Technology and Continuing Education in Social Work

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Why Continuing Education is Important

In the last three decades, it has become crucial in all professional education to find means and devise procedures to provide education after the formal college years end. Medicine, pharmacy, law, engineering and social work have all seen demands for continuing education for their professionals. This demand has occurred both because of the increased rate of social, technological, and economic change in communities and the explosive growth of knowledge in all fields.

In social work, as in most professions, the initial response in the 70s was to create structured programs of continuing education in existing professional schools. Programs typically had a director, a secretary or receptionist and a faculty committee to advise on curriculum development. University faculty at campus or agency facilities delivered the offerings or programs. Funding for the continuing education offerings came mostly from employers that needed to have social workers with updated knowledge and skills for new programs and clients. Encouraged by federal support for training and efforts by the Council on Social Work Education, social work schools quickly followed this pattern. Most major schools of social work created these programs of continuing education and offered short-term courses through summer institutes, contract training during the year, and individual, extension courses.

It was soon discovered that the need for training could not be met adequately by these programs and quickly many more graduate and undergraduate programs were created. Credentialing of professionals also rapidly increased and licensing authorities often added continuing education requirements for professions to maintain their credentials. The largest state and local governmental agencies developed their own training staffs, state and national professional associations created professional development programs, and entrepreneurs began to offer training programs.

How Continuing Education Offerings are Traditionally Created

All of these continuing education programs were based upon a model of finding a topic of interest, locating someone who could teach on the topic and then designing some form of workshop or seminar. In such a model the timeliness of topic and presentation varies greatly. If a school or program becomes promptly aware of interest in the topic, if books, articles, and presentation materials are readily available, if the curriculum development process can move speedily and if a suitable expert can be found to do the workshop then the first step in providing the knowledge can be completed. The process will usually take several days or weeks depending upon the complexity of the topic, the length of the program and the availability of the resources including the time of the expert. Complex topics, those that require the collaboration of several people and those topics where appropriate expertise is difficult to find, necessarily take much more time before a school or educational program can offer a needed program.

After the continuing education offering is created, a suitable location must be found to hold the workshop. Important factors include the room and teaching technology that best support the content of the workshop. While the campus of the university may seem the most natural location often available classroom space and parking are problems. Next, consideration must be given to travel time for both the instructor and the participants. In many cases a hotel will be needed so that participants can stay overnight for a workshop that lasts more than one day (Kelly & Lauderdale, 1976).

This traditional approach to providing continuing education has a number of substantial direct and indirect costs. Curriculum development readily runs into thousands of dollars and the cost of an expert for the presentation is comparably expensive. Like all teaching the ability of experts to make effective and enjoyable presentations is vari-

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able and effective presenters in continuing education are always overbooked and often expensive. Other sizeable expenses are the cost of the facilities where the workshop is held and travel and maintenance for the participants. Indirect costs are, of course, the costs of lost time involved in lecturer and staff in traveling to the presentation site and the loss of time for participants both from travel and workshop attendance.

The result of the traditional model is that only a limited number of offerings can be provided. Usually only fairly conventional and popular topics find their way into workshops. Frequently, important topics are neglected because they are too expensive, adequate curriculum development and presentation expertise is not available, and the number of participants is not large enough to make a workshop economically viable.

Technology Alters the Calculus of Continuing Education Delivery

Now imagine a different world where travel costs are eliminated, the availability of expertise is expanded exponentially, and both presenters and participants can engage a topic at the individual's convenience. No matter what topic someone needs, it is immediately available. Moreover the level of detail and relatedness to other topics is there at the touch of a keyboard. This is the promise of the marriage of the technologies of the computer and the Internet. (Kelly & Lauderdale, 1996; Bailey & Cotlar, 1994; Giffords, 1998).

Let's look in some detail at these marriage partners, assess how well they may respond to knowledge and skill needs in social work, and see what literature is available that addresses the application to date.

Major Elements of the New Technology

Most social workers today are familiar with the use of computers particularly for word processing. The word processor is infinitely superior to the typewriter permitting repeated corrections; so that more perfect output can be created than ever was possible with a typewriter. Moreover, additional tools such as dictionaries, grammar checkers, and a thesaurus make the word processor a tremendously capable tool for anyone who frequently must do some amount of writing. Add spreadsheet and presentation software and one can build budgets, project changes in programs, and create overheads or slides that permit colorful and engaging presentations. If one is familiar with a database application, one can then have an efficient tool for keeping track of many items such as one's caseload, all the students in one's classes over several years, or the names, addresses, and phone numbers of associates.

The next step in technology is to tie the capability of one person's computer to millions of other computers. That is the function of the Internet. The Internet transforms individuals working alone to persons linked together via their computers. We are now starting to find out how we can use this technological connectedness to provide continuing education. Some now familiar applications suggest how this will be done.

The most popular use of the Internet is e-mail. Estimates are that as many as 100 million Americans are now making use of e-mail, and it clearly has supplanted traditional (snail) mail for personal and business correspondence. E-mail is simply an application that lets someone working on a computer type a message and send it to anyone else who has an e-mail address. The recipient can readily reply as well as forwarding the message to others. E-mail is extraordinary convenient, quick, and economical. Additionally, most e-mail applications or clients come with built-in filing systems that helps the user keep track of correspondence, sent and received. A growing addition to simple e-

mail is to use it as a file transporter for more complex files. A user may, for example, attach a longer word processing file, a spreadsheet file, or an elaborate graphic or picture from a digital camera and the e-mail serves as a truck that tows the additional file along and deposits it at the computer of the e-mail recipient. In teaching one can use e-mail to quickly communicate to persons that need information on a particular topic. It is sent at the sender's convenience and then can be read at the convenience of the recipient. It is a perfect tool for much consultation: quick, convenient, almost impervious to problems of distance and time zones, and economical.

Among the more primitive yet still familiar tools among current Internet users is a list server. Essentially, it is the Internet equivalent of Kmart's Blue Light Specials. A list server is a computer running a software program that has the e-mail addresses of people that want to be notified when something is sent to the server. You may, as an example, want to be notified when a granting agency announces topics that it will consider funding. If the granting agency sends a message to the list server, it will simply duplicate the message and address it to everyone that has posted his or her e-mail address with the server. This is essentially a one way transport of information little different than a mass mailing or faxing. The list server helps eliminate isolation for professionals and provides an alternative to journals and newsletters.

Quickly becoming the lingua franca of the Internet are applications that can send simple graphics from machine to machine. Traditional list servers and e-mail send only letters, text. This lingua franca, web browsers (essentially Netscape and the Internet Explorer today), combine text with graphics. With web browsers pleasing and complex graphics can be transmitted. Using appropriate software a presenter can move classroom lecture and slide material created in a word processor and presentation applications such as Powerpoint to web pages. Once the material is posted on the web then anyone at any time may read the lecture and

view the slides. Web browsers, which use a special static programming language called hyper text markup language or html, can be extended to include audio and video clips thus providing active material similar to watching a television. Web material, however, has the advantage over television in that it is television on demand. Rather than tying a viewer to the availability of a given program being determined by the television station, the web has the program continuously available to be watched at the choosing of the viewer. This is a strikingly important alternative to having a lecturer available to provide continuing education. It is a superior means to providing one-way flows of information that is always a part of a continuing education offering.

Bandwidth Chokepoints

The rapid expansion of the Internet along with the desire among users to send large and complex files such as graphics, videos, and sound clips has uncovered one of the serious current shortcomings of the available system. That is simply the capacity, usually referred to as bandwidth, of the wires (think of it as the size of the pipe) that links computers. This limitation is most evident when one connects to the Internet with a telephone modem. Even the fastest modem while fully capable when sending simple e-mails grinds to a snail's pace when one sends or receives a large file. Here a large file is one more than half a megabyte in size such as a simple picture or a spreadsheet. Most universities have created Ethernet networks among campus machines and then connect the campus networks to the world of the Internet with high capacity devices such as T1 lines from regional telephone providers. That is why the 'net seems so fluid and fast at the office and so infernally slow from one's home. Relief however is coming quickly as both community cable television systems and the regional Bell providers offer cable modems and digital lines that provide home speeds that rival typical rates of access on the campus. For continuing education offerings this means that we will be increas-

ingly be able to bring to individual computers complex material including video and audio streams that will impart a sense of being there in the room with the presenter.

The Active Web

Until about two years ago, most pages viewed on the Internet through web browsers were static pages. Though often colorful with lots of graphics they were nothing more than electronic snapshots. This is certainly a convenient resource for publishing and can make books, reference items such as photographs, paintings, architectural drawings, engineering documents, etc., cheaply and conveniently available. Recently though improved couplings of web browsers and database technology have increased greatly the interactive dimension of the Internet. Essentially the user can now interact with a website, ask questions, post information and conduct a variety of commercial, social, and educational activities. Early exploiters of these new capabilities are merchants such as Dell that use websites for customers to configure, order and pay for computers. Amazon.com does the same with books and videos and the airlines will book a flight and sell a ticket on websites. Important for our concerns in this paper, universities now will provide courses and even degrees from websites. The development of truly active websites will begin to provide a far different means of providing all education including continuing education. Interactive sites using technical procedures such as cgi scripting or asp programming are changing the Internet to full two-way interactions between the originator of content and the user or recipient.

Examples of How the Technology Is Being Used: The Web as the Classroom

Today every university has a presence on the Internet through a university website. Appropriately developed websites include pages that describe all of the university's programs, a directory of faculty, students and staff, and some downloadable forms such as a request for information from prospective students. More capable universities include on line application forms, web pages for faculty and faculty classes, considerable writing and illustrative course content, etc. Less common, but growing presences, are the universities that provide academic credit classes and even degrees that can be obtained via the Internet rather than on-site attendance.

Classroom Uses of the Technology

In social work teaching more and more faculty are exploring the use of e-mail to add to the venues of how students can interact with the teacher. Faculty members are finding that for many students questions that might be difficult to raise in the classroom are more readily addressed privately to the instructor via e-mail. Through the use of attachments students find that collaborative projects such as joint papers, budgets, and presentations can be more readily developed by moving e-mail and attachments back and forth among student work groups. This is especially appealing for students that do not live on campus or are additionally in field settings several days a week. E-mail provides an important means of adding to face-to-face class meetings. Faculty are also starting to apply web servers by having files that can be downloaded from web-based class syllabus and by creating interactive discussion groups where students can pose questions to each other, maintain schedules, and discuss topics.

One of the authors, Michael Kelly, teaches budgeting to his graduate classes with a heavy application of Excel and Powerpoint. Students conclude one of their budget classes by developing illustrative programs and creating a cd rom of their efforts. The student projects are often displayed on the web to allow practitioners to review and critique the projects. As a side benefit, several practitioners have asked for additional short courses in the topics presented to the student. The class examples are also then accessible by other faculty teaching similar classes that need illustrative material. Rather than using a conventional publication approach such as a monograph or journal article or even

sending copies of the cd rom, he simply makes the cd rom accessible via the Internet from one of his computers.

Both of us find that, as teachers, by requiring students to use e-mail, we are able to engage each student in the education process. We all know when we lecture the frustration of getting some students to participate and the continuous effort required to throttle down some of the activity of more zealous students. It is a rare talent and one difficult to apply to both get shy students involved and to rein in students that try to dominate class discussions. E-mail provides a compelling tool to do this and to do it in a more capacious medium than just the hours in the classroom.

Collaborative Research and Continuing Education

These new technologies permit both far more sophisticated collaborative research and the development of methods that produce research application through continuing education. Our creation of the Survey of Organizational Excellence that is done for most Texas state agencies and has been underway in Missouri for four years is an illustration (Lauderdale, 1999). During the 70s both of us created and operated large continuing education programs with multi-million dollar annual budgets in our schools. While the programs addressed dozens of different topics both of us concentrated our own scholarship in our continuing education offerings on issues of administration and organizational theory. By the late 80s we each had turned the responsibilities of these programs to others as we sought what we felt would be more capable means of addressing the needs of organizations and programs to improve how services were delivered. We found that using the traditional means of continuing education that most of our time was spent at the copying machine, booking hotels, wrestling with travel schedules and supervising staff. The nitty gritty essentials of doing continuing education the traditional way leaves precious little time to think about the topic and create curriculum.

In contrast this Survey has replaced the tradi-

tional approach we have used to providing continuing education efforts to assist organizations. Through the Survey organizations are assessed via employee surveys every one or two years. We use the data to develop diagnoses of organizational functioning for each organization and then training and consultation agendas are created for each organization. In some cases our schools or other educational providers arrange to deliver continuing education programs. In other cases solutions are found through publications available from the Survey's website or through contacts that are created with other organizations that participate in the Survey. We are certainly finding that web interactive sites and the resultant collaboration are superior strategies in many ways to our experience with our traditional continuing education programs.

Using These Technologies to Provide Administrative and Direct Services

The use of these computer and Internet technologies is now quite advanced in administrative support. Accounting and finance packages range from general-purpose applications such as spreadsheets or the ubiquitous Quicken programs to dedicated systems for human resources, clinical backoffice bookkeeping and billing.

Clinical work has had a long appeal for computer researchers. About twenty years ago, MIT introduced ELIZA, half a tour de force for the times in artificial intelligence and half a wry humorous play on creating a therapist from a computer program. At a more conventional level for more than a decade client assessment tools such as the MMPI have had increased computer capabilities not unlike the process that has developed by academic assessment tools such as the Graduate Record Exam. Casework is beginning to be touched by these technologies and the affect is accelerating (Finn, 1995; Finn & Lavitt, 1994; Foderaro, 1995; Greist & Klein, 1980; Nurius & Hudson, 1993).

Large Scale Impact on Teaching and Existing Institutions

Essentially, the Internet is proving to be a technology that does not permit us to just do business as usual, only a bit more efficiently and conveniently. Instead major business dislocations have begun. Many commodities such as books, computers, entertainment electronics, automobiles, clothing, medicines are rapidly being merchandized via the web. Through the process these new web business prove to be fierce competitors for traditional retailers that stay with malls and storefronts. The brokerage and financial businesses are rapidly changing and banking as well is finding that the web requires business to be done differently and those that do not change will not survive.

No less an impact is underway for all of higher and professional education. Some pundits argue that much of higher and professional education institutions will simply disappear as the more convenient and inexpensive Internet technologies pull students away. They argue that the efficiencies of the web will convince funding authorities that public funds must be spent where the greatest returns are. Certainly, managed care is teaching us that traditional and expensive professional intensive contacts fare poorly against more standardized methods for the public dollar. Traditional educators will in the next decade face the same kind of experiences that traditional physicians have faced during the 90s. The traditional way of doing education, centered on the teacher and the classroom, will significantly vanish in the face of the appeal and efficiencies of the Internet.

One of the striking things about the impact of the Internet is how easy it is for relatively small and undercapitalized entities to create a site on the web and begin to do business. The essentials are an idea, a bit of skill in developing web pages, and about fifty dollars a month to pay a business to host a website. Given the low cost of entry we are seeing thousands of business starting to appear on the web and new startups are occurring by the hundreds monthly and even weekly.

Such ease of joining the market augers ill for traditional, well-capitalized organizations. As Dell can threaten traditional computer manufacturers and retailers; as Amazon.com can squeeze Barnes and Nobles so can small colleges and universities enter the world of providing education and training via the Internet. Rather than institutions defining the market individual faculty will have unbelievable access to create educational programs and offer them via the Internet. The market will go to those institutions and individual faculty that can determine needs from the market, get to the market rapidly, and deliver educational services. Rapidity, flexibility, and responsiveness are the operative variables.

Detailed Explanations of the Technology Mentioned in This Article

Computers and Operating Systems

All computers must have software that ties together the central processor, screen, memory, and attachments. Current operating systems found today include the three flavors of Windows provided by the Microsoft Corporation. Windows 95 is the modern successor to Windows 3.1 and is far and away the world's most popular operating system. Its newer version is Windows 98 or as wags have said Windows with the bugs fixed. A more robust system that typically is used to support networks is Windows NT. The inheritance of the first generally available graphical operating is Apple's Mac OS. Windows has imitated many of the most innovative features of the Mac leaving the Mac today with less than 10 percent of the desktop market. UNIX is a much older mainframe and workstation operating system and for the academic is likely to be found on larger computers at the college computer center and as an administrative support for the registrar and the business office. A latecomer to desktop computing is Lynux. Originally written by a Scandinavian graduate student, it can be downloaded free from the Internet and is of interest at this time only to hard core computer enthusiasts. Being free, it harkens back to the original days of

microcomputers and could in time prove to be a serious threat to Microsoft.

Basic software applications that are must for uses today are often bundled as an office suite, several tools that are commonly needed in the office. Foremost is a word processor used for basic writing to the development of full book manuscripts. Spreadsheets, which are simply grids that one can enter numbers and formulas, have become basic tools for developing budgets. Presentation software such as Powerpoint or Freelance are tools for creating graphics for overheads and slides. Among the less intuitive desktop applications are databases. Paradox, Access and Filemaker Pro are the most common for the desktop and are terrific applications to store and use information such as mailing lists, inventories, names of majors, field training sites, etc.

To develop websites tools are needed to assist in writing html code. The two best-known tools are Microsoft's Frontpage and Adobe System's PageMill. Both partially free users from writing raw html code and the complexity of keep multi-page websites organized. To deliver web pages to the Internet server software or server applications are needed. Microsoft offers a basic and an industrial strength version: Personal Web Server and the Internet Information Server. Interestingly the most popular server software is not a commercial application but freeware called Apache Server.

Internet Services

The Internet services of interest to most people consist of six basic functions. These are:

1. electronic mail (e-mail),
2. Internet news,
3. searching for specific locations of information (gopher),
4. using graphical tools to search for information (WWW, Mosaic),
5. file transfer between computers (FTP), and
6. remote login to another computer (telnet).

Affordable Internet software became available only recently. Prior to that time, Windows, DOS and Mac users were dependent for Internet access on expensive, proprietary, commercial products in which each vendor's offerings were mutually incompatible. Publication of a common standard allowed individual client software (such as a Telnet or FTP client) to be compatible with every vendor's networking products. As a result, beginning in 1993 there was a blossoming of freeware, shareware, and commercial Internet software for Windows. Access systems like Gopher and World Wide Web now assume user friendly roles by assisting the user in searching for relevant information. Of special interest has been the development of Windows interfaces to the World Wide Web, such as Cello and NCSA (National Center for Supercomputing Applications) Mosaic. The latest and arguably superior tool is Netscape. It like most of the tools discussed here are available in freeware format. The tools can without cost be downloaded via the Internet to the user's computer.

The World Wide Web (WWW), originally developed to distribute technical papers, is now widely viewed as a means for educators, businesses, and hobbyists to distribute multimedia information. Graphical WWW clients enable the user to view text, color graphics, sound, and video in a manner that approaches the usability, and surpasses the functionality, of a printed magazine.

E-mail

Electronic mail is probably the most widely used Internet function. A commonly used configuration requires that a user have an account on a POP (Post Office Protocol) mail server. The-mailserver is a computer that has a special software program devoted to sending, receiving and storing e-mail messages. The e-mail client software accesses the server and downloads any incoming messages to the user's PC. Mail composed at the user's PC is transmitted to the Internet through the-mailserver. These software functions allow users to read and compose messages "off line," that is while not con-

nected. This is a significant feature for the office paying by the connection hour or an office with limited phone lines. Without a POP program, one can still access e-mail but must do so while remaining connected to the computer network. Unfortunately, for many connections this is the best that is available.

Internet News

Internet news, also known as USENET news, is made up of thousands of topical message exchanges called news groups. The user reads the news after subscribing to a selection of news groups. When the client software accesses an NNTP (Network News Transfer Protocol) server, the server downloads to the client a list of subjects for all unread messages stored on the server for the selected group. The user can then select any message for reading, post a response to the message to the group, or reply directly to the original poster of the message. The client software maintains on the user's PC a list of all available groups on the server, along with records of which messages have been read or skipped over. Only the messages selected for reading are actually downloaded to the user's PC.

FTP

FTP (File Transfer Protocol) allows the transfer of files between any two computers of any type. Thus, files can be transferred from PC to PC, PC to mainframe, PC to Mac, PC to UNIX machine, and vice versa. Any kind of computer file, whether it be a text file or a binary file representing software, graphics images, or sounds, can be sent. Of course, whether the file is usable on the receiving machine depends on the nature of the file and the availability of software on the receiving machine to make use of the file.

FTP becomes useful when one locates information available on the net and wishes to have a copy.

Telnet

Telnet enables the user of a PC to login to a host computer at another site on the Internet. The user's PC then acts as a dumb terminal attached to the remote host. Such access usually requires that the user have an account on the remote host. For instance, a student or faculty member at one university might have an account on a computer located at another university. An increasing number of commercial services are becoming available via Telnet, including services such as the Dow Jones News Service and the Lexis/Nexis service. In addition, some services are available without charge. Typically, the user is asked to login as an anonymous guest. For example, hundreds of libraries in all parts of the world allow free remote access to their computerized catalogs and to some specialized databases.

Gopher

Gopher is a system that enables the user to find files and other Internet services by navigating a system of menus and submenus. As a corollary, it provides a means for information providers to publish information on the Internet in a discoverable manner. Prior to the development of Gopher at the University of Minnesota, information on the Internet was located by asking friends and strangers where to look. The first step in using a Gopher client is to point the client at the address of a known Gopher server. The client then retrieves that Gopher's menu of topics. Typically, many of the topics on a Gopher menu are pointers to yet other menu items on other Gopher servers. The fact that each item in the sequence of selections might come from different Gopher servers in widely scattered parts of the world is completely transparent to the user. The Gopher client software presents the many different Gopher servers as if they represented a single application on a single machine. Navigating such menus can lead the user to skip from one Gopher server to another, literally retrieving information from servers scattered around the world in just a few minutes. Items on

Gopher menus can be of many different data types in addition to menus listing choices of topics. When an item such as a text, graphics, or sound file is selected, the Gopher client transfers the file to the user's PC. Then, as an option, it may load the file into an appropriate "viewer" selected by the user. A simple text file could be loaded into Windows Notepad. A graphics file in GIF or JPEG format might be loaded into LVIEW, a popular freeware graphics viewer for Windows. A binary program file would simply be downloaded into a designated directory for use at some other time. Finding relevant Gopher menu items is facilitated through the use of Veronica, which is a database of the text of Gopher menus. Most Gopher servers will include Veronica access as a menu selection.

World Wide Web

World Wide Web (WWW) is a system that enables users to find and retrieve information by navigating a system of hypertext documents. In a hypertext document, selecting a highlighted word or phrase causes a new document to be retrieved and displayed. Thus, WWW leads the user to skip from one document to another, retrieving information from servers scattered around the world. This contrasts with the simple menu displays of a gopher. Viewing a WWW document with a Windows graphical client such as Cello or Mosaic is much like reading a magazine. Information is displayed with typographic fonts and color graphics, and supplemented by sound that can be played by clicking an icon embedded in the document. Clicking on a highlighted word or phrase in the document retrieves yet another document.

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