Technology in Human Services:

Using Technology to Improve

Quality of Life

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Technology is invading every area of our personal and professional lives. In less than fifty years, we have gone from paper correspondence delivered by post office employees to digital messages delivered electronically, from wheelchairs that were pushed up ramps to wheelchairs that ascend and descend staircases, from education based on seat time to education over the Internet, and from automobiles that could be repaired in the back yard by just about anyone to privately owned shuttles to the moon. The increased use of technology has implications for human services delivery and the quality of life for clients.

The Council for Standards in Human Service Education has been involved in survey and focus group research to determine the knowledge and skills that should be required in accredited human service programs as a condition of national standards. The purposes of this monograph, then, are to (a) share some of those findings, (b) explore some of the uses of technology in relationship to human services, (c) raise the level of awareness of assistive technologies, (d) explore experiential learning using technology, and (e) participate in defining the ethical use of technology in the human services profession.

The use of any technology raises ethical issues, and Internet technologies, in particular, are subject to debate. People fear that Interaction on the Internet may move individuals away from community and toward isolation, not to mention fear of pornography, sexual predators, identity theft, and deception. All of these fears have their basis in reality, however, all of these concerns are also potential threats of face-to-face situations. The question before us as human service professionals is how to appropriately and effectively use technology to enhance or improve the quality of life for clients and more efficiently manage resources.

The monograph consists of an introduction and three chapters. The *Introduction* has been used to share some of the survey findings of the Council. In the first chapter, there is an attempt to address the breadth of the use of ethical concerns raised by the use of Internet technologies in direct service, but also the broader uses of technology in agency settings. The second chapter introduces and covers the spectrum of assistive or adaptive technologies and provides some basic concepts for selecting appropriate technology for clients as well as a list

of Internet resources to further explore assistive technologies. The last chapter describes the use of videotaping and pic-tel teleconferencing to augment student internship training.

Clearly, the monograph is not intended to be exhaustive of the technologies affecting human services delivery or improving the quality of life for clients. The intention is to begin to collect information that will be useful to professionals in the practice of service delivery and to educators in preparing professionals who must step into a world where the use of technology is commonplace. Regardless of the debates surrounding technology, it is morally neutral until someone decides how and when to use it. Client advocacy and positive social change are hallmarks of the human services field bringing with them a challenge to be proactive in the responsible and ethical use of technology in the context of human services and social change.

Technology Survey

At the 2002 annual conference of the National Organization for Human Service Education (NOHSE) held in Providence, Rhode Island, the Council conducted a survey regarding technology uses in human services practice and education. The NOHSE conference is attended by educators, practitioners, and students from across the United States. The survey was distributed at a breakfast meeting, and attendees were asked to submit the survey then or mail it in later. In addition, the survey was mailed to all Council members.

The respondents included 46 (70%) instructors, 12 (18%) practitioners, 5 (7%) students, and 3 (5%) unknown. While the number of respondents is not large enough to generalize the findings, it is large enough to begin professional dialogue around the instructional needs of human service graduates.

The survey consisted of 18 questions regarding the use of various technologies based on the experience of the respondents, who were instructed to circle *yes* or *no* for each of three groups; teachers, students, and professionals. The following table (Table 1) recaps the yes responses. The results clearly indicate that the respondents are aware of the varied uses of technology.

In addition to the 18 *yes/no* questions, there were 5 open questions regarding the use of technology and ethical issues and 2 questions regarding institutional admission/exit

Table 1

Recap of Percentage of Yes Responses to CSHSE Survey Questions

In your experience, do the following groups:	% Yes for Each Group		
	Teachers	Students	Professionals
1. Use email to correspond with clients/students/teachers?	100%	100%	95%
2. Subscribe to email listservs.	72%	45%	75%
3. Use the Internet to locate information.	98%	100%	98%
4. Use the Internet to locate resources.	100%	98%	95%
5. Use the Internet for discussion (e.g., bulletin boards)	68%	75%	65%
6. Use the Internet in course delivery.	76%	55%	51%
7. Use presentation software (e.g., PowerPoint)	79%	76%	77%
8. Participate in 2-way Interactive TV sessions.	39%	45%	53%
9. Participate in telephone conferencing	57%	17%	58%
10. Use databases to manage information.	69%	42%	77%
11. Share databases with others.	51%	42%	68%
12. Use case management software	5%	10%	28%
13. Use spreadsheets to manage information.	68%	45%	77%
14. Use spreadsheets to share information.	57%	38%	68%
15. Use word processing programs for written work.	100%	100%	100%
16. Demonstrate knowledge of assistive technologies.	54%	56%	52%
17. Facilitate the use of assistive technologies.	57%	42%	52%
18. Facilitate access to assistive technologies.	63%	39%	49%

Note. Each respondent marked yes/no for each group—teachers, students, professionals—

based on his or her own observations and experience.

requirements. Typical responses included professional use of word processing, database,

spreadsheet, and presentation software, and the need for training in the use of these

applications for information management. Many respondents mentioned introducing students

to communication online and encouraging the continued use of the Internet to network with

other professionals. Use of technology for the location of resources and information was

mentioned by more than half of respondents. Several respondents mentioned the need to

teach students and clients how to assess the validity of information presented on the Web.

In response to the question on ethical issues, nearly every respondent stressed confidentiality, client privacy, and professional boundaries. The consensus on this issue may point to the need for revisions to the Ethical Standards of Human Service Professionals to address appropriate uses of technology.

Questions 16, 17, and 18 all related to assistive technologies. In a field where human needs and quality of life are prime concerns, one would expect the awareness to be higher. The low ratings could be a result of the way the three questions were worded or a lack of familiarity with the term *assistive*, although the term was explained in a footnote. This area may raise concerns with instructors and practitioners since access to assistive technology can greatly improve the quality of life for clients with disabilities. The article by Robinson and Schleef provides a broad recap of assistive technologies, as well as criteria for selection of appropriate technologies, and resources for locating technologies and related information.

It is interesting to note the low awareness of the use of case management software, especially by professionals. Many agencies, especially large or governmental agencies, report using case management software. The low rate could be a result of the type of setting where students complete fieldwork, or it could be that instructors are not consciously aware that they are observing the use of specialized software by student interns and professionals.

Although many institutions had no admission or exit requirements related to technology, several community and/or technical colleges required students to take a course in basic computer skills in order to graduate. Some baccalaureate programs had minimal admission requirements related to word processing, spreadsheets and database knowledge.

Conclusions

The survey data converge with and reinforce the papers included in this monograph. As previously stated, the survey was intended to begin exploring the uses of technology and the awareness of technology among human service educators and practitioners not to be a quantifiable study. It does appear, however, that the field as a whole and the national professional organizations (the Council and NOHSE) should work to:

- Identify national educational standards related to the appropriate use of technology in direct and indirect services, including assistive technology.

- Expand the Ethics of Human Service Professionals to include concerns expressed by other professional groups around the use of technology with clients.

- Research and publish best practices for the use of technology in human services, including resource and referral practices related to assistive technology.

Internet Technology and Human Service Interventions

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Abstract

The question is not if Internet technology will change human services, but how it will change. Internet technology is having a tremendous impact on communication throughout society, and that includes human services. The use of Internet technology for direct service raises ethical and legal issues. Technology is also used for locating resources and referrals, gathering and managing information, advocacy work, and networking. The Internet is also used to maintain professional relationships and share information. As the use of technology emerges, professional organization is required on a national level to assure appropriate use and professional boundaries. This article examines the breadth of issues related to the use of technology in human service delivery.

Introduction

Like nearly everything else in society, the field of human services is being changed by the new communications technologies, particularly the Internet. The Internet has increased the opportunity for sharing information, communicating across boundaries of time and place, organizing for client advocacy work, locating resources, and influencing public policy. In addition, the potential for direct interaction with clients has also changed. Many hope that the Internet will increase the availability of services for those who are homebound, who do not have access to specialists, who may have disabilities, or who live in remote areas (Boer, 2001; Oravec, 2000; Patterson, 2000; Poe, 2001). Internet services may also facilitate access to services by people who cannot leave work or do not have daycare available (Boer). Perhaps, the best understanding of the potential for change is reflected in the earliest developmental stages of the Internet. Its organization took place around four principles; (a) any network could connect to the Internet without internal changes, (b) the exchange of packets of information that would automatically be resubmitted from the source if they did not reach their destination, (c) the networks would be connected by gateways that did not retain any information about the information that passed through them, and (d) "there would be no global control of operations" (Leiner et al., 2000, The Initial Internetting Concepts section, para. 6). These principles allow communication in an unprecedented way since anyone who has access to the Internet can both obtain and post information, creating the opportunity for information sharing across geographic, national, ethnic, and class boundaries.

Many people have expressed concern about an increasing so-called digital divide, allowing the least access to the poor (Lee, 2000; Patterson, 2000). One might imagine that this could also have been a concern when the telephone, radio, automobile, airplane, and television were invented. All of these and other technologies are still more readily available to some factors of society than to others, as are higher education and face-to-face human services. Unlike airplanes, however, computers with Internet access are available in public libraries, senior citizen centers, and many public schools for community use. At least in the U.S., this serves to somewhat equalize access to the Internet. Certainly, library and other public access in no way compensates for access limitations caused by illiteracy, disability, or illness.

It could also be argued that the fact that a technology cannot be accessed by everyone

is not a rationale for abandoning its use by anyone. Higher education and various types of human services are not available to everyone in face-to-face models, and using Internet technologies may actually increase the number of people to whom such services are available. Because of funding and budget restrictions imposed on private and public services, there is also a rationale for the use of relatively inexpensive Internet technologies to augment services wherever possible. For instance, the use of database and Internet technologies combined can greatly reduce the time and errors involved in information sharing.

In this paper, analysis and description of some current uses of the Internet to facilitate or support human service delivery in U.S. and other countries has been presented along with assessment and evaluation of the effectiveness of direct service delivery via the Internet. The ethical issues raised by Internet use will be summarized since the resolution of these issues is critical to the future of Internet usage within the human service profession. Lastly, the role of the Internet in the emerging field of human services will be explored and evaluated.

Current Internet Use in Human Services

The practice of human services is rooted in the concept of interventions. According to the dictionary, interventions are based on the involvement of "oneself in a situation so as to alter or hinder an action or development" (Lexico, 2002). In the human services profession, interventions are based on various delivery models, and the Internet has potential for use in all of them. The Internet is currently used for locating resources, sharing information through databases, education of clients, support groups, and direct counseling or therapy services. It is also used administratively for such tasks as the completion of intake forms.

If one interprets the role of human services as improving the quality of life for all citizens, not just the disadvantaged, the use of Internet technologies could become a vital part of interaction between government and citizens as it has in Singapore (Arun & Yap, 2000). The government of Singapore developed a strategic plan for becoming an intelligent island by developing a digital network that would connect government, business, education, and individual citizens. Building codes require digital wiring in new buildings, and, as of June 1999, 98% of all homes in Singapore were capable of Internet connection.

Residents of Singapore use the Internet to locate appropriate services, download government forms or complete them online; register information such as births; register for the draft; purchase permits, books, and toll charges; find employment or employees; locate library resources, file and pay taxes; declare and manage trade or customs transactions; or submit a change of address to all government agencies at once. They use the Internet to telecommute to work and to assist children with homework while at office. Not only that, automobiles have special markings on their bumpers that allow them to be charged tolls while driving past markers on the highway. Perhaps, though, the most progressive use of the Internet in Singapore is conducting trials without physically appearing in court. (Arun & Yapp, 2000)

In the U.S., nearly 30 million citizens over the age of 50 use the Internet to purchase goods, do their banking, make travel reservations, research personal interests, access Medicare and other services, continue their educations, conduct second careers, and interact with family and friends (Leavengood, 2001). Many older adults use the Internet to maintain daily contact with their adult children, particularly when they are 100 or more miles away (Climo, 2001).

Working adults are also affected positively by Internet access. In a study of International Business Machine (IBM) employees (n=6,451), researchers found that flexible time and a flexible work place had a positive affect on work-family balance (Hill, Hawkins, & Weitzman, 2001). Employees can work longer hours before there is a negative effect on family-work balance. There is less marital conflict, better monitoring of children, reduced stress (especially related to child care), and less depression. Studies such as this one have important implications for human services, since they may indicate that people who were previously unemployable because of family needs, may be able to telecommute or manage and monitor their home situations through technology.

The health care industry is also making use of Internet technology through database sharing regarding patient information such as allergies and prescriptions (Kassirer, 2000). Those seeking health care also use the Internet to gather information and social support (LaCorsiere, 2001). One benefit of the technology is the ability for residents of rural areas to receive treatment from specialists in more urban areas without the expense of travel (Poe, 2001). Technology has been used for the transmission of digital images from specially

equipped stethoscopes, sonograms, otoscopes, endoscopes, and other diagnostic tools (Poe). Surgery has even been performed by robots at one location who are controlled by a surgeon at a different location (Poe).

The Internet is also being used in various counseling settings. Some counselors use the Internet for contact with clients between sessions (Oraveck, 2000). Vocational rehabilitation counselors use the Internet in assessment, planning, and service delivery (Patterson, 2000). Clients with mental illness or other disorders, particularly panic attacks or agoraphobia, can benefit from the use of the Internet to assist with independent living skills, especially when used as a supplement to face-to-face care (Riemer-Reiss, 2000). Dieticians are also using the Internet for nutrition counseling, and Palumbo (1999) asserted that this may become a necessity if dieticians wish to remain competitive.

As in many other settings, career counselors in public schools use the Internet to retrieve information regarding career development for students (Refvem, Plante, & Osborne, 2000). The most current information on colleges, trade schools, business trends, skill standards, and other data is made available with a few keystrokes. Duplicating this same global information in traditional format would require reams of paper along with shelves and physical space to organize and house it instead of a personal computer sitting on a desk top. In addition, there is a benefit to students who learn to access the information for themselves.

The Internet is being used by institutions and businesses to deliver on-the-job training and continuing education (Altekruse & Brew, 2000). Educational institutions see Web-based course delivery as a means to enroll more students without the cost of increased facilities and their continuing maintenance, while at the same time making education more accessible to remote and non traditional students. Using the Internet to deliver in-service trainings allows the business to deliver content consistently without interfering with work schedules. In the face of rapidly changing social policies, continuing education, whether required for licensure or not, is needed for human service professionals and social workers, and the Internet is a logical way to meet the need.

Another use of the Internet that is beneficial to human service professionals is the electronic mailing list (also known by the trademarked name, LISTSERV). Electronic mailing lists are sponsored by institutions, groups, or individuals. They allow a group of colleagues to share information around a specific topic. A search for electronic mailing lists

related to human services done at the Kovacs (2002) Web site generated 158 hits including such topics as human rights and activism, at risk youth, human resources, cross-cultural issues, computer use in social services, environmental psychology, school peer programs, and even a list for qualitative research in human services. These lists provide the opportunity to dialogue with colleagues across the globe, contributing to a greater depth of understanding of specific social and professional issues. These lists can be extremely beneficial to professionals in rural and isolated settings.

In summary, Internet technologies are being used throughout human services in a variety of ways. Databases are used to share information and to reduce duplication of records. Professionals use the Internet to locate resources and information, coordinate services, communicate within an agency, communicate with colleagues and clients, and for continuing education and in-service training. As the technology matures, as with any technology, the potential uses of the technology emerge from the groups using the technology. This is currently taking place in the human service industry as various groups debate if, how, and when Internet technologies should be used as more and more professional groups and individuals are becoming involved in direct service delivery involving the Internet.

Direct Service Delivery via the Internet

Direct service delivery is being facilitated by Internet technologies in a variety of settings, mostly centered on different types of counseling or therapy. Three functions of the Internet make it conducive to counseling interactions; asynchronous communication, voice communication (without long distance charges), and videoconferencing. These features allow communication to take place in unique ways that have both strengths and limitations. There are many valid concerns around the lack of physical cues, potential for deceit, and assurance of confidentiality, however, people form lasting relationships and even marry based on Internet encounters, indicating that there is also potential for meaningful and therapeutic professional-client relationships using the Internet.

The Internet provides the opportunity for asynchronous communication, that is, dialogue that takes place without people sharing the same physical space or being connected

at the same time. Studies in educational settings (Kincaid, 2000) indicate that college students enjoy this type of interaction and report feeling that they know each other and feel close to each other, even if they have never met face-to-face. They also report that they enjoy having as much time as they need to frame their comments before they reply, some even stating that they sometimes mull things over for several days before responding. On the negative side, they report misunderstandings because of the lack of physical cues and tone of voice. Counselors and therapists involved in direct services on the Internet report similar findings.

In a study of online grief support groups, similar positive results were reported by participants who met weekly using real time technology, assumed to be chat rooms (Gary & Remolino, 2000). Participants, who used pseudonyms instead of their real names, reported developing "lasting and intimate relationships with others whom they will never meet face-to-face, yet from whom they can seek support in times of despair and isolation" (p. 100). Support groups are not always facilitated by professionals, and there are many types of non-professional support groups online including Alcoholics Anonymous and other 12-step groups, Weight Watchers, and groups organized around cancer, loss of loved ones, anorexia, and other issues.

The success of online support groups is important to the discussion of successful counseling and therapeutic strategies. LaCorsiere (2001) reviewed social support groups to develop an interdisciplinary model that could be used for program design and assessment. The model is based on four concepts; (a) the initiating events such as a change in health that lead the patient to seek support or information online; (b) the mediating factors such as the patient's actual health, demographics, perceptions, and Internet use; (c) the online social support that takes place through perceptual, cognitive, or transactional filters; and (d) quantitative or qualitative outcomes. A great deal of the research on counseling and educational online models is based on face-to-face models that may or may not be true in online environments. The model developed by LaCorsiere is broad enough to allow social structures to emerge through online interactions as an Internet culture continues to be articulated.

Similar to LaCorsiere, Boer (2001) defined a process for online career counseling based on action research and professional experiences. In addition to counseling skills

required in face-to-face settings, Boer described the actual computer skills required to organize and respond to clients in an online environment. In addition, counselors must have sharp writing and editing skills, pause for reflection before responding to client messages, and archive client data in order to facilitate tracking and to spot incongruencies in client behavior through changes in language or posting patterns. Boer also stressed the importance of hearing the client's voice, and not just responding to the text based words. The critical issue, according to Boer, is the relationship with the client—a relationship that can be documented through client e-mails and postings.

Boer (2001) also described the experience of observing client movement through the language used by the client. The language used indicated that the client was ready for change and problem resolution. Kincaid (1997) made a similar observation of being able to recognize the process students would go through if they were reflecting on actual interviewing skill practices as opposed to writing a reflection without actually completing the practice. These experiences are helping to define the relationships that take place online and are useful in articulating models, theories, and future research needs.

Some of the perceived problems surrounding Internet communication as the basis for counseling or therapy are related to the historical use of computers. The use of computers in therapy dates to the 1950s and 1960s. The earliest programs were based on the behavioral modification techniques of B.F. Skinner and Norman Crowder and were instructional in nature (Granello, 2000). Later programs were more sophisticated, associating client language with a preprogrammed IF/THAN therapist response and were based on the work of Carl Rogers (Granello). This history affects the way many people conceptualize computer mediated interaction—they either visualize a stagnant information source or interaction with an IF/THAN program instead of another human (the therapist or counselor). This set of assumptions is reflected throughout the educational and counseling literature, in the design of Web-based classes and counseling Web sites, and in the research that has been done. The technology seems to be changing too rapidly for most people to stay informed, leaving many professionals with outdated assumptions regarding the depth of relationships that can be formed through Internet communication.

For instance, video conferencing can now be done via the Internet from home computers using inexpensive software and hardware. Software can actually be downloaded

for free, and many newer computers come equipped with digital camera equipment. This technology has the potential to greatly enhance counseling over the Internet, since it allows at least some visual cues. There are concerns that clients might manipulate the physical space (called staging) or their own appearance in order to present themselves as different than they really are (Turner, 2001). It should be noted that the potential for all of these behaviors also exists in face-to-face settings.

Although the video conferencing system used was not Internet technology, a study done by Turner (2001) gives insight to the potential of video conferencing. In the study, researchers observed 43 psychiatric video-conference interviews with prison patients over an 18 month period. Both the psychiatrist and the clients were asked to rate the consultations as to their appropriateness (Turner). The purpose of the sessions was to diagnose client mental health and prescribe medications. The psychiatrist did not work face-to-face with any of the patients or staff, yet during one session, the psychiatrist was actually able to hypnotize a patient, indicating a great deal of trust for both the psychiatrist and the technology. Patients in this study often commented that they would have preferred face-to-face settings, but that could be a reflection of their confinement, and not the counseling sessions themselves. Also, the psychiatrist turned off the monitor while writing notes, leaving the patient sitting with a blank monitor. This seems unnecessary and could also have interfered with the building of rapport and trust, particularly in a prison setting.

In another seemingly unrelated study, Rosson (1999) analyzed 133 stories collected on a Web site over a 40-month period. Participants were asked to describe how they used the Internet, what they hoped to accomplish, what worked, and what did not work. Rosson discovered that users have moved beyond the use of the Internet for information seeking, using it rather to seed interpersonal relationships. Since subjects self-selected, they may not be typical of Web users overall. However, the findings of Rosson may indicate that what appear to be barriers to Internet counseling, such as relationship building, lack of context, and lack of physical cues, may cease to be barriers in the future—at least for some people. As the Internet culture emerges, norms around communication may be developed that assist participants in understanding context and non-verbal cues in a different way; perhaps becoming as comfortable for counselors and clients as face-to-face communications are now. For instance, expectations may come to include written descriptions of physical settings,

attributes, affect, and tone of voice.

Writing by clients or counselors is not a new concept in therapy. Oravec (2000) compared online therapy to bibliotherapy and narrative therapy techniques, both of which involve clients in text based materials. Oravec concluded, as have others, that online communication is at least effective as a supplement to face-to-face sessions. Kassirer (2000) suggested that the next generation of physicians may be more comfortable with the technology and reverse the trend to distrust, and therefore not use, Internet technology in medical and other settings. This progression may also occur with clients.

An important issue to therapy and counseling is client assessment, and that issue is particularly important in online environments. There is an immense and diverse spectrum of assessment tools and information available on the Web to both clients and professionals (Wall, 2000). Some assessments provide instant feedback to clients, but there is concern about client interpretation in the absence of professional guidance. Wall is also concerned that someone other than the client might complete the assessment, or that a therapist might not realize a client had purposely misrepresented information in an assessment. Correct assessment and diagnosis are critical aspects of client care, and professional responsibility and accountability must be addressed in these areas by professional organizations.

Many of the issues discussed in this section are replete with ethical issues. There are also many issues where clients will be best served if professional organizations establish standards of practice. A variety of organizations have adopted or drafted both codes of ethics and standards of practice related to online counseling and therapy.

Ethical Issues Surrounding Internet Usage in Human Service Delivery

There are numerous ethical issues related to direct service delivery using the Internet as well as many requests for standards of practice. Several professional organizations have adopted or drafted codes of ethics in response to the requests from practitioners, educators, and researchers. In this section, some of the ethical issues will be addressed and discussed as well as the steps that have been taken to address the issues.

All of these issues relate to the movement from a face-to-face setting to a Web-based setting. Professional organizations, agencies, individual service providers, and governmental

agencies are all concerned with these issues and working toward resolutions that protect clients without unduly limiting the potential for Web-based services. For discussion purposes, the issues have been categorized as client protection, legal, professional responsibility, educational, and technology issues.

Client Protection Issues

In face-to-face settings, there are established norms, laws, and administrative regulations that protect the privacy and confidentiality of clients. All of these issues are equally important in online settings, but must be altered in response to Web-based environments. Not only should the client be protected as a consumer, the client-counselor relationship must also be protected.

In a face-to-face setting, client confidentiality is assured by limiting access to files with simple lock and key restraints, making sure that client sessions are in private areas where sessions cannot be overheard or observed, and making certain that employees are trustworthy and aware of client rights. In addition, counselors and other employees are careful to avoid discussing clients outside the workplace and of behavior toward clients in public settings.

How confidentiality is protected in an online environment raises different issues (Baltimore, 2000; Boer, 2001; Patterson, 2000; Poe, 2001; Riemer-Reiss, 2000). Even if encrypted files and secure servers are used (Baltimore, 2000; Poe, 2001; Singer, 2001), the other issues of client privacy within the face-to-face setting still exist. In addition to other privacy issues, computer monitors must be positioned so people walking through cannot read computer screens. Also, people must remember to log on and off of systems so that someone else cannot gain unauthorized access. These privacy issues are compounded since they exist not only in the physical space of the counselor, but also in the physical space of the client (Lonner, 2001).

Both client and counselor have a certain degree of anonymity on the Web, and there is opportunity for deception by either party, although most literature only raises the issue of client deception (Baltimore, 2000; Lonner, 2001; Riemer-Reiss, 2000). When video-conferencing technology is used, there is also the opportunity for the client to stage a physical setting that misrepresents her or his actual situation (Turner, 2001), and, this would

also be true for the therapist.

These issues are central to the trust required for a therapeutic relationship. The potential for misunderstandings is compounded by the lack of visual cues (Boer, 2001). Boer, based on action research projects, has observed that career counseling clients find their online services to be rewarding, helpful, and congruent with their expectations. In any case, professional standards are needed that assist both client and counselor in protecting the integrity of the professional relationship. Some types of counseling, such as career counseling, may be more suitable for online delivery than, say, psychotherapy. As in education where pedagogical need should drive the use of technology rather than the other way around (Kincaid, 1997), the needs and well-being of clients should drive the use of technology in counseling and therapy.

Clients are attempting to obtain online services in the same world where newscasters report stolen identities, purchases and sales are completed fraudulently online, and teenagers hack into Pentagon records. Confidentiality, then, is not simply an issue of encryption and secure servers, it goes to the very heart of the trust relationship (Lonner, 2001). Not only must there be trust between client and counselor, there must be trust in the technology itself. In a face-to-face setting, the professional assumes responsibility for naiveté on the part of the client, making certain that the client understands the process to which they are committing, a process that is dramatically changed by computer mediation.

Another area that may require revision is informed consent, which must address more issues when services are directly delivered over the Web. Informed consent refers to a legal document signed by patients or clients stating that they understand what to expect during treatment or research and what risks are involved (Lexico, 2002). Some researchers have raised the issue that informed consent may need to be expanded to included hazards of the Internet such as lurking and third party access (Baltimore, 2000; Poe, 2001). Another issue of which consumers must be made aware is the potential for someone to assume the false role of a counselor or a role beyond their actual credentials (Oravec, 2000). One might obtain an informed consent signature, but that does not guarantee that the client truly understands technological issues such as encryption and secure servers.

Legal Issues

In our litigious society, it would be professionally irresponsible to ignore the legal implications of online services with regard to liability and litigation (Palumbo, 1999; Poe, 2001). There are legal ramifications under existing laws of counselors practicing in states where they are not registered or licensed, yet how do they know where their clients really are (Palumbo). Texas is an example of a state that passed a special ruling allowing physicians licensed in Texas to practice in other states (Poe). That does not, however, mean that other states must allow a professional who is not licensed or registered with them to practice in their state.

Generally, professionals are bound by the laws of the state in which they practice and are licensed or registered as a protection for clients (Lonner, 2001). If they engage in interstate practice, and a client sues them, the courts must decide whether jurisdiction and venue will be decided based on the client's residence or the counselor's practice (Love, 2000; Palumbo, 1999; Poe, 2001). Although licensure could be required in each state, according to Love, this raises issues of First Amendment freedom of speech rights, since counseling "consists entirely—or almost entirely—of pure speech" (p. 351). In Washington State (Colorado has a similar law), there are no educational or orientation restrictions on who may register as a counselor as long as they "follow reasonable ethical constraints and disclose to their clients their qualifications, training, and orientation (p. 351). Even so, the State requires that anyone who practices be registered. Counselors who practice across state lines may use their Constitutional rights as a defense.

Minnesota warns Internet sellers that they can be prosecuted under Minnesota laws, and some sellers have been prosecuted, e.g., for bookmaking (Palumbo, 1999). However, there is a difference between goods shipped into a state, actions that are illegal under Federal law, and the delivery of services. Palumbo argued that one state cannot charge or arrest a counselor who was in another state at the time services were delivered, and suggested that the client and counselor agree in writing that the services are not subject to the laws of the state where the client resides (Palumbo).

Love (2000) also raised the issue of differences between criminal law and civil law. For instance, practicing without a license is a civil charge. In some cases, a client who cannot file a criminal suit may still be able to file a civil suit. One thing that has the potential to

dramatically change the conduct of lawsuits is the ability of either the client or the counselor to save every word and image of chat room, bulletin board, or teleconferencing sessions for presentation in litigations (Baltimore, 2000). This has serious repercussions for documentation of client records and counselor client privilege. If records are subpoenaed, there are serious implications of the difference summarization type case notes and verbatim transcripts (Lonner, 2001).

These legal issues are further magnified by the globalization of services (Clawson, 2000). As the World Trade Organization broadens agreements to extend to services, more professionals and clients will be physically crossing international boundaries, and, certainly, the delivery of services online is even less limited. Professional organizations and governments will be faced with jurisdiction, venue, extradition, accreditation, education, and licensure issues, not just within the U.S., but across the entire globe.

Lastly, one can only imagine the legal ramifications that could arise in an emergency situation when the client is outside the local service area (Boer, 2001). Again, it should be noted that face-to-face clients can also have crises occur outside the area of service delivery. As these issues are debated and resolved, federal and state government intervention can impose regulations that insure the consumer rights and protection, and can literally push counselors toward investment in hardware, software, and education regarding online technologies (Singer, 2001).

An example is the Health Insurance Portability and Accountability Act of 1996 (HIPPA) enacted by President Clinton (Singer, 2001). The intent of this bill is to protect patient confidentiality and privacy when health records are transmitted electronically, but there are no limits on the information that can be released. Health care providers must take safeguards to protect information from onlookers, offer a certain level of control of the information to patients, have definite privacy policies, designate a privacy officer, and provide appropriate training. For Internet use, encryption and secure sites are recommended. Agencies that must invest in digital hardware and software to meet federal regulations around information sharing will be better equipped to provide direct services.

Professional Responsibility Issues

The responsibility for solving these problems lies with all the stakeholders; individual

counselors, professional organizations, governments, consumers, and the larger society (Boer, 2001). It is important that as solutions emerge, the voices of all stakeholders are heard (Boer). It is the responsibility of individual professionals and professional organizations to set ethical and behavioral standards in response to consumer needs and government regulations, particularly if government regulations are voluntary as they are for the medical profession (Kassirer, 2000). The lack of regulation may place patients and clients at risk (Kassirer), as well as pracitioners.

Standards of practice should include profiles of clients for whom online services are appropriate and beneficial, based on solid research methodology. They should also address how online services will be documented, the form of records, how the records will be stored, and for how long (Palumbo, 1999). This is a critical issue since litigation may occur across state or national boundaries. It may be necessary to save every word in printed copies that will not deteriorate or hinge on obsolete and unavailable technologies for access (Baltimore, 2000). Another type of record keeping that needs to be addressed is the billing of clients and payment for services (Boer, 2001; Palumbo, 1999). In addition, procedures for termination of clients and the records surrounding clients need to be developed (Boer, 2001).

Oravec (2000) cautioned professionals to take responsibility for the information on the Web and how confusing it might be to some clients, encouraging professionals to point clients toward correct information. One of the strengths of the Web is the diversity of information available, but that is also its weakness. Following the lead of educators, service providers can make guided tours of information available as well as links to dependable Web sites. It would seem logical to also provide clients with tips for determining the dependability of Web site information.

Professionals are and should be concerned, not only with standards of practice, but also with standards of care (Poe, 2001). Two ways to help establish client protection and quality of treatment are through research and the development of assessment tools (Boer, 2001; Reimer-Reiss, 2000). Research is needed that will support the development of models and theories for building online relationships and validate therapeutic processes. There is potential for collaborative research partnerships between professionals, educators, and even businesses that may see advantages for employee assistance programs.

Assessments are important in the broadest sense of the term (Boer, 2001; Harris-

Bowlsbey, 2000). Assessment tools and procedures need to be developed for diagnosis, treatment, and outcome measurement. Use of the Internet must be appropriate for the individual client, and clients who do use the technology should be monitored (Reimer-Reiss, 2000).

Assessment of counselor effectiveness and skill in understanding and using technology is also an issue and may become part of licensure requirements. The use of portfolios as a basis for client and counselor assessment is one possibility (Wall, 2000). Online portfolios of professional development may be extremely useful to clients in choosing a service provider, provided there is some means of protection against fraudulent claims.

Professionals must also assume some responsibility for preparing clients to participate in online services, perhaps as part of a screening process. Clients must have a certain level of technology and skills available to them in order to participate in online services, as well as a certain level of comfort (Reimer-Reiss, 2000). In addition, they must be prepared for the types of communication that sometimes occur on the Internet such as flaming, spam, lurking, and assuming false roles (Oravec, 2000).

In some ways, clients must be prepared for delayed gratification in their interactions with online services. If any form of asynchronous communication such as email or bulletin board systems is used, clients should be advised of how long they might expect to wait before receiving a response. There can also be a drag on the receipt of responses due to the speed of phone lines, modems, and other pieces of hardware. For a client in an urgent situation, a few seconds may seem unbearably long, especially if the client is from a culture that has a rapid speech pattern.

Both clients and counselors must also be prepared for technology failures (Boer, 2001). Internet service can be disrupted by the service provider of either user, and at any point in between. A plan of action should be in place so that clients know how and when to contact the counselor, and what procedures should be followed to reschedule the session. Although there are many business and administrative issues around service disruption, the urgency of clients needs must be considered foremost.

Educational Issues

All of the issues under discussion have implications for the education of

professionals. Institutions of higher education may need to revise curricula to include coursework on models and theories of online services as well as practicum or internship experiences (Clawson, 2000; Altekruse & Brew, 2000; Harris-Bowlsbey, 2000). Accreditation standards should be revised to meet entry level and continuing education needs (Altekruse & Brew). Given the diversity of delivery modalities, consideration should be given to the development of professional portfolios as a requirement of students (Wall, 2000).

Continuing education is a critical issue given the rapidity with which technology changes. There is a professional responsibility to maintain current knowledge of technology changes (Boer, 2001), but there is also a limit to what can be reasonably expected while also maintaining current knowledge of the field. This may point to the need for technology specialists who fill a niche for service delivery professionals.

Educational institutions are also likely to be involved in the research that either supports or refutes the validity of direct online services. As more services become available on the Web, education must change in response. Changes to licensure and credentialing requirements, codes of ethics, and national standards, will all require modifications in educational content.

Technology Issues

Lastly, there are issues surrounding the technology itself. Internet technology and its emerging applications are changing on a daily basis. Although there are concerns around the digital divide (Boer, 2001; Patterson, 200), the number of people who have access may also increase with time. As the technology matures and changes, it will also become more dependable as has been observed with other technologies such as the telephone, radio, television, and cable television.

Until we reach that point, however, professionals will need to involve themselves in activities that allow them to be comfortable with the use of computers and to facilitate the comfort of their clients (Riemer-Reiss, 2000). At the same time, professionals should not acquiesce to pressure to buy into new technology simply because it is there. Decisions around technology should be driven by client benefit, not by the technology marketplace.

In some regard, the use of encryption, counselor-owned servers, and appropriate

technology is a reflection of counselor integrity (Baltimore, 2000; Poe, 2001; Singer, 2001). The integrity of technology use is also promoted by making clients aware of ethical concerns and continuing dialogue with other professionals (Oravec, 2000). This is a two-sided issue. While the professional may use encrypted files and secure servers, it would seem that these issues also need to be addressed on the consumer side of the technology.

Actions to Address Issues

Many groups are addressing these and other issues. Some therapists are passionately opposed to online services, and others are passionately in favor of them (Ainsworth, 2001). Others feel that online counseling will always be inferior to face-to-face (Altekruse & Brew, 2000; Lonner, 2001). Among the professional groups that have proposed ethical codes or standards are the American Counseling Association, the American Psychological Association, the Internet Health Coalition, the National Board of Certified Counselors, and the American Medical Informatics Association (see Ainsworth, 2001, for a more complete list and hyperlinks). Most of these groups have advised that new online standards be considered in tangent with face-to-face standards rather than displacing them.

It is debatable whether a profession can protect all stakeholders without regulation by the state and federal governments (Boer, 2001). It is also arguable that the use of technology may be too far ahead of the research that supports it. Others would argue that since people use the Internet to remain emotionally connected with family and friends (Climo, 2001), a culture of communication is emerging and counseling may come to be seen as normal and natural (Rosson, 1999).

It is also important to note that private enterprises are utilizing the Internet and conducting research as to its effectiveness in training and communication (Shah, Sterrett, Chesser, & Wilmore, 2001). One of their interests, of course, is cost efficiency. The for-profit use of the Internet will result in research toward a more mature technology and will speed the development of culturally understood communication, but there is a concern that profit driven research and decisions may compromise client care (Lonner, 2001). Even so, the research will help to define the role of the Internet in the field of human services.

Internet technology offers many benefits to the practice of human services. The ability to access current information inexpensively and to maintain its currency can provide opportunities for better advocacy for individual clients (Patterson, 2000). The ability to instantly communicate also increases access to elected officials and the opportunity to affect social policy. Professionals who live in remote areas or who work in specialized areas have the opportunity to engage in professional dialogue with colleagues from all over the world through electronic mailing lists (Oravec, 2000). In addition, trainings can be conducted via the Internet at a much lesser cost than conference or course attendance, particularly if travel is involved (Altekruse & Brew, 2000). These opportunities to share current information can indirectly contribute to the quality of care for clients.

As more businesses allow telecommuting, there may be more work opportunities for parents of young children who may currently be receiving welfare (Shat, et al., 2001). The workplace will also be changed by the delivery of job training and higher education via the Internet. As the job market changes, social welfare policies also change, but it is difficult to predict what those changes might be.

Internet technology is making it possible for food stamps to be distributed, spent, and tracked using plastic cards with electromagnetic stripes, reducing the cost of mailing, counting and depositing stamps saving taxpayer dollars. It also makes it possible to monitor and track every item purchased by cardholders.

How the Internet will best be used in the delivery of direct services is still emerging, but it may become a matter of competition (Palumbo, 1999). If research demonstrates that there is no significant difference in outcomes between online and face-to-face counseling, the cost benefits may become a determining factor in how rapidly Internet services grow. It is important that clients be heard in this process, not just professionals (Boer, 2001).

This raises issues of whether the client or therapist is qualified to assess the therapeutic benefit to clients, an issue that needs to be determined based on client assessment, diagnosis, and prognosis. This points to the importance of a valid assessment model. Imagine the different set of assumptions required when working with a client who has good mental health but needs help processing a divorce and a client who suffers from paranoid

schizophrenia. Research regarding best practices and national standards and clarify these issues.

Internet services also provide an opportunity for transcending cultural barriers thru culturally competent practice (McFadden & Jencius, 2000). Students in Web-based learning environments report the advantages of feeling that there is no ethnicity, gender, weight, or other attributes that create barriers to open dialogue (Kincaid, 2000). The Internet provides a wealth of information regarding the historical, psychosocial, and ideological culture of many different groups that can be used to augment a common meeting ground for diverse cultures (McFadden & Jencius). To facilitate transcultural events, professionals can model behaviors, assist in the organization of information on the Web, collaborate with professionals and others, and assist clients in locating accurate information (McFadden & Jencius).

Conclusions

One can only imagine how local residents felt when Henry Ford rolled the first Model Ts off the assembly line in 1908 (Lexicon, 2002). No doubt, there were skeptics who were sure they would never trade their horse and buggy for an automobile, but it is doubtful that anyone could have conceived of the interstate freeway system that supports automobile travel now. In the same way, who could have foreseen the massive structure of the Internet when the first nodes were connected in 1968, less than 40 years ago (Leiner, et al., 2000).

Boer (2000) asserted that one of the shifting assumptions brought on by technology is a greater trust in the ability of clients to make their own decisions. This must not be approached without regard for the client who may not, for whatever reason, be able to make competent decisions. For instance, people with some types of developmental or other disabilities, chronic mental illnesses, personality disorders, or even immaturity may not be competent, and it is up to the professional to assess clients one by one in order to provide appropriate care. Even if that number is a small percentage of clients, the quality of their care is no less an issue.

Many of the ethical issues debated are also issues of face-to-face delivery. For instance, staging of physical space can be an issue in home visits, not just in teleconferences. Both clients and counselors can assume false identities in face-to-face settings. Protecting

client records from third parties is an issue in both environments. The point is that counselor integrity is an issue of individual integrity combined with reasonable precautions that a prudent person would take to protect clients and client information. The fact that the potential for wrong-doing exists is not a reason to stop development of applications for Internet use in service delivery. If it were, there would be no public gatherings of any type, and no other technologies, since all involve the opportunity for unethical, illegal, and immoral activity.

The question is not if Internet technology will change human services, but how it will change. There is a valid concern that, as Lonner (2001) stated, "…the question 'can we do it?' has, unfortunately, replaced the far better question 'should we do it?'" (heading 5, para. 3). Human service professionals can recognize the potential and help to define the ethical use of the technology and they can involve themselves in defining the use and standards. In his description of the industrial revolution, futurist Daniel Quinn (1996) compared any attempt to stop industrialization as a stick in a river. While the stick might cause the water immediately surrounding it to part, it would come back together on the other side, and the overall direction and flow of the river would not be affected at all. This seems an appropriate analogy for the current spread of technology.

Professionals are left with a choice to involve themselves in defining the use and standards that will provide an infrastructure for development of the Internet as a tool that can be used to improve services, advocacy, and the flow of information. In addition, they can partner with colleagues, universities, public services, foundations, and others to contribute to the knowledge base foundational to appropriate service delivery, curricula development, and social policy. By taking responsibility for the emergence of Internet use, they can perform research to guide the appropriate use of direct service delivery, create assessment tools and standards, and work to insure that the welfare of clients is the foremost consideration in when, where, why, and how the Internet is used in service delivery.

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Assistive Technologies:

An Overview for Human Service Professionals

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Abstract

Human service professionals serve a diverse population with a wide variety of supports. This article presents an overview of assistive technologies and provides an introduction to how various technologies may improve the functional capabilities of individuals in home, school, work and the community. Traditional assistive technologies are described, followed by an overview of how various technologies can facilitate use of both the computer and use of the Internet, addressing issues related to physical access and reading and written language challenges. A list of resources and reference materials is provided.

ASSISTIVE TECHNOLOGIES:

AN OVERVIEW FOR HUMAN SERVICE PROFESSIONALS

Human service professionals have the unique challenge of serving a diverse population of individuals. There is no typical client. Some are clients with disabilities; some are not. Some are young; some are not. Clients vary in age and gender, cultural background, ability, social economic status, religious beliefs, and language. In addition, there is no *typical* service; people who seek assistance from human service agencies have a wide array of needs which include vocational rehabilitation, counseling, family support, and independent living assistance. Consequently, human service professionals continually seek to increase knowledge and awareness about methods and opportunities that have a broad range of applications. The use of assistive technologies is one avenue for improving independence, increasing self-confidence and participation in a variety of activities.

Traditionally, assistive technologies have been called adaptive or access technologies and have most often been thought of as supports for individuals with disabilities. An official definition is presented in the Technology-Related Assistance for Individuals with Disabilities Act of 1988 as Amended in 1994, (Pub. L. No. 100-407 and 103-218, Sec 3, B(2)): "Any item, piece of equipment, or product system, whether acquired commercially off-the-shelf, modified, or customized, that is used to increase, maintain or improve the functional capabilities of individuals with disabilities."

Within the last ten years, assistive technologies have increased in number and decreased in cost. With advancements in technology, assistive technologies are no longer viewed as devices only for persons with severe disabilities. Today's technologies are available for young children, elders, and English language learners as well as those who have learning challenges. In our lifetime we all may face chronic health challenges, be diagnosed with a disability, and progress through the normal process of aging. Assistive technologies can increase engagement in school, work, home, community and leisure activities for individuals throughout a lifetime in a variety of ways.

There are multiple tools and technologies that can improve functional capabilities. In order to determine which assistive technologies are appropriate, one must first define what task(s) an individual is expected to perform and what challenges or barriers are encountered.

As every individual is unique, it is important to keep in mind the following: (a) an individual's unique profile, including strengths, special abilities and interests, prior experience, and challenges, (b) the function to be performed, (e.g. turning lights on and off, cooking a meal, writing a letter, using the Internet) and, (c) the particular context in which the technology is to be applied, such as home, school, work or community. Once these factors have been considered, appropriate technologies can then be selected.

In order to facilitate decisions related to choosing and using assistive technologies, they are often divided into categories and considered on a continuum from low to high tech items. Low tech items are generally low cost and readily available. High tech items include computer or digital based applications and may be designed for a specific individual. The remainder of this paper will describe different types of assistive technologies and potential challenges they may address.

Traditional Assistive Technologies

Traditional assistive technologies are often associated with specific disabilities and generally assist in increasing the functional independence of an individual in day-to-day routines. Consideration of traditional assistive technologies is often done in consultation with health care providers and disability service centers.

Environmental Aids and Home/Work Site Modifications

Physical barriers can be reduced with structural and architectural modifications to buildings. For example, providing ramps instead of stairs increases access for those who use wheelchairs or crutches, as do switches and automatic door openers. Easy to use switch operated devices, referred to as Environmental Control Units, or ECUs, allow individuals to access the controls of electrical items, such as lights, televisions and stereos. Adding levered door handles makes it easier to enter a room if an individual has difficulty grabbing a door knob. Bathing and restroom facilities can be equipped with grab bars. Lowered counters are additional alterations that can facilitate productivity in both home and office and increase access to the community.

Aids for Daily Living

Many low tech items are available to assist individuals in daily routines such as personal hygiene, dressing, cooking, and eating. Dressing and grooming are supported by a variety of tools including long handled hair brushes and shoe horns; easy to grip button hooks and zipper pulls as well as wall mounted hairdryers. Kitchen tools include long handled *reachers* that grip out of reach items, utensils with built up or padded handles, and cookbooks with print and picture examples.

Hearing and Listening Aids

Individuals who have hearing impairments may benefit from amplification systems, hearing aids and cochlear implants. TTD/TTY devices allow people who are hard of hearing or deaf to communicate by telephone: messages are typed and sent over the phone lines using a special keyboard/communication device. Closed captioning on the television is another example of an available technology as are alarm clocks and timers that use vibration and flashing lights to alert the user.

Vision Aids

Visual impairments range from complete blindness to low vision. Audio description for the television and books on tape are traditional technologies, as are large print and/or high contrast text and magnifiers.

Mobility and Transportation Aids

Moving from one place to another is a challenge for many individuals due to disability, injury or aging. Wheel chairs and vehicles with lifts are commonly thought of as traditional assistive technology that can increase mobility. Supports, such as canes and walkers with wheels, are low cost mobility aids. Converted vehicles that allow an individual to drive with the use of their hands are additional assistive technologies that increase independence.

Seating and Positioning Aids

These aids are used to provide body stability and improved posture. Special chairs, cushions, seats, wedges, lumbar supports, and braces are examples.

Communication Aids

Tools that allow individuals with speech and/or language challenges to communicate with others are often called augmentative/alternative communication aids (AAC) and include both electronic and non-electronic items. An individual can use low tech non-speaking symbol systems or communication boards to indicate pictures or words to communicate choices. Voice output communication aids (VOCA) digitally record human speech and are available with a range of memory, holding anywhere from a single word or phrase to many. At the higher end of this continuum are computerized dynamic displays that produce computer generated speech, and are available in a range of both cost and sophistication.

Devices that facilitate written communication include modified and portable word processors, Braille devices and items that facilitate computer access. If a person is unable to use a standard keyboard, items such as head wands, light pointers and mouth sticks can be used to indicate choices or make selections on a computer.

Organizational and Memory Aids

Staying organized and making learning and work tasks more manageable can be challenging. Using highlighters, timers and such items as picture cues for specific tasks are low tech solutions. Although potentially cost prohibitive, personal digital assistants (PDA's) are proving to be a valuable organizational tool.

Computer Applications and Accessing the Internet

Digital technologies have created new opportunities for learning and interactions with others. The internet has facilitated access to information for all individuals, which includes new and expanding opportunities for continuing education through distance learning. For some, however, traditional computing technologies have presented barriers. These barriers can be conceptualized as physical or cognitive, or a combination of both. For example,

persons with low vision may have difficulty reading the screen, or persons with limited fine motor control may not be able to readily input information. Cognitive limitations, such as reading problems or writing problems, prevent easy access to information. Fortunately, there are a multitude of supports for persons who are challenged with traditional computing technologies. With the use of assistive technologies, obstacles to accessing information and participating in on-line learning can be overcome. The following section will address emerging access and supports.

Alternate Inputs: Addressing Physical Challenges

Accidents and illnesses can limit the ability to control the computer through traditional means, as can the normal process of aging and other physical limitations. There are many alternative ways to input information or interact with a computer. For example, keyboards with large keys assist those who struggle with fine motor control. Alternative letter arrangements, touch screens and alternative switches, such as a joystick, can take the place of a traditional keypad and mouse. Sip and puff systems and trackballs can be used to make selections. In addition, voice recognition software will allow a user to manipulate a computer interface through voice commands.

Reading Assists: Addressing Challenges with Printed Text

Reading challenges exist in a variety of forms. For some, visual access to text is limited due to low vision. For others, learning disabilities impede the ability to efficiently read and/or comprehend text on the World Wide Web. There are a variety of technologies that can compensate for low vision and other reading challenges.

Screen Magnification

For those who have limited vision, screen magnifiers, or enlargers, can alter the size of both text and images on the screen. Magnification options that enlarge selected portions of text are standard on both MAC and PC platforms and can be accessed through the

accessibility options in the settings and control panels. More sophisticated commercial programs are also available.

Screen Readers

Screen readers are programs that read aloud text on the screen or indicate which control icons the curser is highlighting. They can be highly specialized, such as JAWS for Windows©, which allows a person who is blind to navigate the computer interface and accessible websites through aural descriptions of the pictures, icons, controls and text.

Text- to- Speech Software

Using technology originally developed for individuals with visual impairments, text-to-speech (TTS) has created support for individuals with other reading challenges. Text to speech software is improving rapidly. Most text to speech programs utilize Optical Character Recognition (OCR) software. This allows a user to scan printed material into the computer, where it is converted to digital text. The digital text can then be read aloud by the computer. The user can select how the text will be read aloud by word, sentence, paragraph or continually. In addition, the software often allows the user to manipulate text for improved readability. For example, font sizes and styles can be changed, and line spacing and colors of the text and background can be altered. As a bonus, most programs have built in speaking dictionaries and/or thesauruses and many programs include the ability to read PDF files, making text books available to students and adult learners who cannot access them in their traditional format.

Audio Books and eBooks

Many individuals benefit from hearing text read aloud. Traditionally books-on-tape and special tape recorders have been available for checkout through the Association for the Blind and Visually Impaired. This avenue continues to be a valuable source of reading materials. A majority of books that are sold today can be purchased in digital format and read with the use of free software, like Microsoft Reader. In some cases, eBooks can be read with text-to-speech programs.

There are several steps involved in writing a cohesive document. They include organizing one's thoughts, physically generating the text—either with a pen and paper or with word processing—and then checking the document for such basic things as spelling, grammar and punctuation. Communicating in written form can be a challenge for those who have physical disabilities or poor written language skills. For individuals with physical limitations, alternate keyboards and other computer input devices assist with text generation. For cognitive challenges, there are assistive technologies beyond basic spelling and grammar checks that can assist with writing tasks.

Word Prediction Software

Word prediction programs were initially designed to decrease the number of key strokes required by people with physical disabilities but have proven to be helpful for other tasks. The user begins typing a word and is then presented with a list of options based on the initial spelling. Today's word prediction software programs generate options based on spelling, syntax and frequency of use. Individuals with severe spelling challenges often benefit more from the use of word prediction software than from spell check programs. It is especially beneficial when a person's expressive language exceeds his/her writing abilities, as motivation increases when writing becomes a less frustrating task.

Voice Recognition

This software allows the user to train the computer to recognize and respond to his or her voice, converting their spoken words to typed text. It allows users with vision or fine motor impairments to use verbal commands to control the computer interface. Basic voice recognition capability is standard on most new operating systems. Other more specialized programs are commercially available.

Text-to-Speech

Using text to speech capabilities while inputting text can provide auditory feedback for those writers who need to hear what they have written. There are a variety of

commercially available programs that combine both word processing and text to speech capabilities, allowing individuals easier interactivity with email and document development. Some of these combined feature programs are designed to facilitate Internet use by reading aloud selected text from websites.

Electronic Word Tools

Multiple handheld electronic devices, as well as computer and on-line programs, allow individuals to input words for a variety of purposes. These include spellcheckers, dictionaries, thesauruses, and language translators. Some of these devices include speech capabilities.

Determining Individual Supports

With today's technologies, almost everyone can have access to the World Wide Web. Even individuals with the most severe disabilities can successfully use the computer with the use of available assistive technologies and other supports. Email can be read aloud, or generated with voice recognition software, and individuals can listen to, instead of read, information available on-line.

For maximum effectiveness a plan must be developed based on individual needs. Clearly defining the task to be accomplished and specifying an individual's specific challenges are the first steps in selecting appropriate assistive technology supports. This will help teams focus on the desired outcome, rather than on a specific device. Once these two variables have been identified, the team can move forward by identifying a range of technologies, including those that are low cost to more sophisticated technologies. One example of this process can be seen at the Job Accommodation Network (JAN) website. JAN is a free consulting service provided by the Office of Disability Employment Policy through the US Department of Labor. This website provides a searchable online accommodation resource that takes a user step-by-step through the process (www.jan.wvu.edu).

Generally, it is the individual, and those who know him or her, who are best equipped to determine the most functional supports. In some cases, it may also be beneficial to consult with a trained assistive technology professional in order to determine the range of

technologies available and the appropriate applications. As human service professionals become more knowledgeable about the scope of assistive technologies, the easier it will be to determine how to best assist a client in meeting his or her personal goals. There is no *one-size-fits-all* device. Individuals are unique and each person needs to find his or her own most suitable solution.

Finding More Information

General information on assistive technologies can be readily accessed through the World Wide Web. A good place to start is with the RESNA Technical Assistance Project at www.resna.org. RESNA (the Rehabilitation Engineering and Assistive Technology Society of North America) provides assistance to each state's assistive technology programs and provides a state by state contact list. This large project is funded by the National Institute on Disability and Rehabilitation Research, which is a project of the Office of Special Education and Rehabilitative Services (OSERS) and the US Department of Education.

Closing the Gap: Computer Technology in Special Education and Rehabilitation: http://www.closing the gap.com/ Hardware and software products are described and the site explains how these technologies are being implemented in education, rehabilitation, and vocational settings around the world. The in-depth articles, product reviews, and the extensive product guide offer a variety of resources that help solve your technology implementation problems today.

CAST: Center for Applied and Special Technologies: http://www.cast.org. A not-for-profit organization that uses technology to expand opportunities for all people, especially those with disabilities. This website contains multiple links and information to a variety of information and resources. CAST's focus is on the use of digital assistive technologies.

Multiple Links to Resources	• http://okabletech.okstate.edu/links.htm

Overview of Devices	• Abledata (http://www.abledata.com/text2/project.htm)
Screen Readers and Screen Magnification	• JAWS (http://www.hj.com) • Accessibility features in the control panel
Text to Speech	• WYNN (http://www.freedomscientific.com) • Kurzweil 3000 (http://www.donjohnston.com) • Colligo (http://www.colligo.com)
Audio Books	• American Printing House for the Blind (http://www.aph.org) • National Library Service for the Blind and Physically Handicapped (http://www.loc.gov/nls/)
EText	• Library of Congress (http://www.loc.gov) • Electronic Text Center (http://etext.lib.virginia.edu)
eText Readers	• Microsoft Reader (http://microsoft.com/reader/) • CAST eReader (http://www.cast.org) • ReadPlease (http://readplease.com)
Language Translation	• Bablefish (http://babelfish.altavista.com/)
Word Prediction Software	• Co-Writer (http://www.donjohnston.com/catalog/cow4000dfrm.htm) • Pen Friend (www.cricksoft.com)
Voice Recognition	• Dragon, Naturally Speaking (http://www.advancedspeech.com/index.htm)

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Human Service Technological Pedagogy:

An Evaluation of Experiential Learning Modules and an

Examination of the Use of Videotaping/Pic-tel Teleconferencing to

Augment Student Internship Training

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Abstract

If new methods of human service pedagogy are to be developed, attention ought to be paid toward incorporating technology into current instructional methods. This chapter addresses the development and infusion of experiential learning modules in a pilot study of a baccalaureate degree granting community human service internship training program in the Northeast. This model program was an effort to substantiate the usefulness and relative ease instructors may "tie-in" traditional didactic teaching methods with technologically savvy (not sophisticated) simulated fieldwork experiences. Pre/post quantitative survey and qualitative focus group evaluations supported the project undertaken in that the adoption of extended role-play videotaping and pic-tel teleconferencing technology was seen to enhance student content knowledge, foster student interest, and facilitate professional practice skills growth.

Human Service Technological Pedagogy: An Evaluation of Experiential Learning Modules and an Examination of the Use of Videotaping/Pic-tel Teleconferencing to Augment Student Internship Training

Most baccalaureate human services and counselor education preparatory programs offer students instruction regarding fieldwork. According to Simon (1999), 88% of human service baccalaureate programs require internship experiences. Levitov, Fall, & Jennings (1999) stated that counselor education programs view both didactic instruction and experiential practice as essential elements of pre-practitioner training. Although the former is often addressed well in most internship training programs, some programs place inadequate emphasis on experiential practice issues. Reasons for insufficient inclusion of experiential learning may stem from limited room in the curriculum (Walker, Turner, Shoffner, & Gibson, 2001) or reliance on commonplace methods already employed (i.e., students as counselor, client, and observer)(see Cormier and Cormier, 1991; Ivey, 1994). Because of the need to better train students in "real world" experiences, experiential training modules utilizing technology were developed as an adjunct to typical methods.

Format of the Course Modules

Over the course of a summer semester, three instructional course modules (i.e., each an in-service day of 8 hours duration) were developed and/or modified to orient students to fieldwork practice issues.

Module 1

The first module focused on preparing and training students in professional behavior, effective communication skills, intra and inter-agency relationships, recordation issues using text information (see Alle-Corlis & Alle-Corliss, 1998; Royse, Dhooper, & Rompf, 1999), and didactic lecture methods. Additionally, an agency professional was invited to address conflict resolution and collegial relations.

Module 2

The second module focused moreso on skill practice scenarios, process recordings, role-playing and role-reversal, behavior rehearsal, interviewing, team skills, case staffing, interdisciplinary meetings using text information (see Corey & Corey, 2002; Summers, 2001), and experiential skill training methods. In addition, a guest speaker trained in mediation addressed the similarities and differences between counseling and mediation. Further, students were invited to view a divorce/custody mediation session to view the process "first-hand". Moreover, a sub-grouping of students (i.e., because of space/time limitations) was afforded the opportunity to "sit in" the gallery of a local family court so as to be exposed to the legal process.

Module 3

The third module focused on "in vivo" experiential extended role-plays (i.e., 25-30 minutes) and pic-tel teleconferencing technology to familiarize students with real-life human service practitioner experiences. In other words, given classroom didactic lecture, exposure to agency professionals, guest speakers, and the mediation and family court processes, students were asked to create client/practitioner biographies resulting in an extended role-play. Student groupings of six members were given a period of an hour to develop real world vignettes that they would role-play. It should be noted that student created rather than instructor created biographies were incorporated given Poorman (2002) stated the experiential activity of biography writing "…promotes learning gains, critical thinking, perspective taking, and empathy" (pp. 32-33).

Overall, the experiential modules incorporated emphasized students being exposed to the practice of field and supervision techniques in-class and through pic-tel teleconferencing participation in a group extended role-play situation in a simulated field environment. Issues such as when to seek supervision, how to staff a case, how to work with colleagues from different agencies, and how to become a contributing member in the group supervisory process were actively practiced and discussed.

Students from a campus community human services internship class were assigned roles and divided into groups. These students, in two separate conference rooms, interacted through the use of pic-tel teleconferencing technology which allowed for the sharing and communication of information specific to human services and counseling professionals working in field experiences.

Role-plays of approximately 25-30 minutes were formulated by students which involved the students acting in various roles "as if" they were clients, human service workers and counselors (e.g., child and youth caseworkers, drug and alcohol counselors, guardian ad litem, and mediators), and colleagues in group supervision. Students had the opportunity to both actively participate as extended role-play participants as well as to be supervised. That is, students in each conference room acted in client/practitioner roles as well as were provided feedback from both the instructor and student colleagues. Further, once this dialogue was completed, role-play participants had the opportunity to process their feelings and reflect upon their own as well as their student counterparts' role-playing. For example, students were often apt to focus on feelings of comfortability in their "as if" role, yet relate some hesitance in the fluidity and uncertainty of the simulated mediation session's process.

Evaluation Results

A pre/post quantitative survey and qualitative focus group evaluation of the usefulness and applicability of the instructional modules was undertaken and data analyzed ($\underline{n}$ = 12). To measure changes in knowledge, students were asked questions prior to and after their exposure to the modified experiential learning modules and technologically simulated extended mediation role-play. Student pre/post responses on a Likert 5-point scale (i.e., 1 = not at all to 5 = a great deal) revealed that students had become: (a) more knowledgeable regarding intern and supervisor responsibilities
(pre M = 3.08; post M = 4.25); (b) more knowledgeable about professional communication and conflict resolution (pre M = 3.25; post M = 4.33); (c) more knowledgeable about case staffing/interdisciplinary meetings (pre M = 2.08;

post M = 4.42); and d) more knowledgeable about role-playing internship situations (pre M = 2.92; post M = 4.50). Qualitative analysis of the data indicated similar learning outcomes in that students reported: a) enjoying actively taking part in their learning and working collaboratively with their peers; and b) the practice of professional skills and role-playing in a simulated practicum situation allowed for deeper understanding and bolstered confidence in their skill level.

Discussion

Overall, students exposed to the experiential modules developed were afforded greater knowledge about the role of professional practice, supervision for practitioners, and availed the opportunity to critically evaluate themselves and fellow students in the context of simulated fieldwork practice (see Table 1 for an overview of this pilot project). Student self-report and focus group responses illuminated the purposefulness of such an undertaking, and spoke to the usefulness of incorporating experiential in-service training modules, extended role-play videotaping, and pic-tel teleconferencing technology into everyday human services and counselor education preparatory instruction.

Table 1
Human Service Technology Pedagogy: Pilot Study Overview

Experiential Learning Modules

- Professional behavior and case management practice issues
- Role-play dialogue, case staffing, interdisciplinary team skills
- Technological development of simulated internship environments

Teleconferencing and AV Equipment Utilized
- "Point-to-point" videoconferencing (calls took place between one campus site)
- Classroom stand-alone and remote-zooming cameras (to capture role-play activities and zoom in and out on student client/practitioner affect and non-verbal behavior)
- Telephones (to link the client/practitioner team with the supervisory team)

Evaluation Results
- Professional skills and case management knowledge improved
- Knowledge of case staffing/interdisciplinary team meetings protocol enhanced
- Cooperative learning role-play teleconference and videotaping aided student understanding of professional practice issues

Collectively, the three experiential modules in combination with the utilization of videotaping and technology were seen to facilitate the underlying aims of the pilot project. These were to: a) provide a base-level of practice knowledge; b) allow for active and collaborative learning; and c) facilitate understanding of course content through the use of novel methods (i.e., extended role-play videotaping and pic-tel teleconferencing).

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