseeable future.

For example, a hypermedia text in a policy or practice course might incorporate various "references" to Alzheimer's Disease growing out of recent amendments to the Older Americans Act. One set of choices might identify recent literature sources through a macro which performs an automated search of the Dialog or BRS data bases. Another set might identify recent court cases or news stories dealing with Alzheimer's disease. A third menu item or button might activate an optical disk routine showing various brief vignettes of actual Alzheimer's patients filmed on location.

Conclusion

The diverse efforts discussed above represent the cumulative efforts of a single faculty member at a single school. We are all aware that several similar – and even more extensive – efforts by others are also occurring. This others have different stories to tell and need to tell them. Yet one lesson seems clear: *The simple existence of computer hardware, software or programs is not, by itself a sufficient guarantee that social work faculty will identify meaningful uses for it.* Meaningful application of computer software require an awareness both of the potentials of the software and a deep insight into the nature of the information problems involved.

Social work faculty just beginning in this area should not expect instantaneous results. I have been plugging away at this as part of my regular duties as a faculty member at least since 1974. There is a kind of cumulative effect (a "learning curve" if you will) in the adoption of computer hardware and software, and only by learning to take advantage of this learning curve can faculty expect to bring the realize the full potentials of electronic computing in the academic environment.