The Role of Technology in Service Delivery for People with Disabilities in Rural Communities

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Overview

This chapter focuses on the role of technology in service provision to persons with disabilities in rural areas, examining both the reasons for including technology and the challenges in using technology in service provision. The issues involved are viewed from both the counselor and the consumer perspective. The chapter begins with an introduction, discussing the Digital Age, assistive technology in service provision, and the legislation that supports the use of technology and persons with disabilities.

The chapter continues by discussing the accessibility of technology, services to rural areas, and how technology can enhance services in these communities. This section addresses the barriers faced in rural areas including barriers in training counselors and access to the needed infrastructure for individuals living in rural areas. Infrastructure issues reviewed included the needed access to the Internet, fiber optics, and the necessary equipment (computer, Internet, smartphone, video capabilities, etc.). Additionally, personal factors that affect the use of technology are discussed.

Following the discussion regarding technology use and accessibility, the chapter reviews the therapeutic relationship as it is affected by the use of technology. This section of the chapter is followed by a discussion on the legal and ethical issues and concerns regarding the use of technology in service provision. The last two sections of the chapter offer recommendations and suggestions for the barriers addressed and future implications regarding the use of technology in service provision.

Learning Objectives

This chapter will provide answers to the following questions:

1. What are the ethical and legal concerns with using technology to provide services to individuals with disabilities in rural areas?
2. What are the barriers to accessing technology in rural areas, specific to persons with disabilities?
3. What are the steps agencies must take to enhance the use of technology in reaching out to individuals with disabilities in rural areas?
4. How can a standard of care be established for use of telecommunications in service provision?

Introduction

The Digital Age officially began in the 1970s with the advent of the personal computer. In the nearly 50 years since this time, technology has

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advanced at an accelerated pace. In the 1970s desktop computers were expensive and bulky, and the Internet, when first introduced, was slow and clunky. Today, a large portion of the population carries a faster, smaller, lighter version of a computer in their pockets. Smartphones and the advances in how we access the Internet have drastically changed our world. With the right equipment, you can have real-time conversations with individuals who are sitting right next to you just as clearly as you can speak with someone across the globe.

Over these last 50 years, we've moved from an Industrial Age to the Information Age (also known as the Computer Age or the Digital Age). As far back as 1980s, Masson, Collins, and Cox (1986) noted that compared to other occupations, the majority of individuals in Western societies are hired to collect, handle, and distribute information. In the 1990s the rise of automation in the workplace saw a movement toward replacing humans in jobs where an automated machine could function. Machines can now be programmed to do many things including driving and parking cars, running assembly lines, and even conducting some surgical procedures. These are characteristics of the Information Age, a forward movement to creating smarter, faster technology that is meant to enhance productivity in regard to employment and occupations. These changes in technology can also assist service providers in enhancing the lives of individuals with disabilities, making time and distance less and less of a problem in service delivery.

In service delivery, researchers have been examining ways to reach rural populations through the use of technology for several years (Ross, 2016). The term "telecommunications" refers to communicating through an electronic means and can include phones, email, and the Internet through cables, wires, and over fiber-optic lines. Terms like "telehealth," "telecounseling," and "telepsychology" refer to the practice of providing health services, counseling, and vocational rehabilitation over a distance and often times to individuals living in rural areas using various means of telecommunications. The extent to what is considered telecommunications is varied and can include simply talking with a consumer over the telephone or through text message. More complicated means of telecommunication may include email, video conferencing, through Internet websites, online support groups, or even through applications developed for the use with smartphones. On a global scale, we have used telecommunications to assist in service provision through national text messaging crisis lines and a new method of using a smartphone application, which allows for private messaging, to be used with individuals in domestic violence situations (Bell, 2016).

Discussion Box 4.1

Crisis hotlines have become a cost-effective way to de-escalate an individual in the moment of a crisis and a way to direct them to various mental health resources. The purpose of these hotlines is to decrease feelings of hopelessness and reduce the likelihood of suicide in callers. The service is also used to ensure that individuals receive immediate assistance and referrals for resources as needed (Evans, Davidson, & Sicafuse, 2013). The National Suicide Prevention Lifeline reports that the 165 member centers, in the year 2014, answered about 1.5 million calls (Draper, 2015). While we know the general use statistic, the statistic that is more difficult to estimate is the ages of the callers. It is suspected that less than 5% of these calls are made by individuals 18 years old and younger (Evans et al., 2013). With text messaging being used so extensively by individuals between 12 and 17 years old, the development of a text message crisis line allows service providers to reach adolescents in a way that matches the way in which they communicate. When asked, adolescents indicated that they find text messaging to be more comfortable, private, and readily available compared to face-to-face communication. Additionally, researchers believe

that, with this population in particular, text messaging allows the individual to spend the time discussing the actual issue or concern more directly. While there are limitations to text messaging crisis interventions, such as the limitation of not having nonverbal cues and voice inflection cues, this means of reaching adolescents especially is gaining popularity. Text messaging crisis lines may aid in increasing help-seeking behaviors and provide an avenue to reach a crisis counselor at any time day or night. For individuals in rural areas, these hotline service providers may be one of the only options for crisis services. Individuals with disabilities, already making use of text messaging, may also find this form of communication less stigmatizing and more private as well.

Throughout the literature, psychologists (Gray, Hassija, Jaconis, et al., 2015), social workers (Mattison, 2012; Reamer, 2013), vocational counselors (Ispen, Rigles, Arnold, & Seekins, 2012a; Johnson, 2004), occupational therapist, and educators (Casey, 2008) have documented the benefits of providing services and education through telecommunications to individuals in rural areas. These researchers often cite ease of access and cost reduction as the main motivators to employing telecommunication methods as a means of reaching individuals (Ipsen et al., 2012a).

Researcher and legislation have examined the use of assistive technology and individuals with disabilities. Specific to vocational rehabilitation, the Institute of Rehabilitation Issues (IRI, 2002a, 2002b) has examined how technology can be used to enhance vocational services to individuals with disabilities. Conducting assessments; contacting consumers through email, text, or real-time video conferencing; teaching job search skills; applying for positions; and researching job openings, all serve as a few of the many uses telecommunications in providing services for indi-

viduals with disabilities. More recently the Institute of Rehabilitation Issues (IRI, 2010) provided recommendations that include developing policies to support the use of technology to assist both employees of VR agencies and to assist the participants of services. The IRI suggested counselors use technology to provide services to consumer but also emphasized greater efforts be made to use technology as a means of accommodating disability when appropriate. These recommendations are supported by legislation such as the Assistive Technology Act of 2004 (P.L. 108–364), the Individuals with Disabilities Education Act (P.L. 94–142), and the Americans with Disabilities Act (P.L. 110–325). Additionally, the recent Workforce Innovation and Opportunity Act of 2014 (P.L. 113–128) encourages digital literacy or the training of individuals to use technology to reach their educational and vocational goals. These governmental legislations provide support for the use of and access to assistive technology provided to children and adults with disabilities.

Accessibility of Technology

Individuals with disabilities consistently have lower employment rates than individuals without disabilities. Individuals with disabilities also continue to be at a disadvantage in regard to income, transportation, and other key areas that may affect life satisfaction (Barzegarian & Sax, 2011). Of concern for individuals with disabilities, in rural areas, is that while employment rates rise in metro areas, the rates of unemployment in nonmetro or rural areas are not rising at the same pace. Additionally, poverty rates in nonmetro areas are consistently higher than for individuals living in more metro areas (USDA ERS, 2016). Social services have become one of our primary means of assisting in alleviating poverty and unemployment.

Barriers to receiving these social services in rural areas are created by several factors, including financial limitations and transportation issues that affect both the consumer and the agency providing services. The offices in which services are

provided may be at a great distance from the consumer, and public transportation may not be an option. Service providers calculating the cost must consider the overall expense of traveling itself (gas, automotive maintenance, per diem if appropriate, etc.) and the time that traveling may take away from one's ability to see additional clients. Rural areas often have agencies that serve several counties, with consumers living hours away from the office. The time, alone to travel to the various different counties to meet with the consumers, face-to-face, is a natural limiter to the quantity of services that can be provided. Therefore, both monetary expenses and the service provider's caseload size may prohibit them from frequent home visits. The use of telecommunications then becomes a necessary way to provide cost-effective services. While telecommunications may be cost-effective, providing services via technology still comes with barriers and complications.

To examine various barriers in the use of technology in providing services, Ispen et al. (2012a, 2012b) conducted exploratory studies to determine access to, use of, and attitudes toward using telecommunication in providing vocational rehabilitation services in rural communities. In the first study, Ispen et al. (2012a) surveyed over 1000 vocational rehabilitation counselors regarding their use of telecommunications. The survey looked at available methods of telecommunication, agency support in using telecommunications, counselor attitudes and experiences in using telecommunications, and barriers presented to and by the consumers using the services. Ispen et al. found that the majority of the counselors surveyed (98%) had access to the Internet and email, and most believed that telecommunications enhanced their ability to provide VR services (73%). Few counselors in the study, however, reported agency support, training on the use of telecommunications, or technical support needed to use the telecommunications.

While the counselors reported using telecommunication methods, such as email and the telephone, to reach out to both urban and rural consumers, overall the counselors in these communities reported having fewer communications with rural consumers regardless of the nature of communication (face-to-face or telecommunications). Based on the study, counselors reported that their rural consumers did not have the same access to computers with Internet access and did not have email addresses. Other issues included a concern with the consumer's ability to communicate in writing through email, either based on literacy issues, comprehension, language barriers, and/or disability factors such as visual impaired/blind, hearing impaired/deaf, cognitive disabilities, and mental illness. The disability factors such as low vision/blindness may also imply limited access to accommodations allowing consumers to fully utilize telecommunications (i.e., a screen reader that allows for text to speech for individuals who are visually impaired). In this study, counselors reported that approximately 50% of their rural consumers did not have access to a computer with the Internet or know how to use the Internet to enhance their vocational rehabilitation.

In the second Ispen et al. (2012b) study, recruiting consumers from seven different agencies, for a total of 225 respondents, the researchers found that nearly all of the consumers had access to a cell phone, land line telephone, or both (96%) and that many (78%) had cell phone service. Although at a bit higher than estimated by the counselors in the first study, this second study found that a little over one-half of the participants had access to a computer with Internet access and an existing email address. In contrast to what the counselors expected in the other study, however, nearly 70% of the participations said that they could access a computer with Internet in their community, and over 60% indicated that communicating with their counselor over email was acceptable. On the other hand, however, similar to the findings of the first study, certain consumers with certain disabilities, such as those with cognitive impairments, were less likely to use the telephone or email telecommunications. In a study looking specifically at a disability that often hampers communication, Johnson (2004) linked telecommunications and VR services, providing video conferencing to individuals who are deaf or hearing impaired.

The participants in the Johnson (2004) study found video conferencing to be better than using the phone or those who preferred to communicate using American Sign Language.

The studies mentioned, being mostly exploratory, provide us with an opportunity to examine the thoughts of both counselors and consumers of services and how telecommunication can be used to enhance service provision. The main barrier highlighted in the exploratory studies by Ispen et al. (2012a, 2012b) was disability or disabling conditions as they factored into the methods of telecommunications used by the VR counselors. Telephones and email were not accessible to all consumers whose disability affects their ability to interface through voice or written communications. In these studies VR counselors and consumers noted that email, text, and telephone were the most readily available forms of telecommunication. Access to telecommunications, therefore, is multilayered when thinking about how telecommunications can assist individuals in rural areas with obtaining services. The first concern is the access that is provided by the agency for the counselor or human service provider. Counselor technology literacy, agency support, and training in telecommunications along with access to other forms of telecommunication such as video conferencing could bridge some gaps. On the other hand, there is the consumer and his or her knowledge, access, training, and support in the use of telecommunications in general but also in his or her access to assistive technology that will make the smartphone, email, or computer accessible, considering his or her disability (i.e., screen reader, enlarged text, predictive keyboards, video options).

Consumer access to the appropriate telecommunication devices and applications for their particular disability comes with additional concerns for consumers in rural areas. Along with disability factors, barriers may include demographic and personal factors. The Ispen et al. (2012b) study examined age and college education along with disability as variables that might factor into the use of telecommunications and the belief that it is acceptable to use for rural disability-related services. While age was not a significant factor in the reported study, there is a concern regarding the use of technology and the consumer born prior to the technology boom who did not use computers and technology during their education. Ownership, use, digital literacy, and technology literacy may be an issue for those consumers who have not been previously provided with education and training in telecommunication devices and applications.

Technology research indicates that the owners of items such as a smartphone (i.e., cell phone with Internet access) are more likely younger people under the age of 50. The Pew Research Center reported in 2015 that smartphone ownership starts at over 80% ownership for individuals 18–49 and drastically dips to a little over 50% for those 50–64 years old and as low as 30% for those over 65 years old (Anderson, 2015). This limits access to text messages and smartphone applications that may assist the process such as *FaceTime*, which could be used for video conferencing. Computer ownership does not see as much fluctuation based on age with 70–80% of individuals 18–64 years old owning a computer (desktop or laptop) and 55% of individuals 65 and older owning a computer (Anderson, 2015). Computer ownership does not, however, indicate knowledge of use, access to the Internet, or an ability to troubleshoot any technology issues that may arise in the use of the computer for services.

Along with age and disability, Ispen et al. (2012b) examined education level of consumers to determine if education was connected to the use of technology and a belief that technology use was appropriate in service provision. They found that individuals with some college education reported significantly higher rates of communicating with their counselors through telecommunications and indicated a significantly higher acceptability rating then those consumers with a high school or less education. This is also supported by the Pew Research Center (Anderson, 2015) information that reports that over 90% of individuals with some college education owned a smartphone and 90% owned a computer.

Other factors addressed by the Pew Research Center included race/ethnicity, household income, and community type (urban, suburban, and rural). Overall, smartphone ownership is affected by age, household income, education, and community type with individuals from rural areas with less household income less likely to own a smartphone. Computer ownership, however, is affected by race/ethnicity, age, household income, and education with little difference in ownership across community type (Anderson, 2015). According to Pew Research Center, broadband access (the ability to use the Internet) at home is affected by race/ethnicity, community type, household income, and education levels. Rural residents and African Americans were a little over 50% likely to have broadband at home and individuals with lower incomes and less education under 50% likely to have access to the Internet from their homes (Horrigan & Duggan, 2015). The FCC reports that in the year 2016, 20% of rural America lacks access to broadband services at speeds fast enough to use email, while 39% of rural America lacks the speeds to conduct video conferencing, online education program, or even a general online internet job search (Federal Communications Commissions, 2016). This fits with the counselors in Ispen et al. (2012a) reporting that only about 50% of their caseload had access to the Internet at home. Access to the Internet, ownership of telecommunication equipment, a knowledge of how to use the equipment, and the assistive technology needed to adapt the telecommunication equipment to fit with the disability may be needed for many of the individuals that could benefit the most from telecounseling and distance service provision.

Therapeutic Relationship

Telecommunication, especially email and text correspondence, introduces the possibility of misunderstanding. Counselors worry that the telecommunication methods used to reach rural clients may interfere with the counseling relationship (Simpson & Reid, 2014). In the counseling literature, Bordin (1979) discusses the term

"therapeutic alliance." This term or concept describes the bond between the client and the counselor. In his research Bordin indicates that the therapeutic alliance includes the factors of goal agreement, trust development, and the collaborative quality of the counseling/counselor relationship. In other words, how well do the counselor and client work together toward obtaining a predetermined and positive outcome? This ability of the counselor and client to work together on shared goals, tasks, and expected outcomes is a reliable predictor of both positive outcomes and client attrition (Donnell, Lustig, & Struser, 2004; Simpson & Reid, 2014). Considering the importance of the therapeutic alliance to the client outcomes, it is critical to examine the effects of using technology on the counseling relationship. Issues such as miscommunication, poor writing skills, language comprehension, reading comprehension, and lack of access to nonverbal cues may pose a threat to the alliance.

Legal and Ethical Issues

Historically legal and ethical issues have been the biggest hurdles in using technology to provide counseling and services to individuals with disabilities. Laws on use have not been able to keep pace with the advancements in technology. For example, a law may be in place governing the provision of counseling to individuals in other state via Internet counseling; however, the recent use of text messaging as a crisis intervention may not yet be addressed. In the mid-1980s Mason, Collins, and Cox (1986) outlined what they called "the four ethical issues of the information age." Technology has changed drastically since the article was written, yet, the four ethical issues remain a problem to be addressed when using technology in the workplace. The four issues presented are *privacy*, *accuracy*, *property*, and *accessibility*. How do we keep the information private? Is the information we have accurate? Who owns the information and how accessible is the means in which we are trying to provide services? The questions posed by Mason, Collins,

and Cox were originally presented for individuals in business, but similar questions have emerged regarding technology in the human service fields. Researchers in rehabilitation counseling (Reimer-Reiss, 2000), social work (Reamer, 2013), and psychology (APA, 2013) continue to look at issues of *privacy* (or *confidentiality*), *accuracy*, *property*, and *accessibility*. In addition, and specific to human services, are issues of *informed consent*, *competence*, and *risk management* (Reamer, 2013).

To address some of the concerns, the American Psychological Association (2013) has adopted suggestions on ethical guidelines to address issues as related to telecommunications in counseling. They provided eight guidelines that address concerns of assuring that the technology-based services meet a standard level of care similar to what one would expect when receiving in-person services. Special attention was paid to ensure that consumers or clients are informed of the additional risk of online or technology-assisted services, and the counselor is doing everything possible to minimize risk and potential breaches of confidentiality.

Although service providers may be well versed in the general aspects of ethical codes assuring that the standards are met in providing services, the addition of technology requires more specific knowledge. While the ethical codes mandate that counselors not practice outside of their scope of knowledge, for those using technology for service provision, adherence to the code needs to be extended to include competency in the use of technology. If video conferencing is the best way in which to provide services to a rural client, the service provider's knowledge of service profession can only be demonstrated if he or she also has knowledge of the programs needed to conduct the video conferencing. Similarly, accessibility in the case of teleservices includes not only access to services through the agency but also access to the necessary technology and/or infrastructure to obtain the information and access to the information or the ability to interact with the information (i.e., ability to search for information online or ability to interact with members of an online support group).

In addition to ethical concerns, APA (2013) guidelines indicate a need to be knowledgeable of the laws and regulations and how they may differ across states and/or between jurisdictions. Providing services to consumers who are out of state at the time of service provision and/or agencies that serve neighboring counties in connecting states will need to be assured of the differences in laws and regulations regarding services. Currently, licensure for many health-related services (i.e., licensed professional counselors, psychologist, licensed social workers) is regulated and governed by the individual state. Individuals licensed in one state are not automatically licensed in another state. Using southern Illinois as an example, within an 80-mile radius, four states (IL, KY, IN, and MO) have varied rules, regulations, and requirements for licensure and possibly different regulations regarding using telecommunications in service provision. Service providers in rural areas will need to be especially aware of jurisdiction changes on the state and county level.

Overall, researchers and agencies can clearly identify the benefits in providing services to individuals in rural areas through the use of technology. It is cost-effective, efficient, and a great way to reach consumers who may not otherwise be served. The psychology literature also indicates that consumers may be more open to talking online with the added benefit of a certain level of anonymity, and consumers with strong written communication skills often benefit from writing out their concerns (Ross, 2016). Currently, however, in the rehabilitation literature, the barriers of service provider competency, consumer competency, disability factors, location, income, and age may factor into the limited use of telecommunications in service provision.

Recommendations and Suggestions

The Institute on Rehabilitation Issues (IRI, 2002a, 2002b) has developed suggestions on the use of telecommunications in the vocational rehabilitation process. Similarly, the American Psychological Association (2013) has developed

and adopted guidelines used to direct the use of telecommunications in providing psychological services. The two documents provide a foundation for the development of recommendations and suggestions for including technology in the delivery of services for individuals with disabilities in rural areas. These documents address the key areas needed to assure that services can be provided through technology. These key areas include the agency, the service provider, the standards for services, and the consumer.

Agencies

Ispen et al. (2012a) reported that a large percentage of counselors in their study (98% of 1187 counselors) had agency-supported access to computers and wireless Internet. The majority of the agencies supported the use of email and phone communications. The number dropped drastically, however, for supported text messaging capabilities (6%) and video conferencing (14%). Similarly, only 20% of the counselors believed that their agency completely supported using telecommunications in service delivery, and only 29% believed they had access to technical support when needed. The number of counselors who had received any training in the use of telecommunications in service delivery was also low (29%). Examining the connection between training and the use of technology, the researchers were not surprised to find that the counselors who were trained in using technology in delivering services were more likely to use technology in delivering services. Thus, supporting the argument that supports the use of technology in service provision begins with agency support and needs to include training and technical support.

The results of the Ispen et al. study illustrate how agency support or lack of agency support affects the use of technology in providing services. The first step in developing strategies for delivering services with the use of technology therefore includes gaining agency buy-in to the process. Providing training opportunities, releasing time to obtain training, and providing technical support are steps in developing agency

support. Additionally, providing access to the use of different types of technology or telecommunication devices can enhance and better enable the use of technology in service provision. Ispen et al. noted that many counselors have access to very little more than email and telephone services to contact consumers. The concern, however, is that either due to disabilities or due to literacy issues, only 50% of consumers are able to access telephones or make use of email.

Providing training and support to the service provider is one way in which the agency can express support for the use of technology in providing services. Additionally, agencies overall presence on the Internet can bolster the use of services in general. Developing an agency website and/or making use of social media and interactive Internet platforms can provide an inexpensive way to reach consumers. An agency website that holds information on agency services, programs, as well as vendor and referral programs can provide an additional means of bringing in consumers and also provide them with the information needed to conduct an informed choice. Social media platforms such as *Facebook* and *YouTube* provide agencies with an opportunity to provide up-to-date information and to make their content interactive for the consumer. Institute on Rehabilitation Issues (2002a) suggestions include using the website as a means of assessing consumer satisfaction and providing round-the-clock access to agency information and as a means of marketing the agency and/or program.

Service Providers

Agency buy-in is the first step in providing teleservices to individuals in rural communities. The second step or second hurdle is counselor or service provider buy-in and training. As mentioned previously in the chapter, counselor competencies in this area include both knowledge and skills of service provision but also knowledge and skills in using various types of technology. Technology literacy, digital literacy, and information literacy all refer to the knowledge, skills, and

ability to effectively use technology and/or access information through the Internet. While a video conference call may be the best way to provide services to a rural consumer who is deaf, a counselor with little understanding of how to conduct a video conference call is unable to provide services in this manner. The IRI (2002a) suggestions for digital or information literacy include the following:

> (a) having an understanding of different media and technologies, (b) using the ability to think critically, (c) having an understanding of ethics, (d) evaluating information properly, and (e) communicating to put the information to work for people with disabilities. (p. 33)

Many service providers of today tend to be in the age group that did not grow up with computers and may not have computer skills. Basic computer knowledge, training, and support in learning different methods are essential in developing a standard for providing services via technology. Gaining general computer and technology competencies is needed in addition to learning and making use of those technologies that are specific to individuals with various disabilities. Often individuals who are deaf communicate better via text or instant message or through video conferencing where sign language can be used. In preliminary studies on the use of technology, neither text messaging nor video conferencing was used often by the counselors (Ispen et al., 2012a), which added to the issues of access. Knowledge of how screen readers, for those with visual impairments, handle information emailed or uploaded to a website and a working knowledge of what is being termed "text speak" may also help the service provider in meeting the needs of the consumer. Overall, having an understanding of the various assistive technologies that can alter information input (i.e., dictation programs) and those that alter information output (text to speech) is needed by the service provider to assure access for the consumer.

Standards for Services

In the midst of the Digital Age, those agencies and service providers not making use of technology are creating a disservice to themselves and to their consumers. An overall standard of care, however, has to be maintained regardless of how services are delivered. Those individuals receiving services through telecommunication should not feel as if they are receiving a substandard of care that is used only when the main methods are not available. This standard of basic care should include the careful consideration of potential ethical and/or legal concerns with providing services online, through the telephone or over the Internet.

One of the main concerns is assuring that consumers have privacy and that information is kept as confidential as possible. The first step the agency may wish to review their policies and procedures regarding the use of technology. Are agency policies so lax that private information is available to non-agency personnel or so strict that service providers are allowed to use portable technology (i.e., laptops, phones, or tablets) to access consumer information outside of the office? To find a balance, policies should be reviewed to find ways to enhance services to individuals in rural areas. To give surety that information shared over the Internet is kept confidential, agencies and service providers may need to obtain the necessary infrastructure and security software that provide the encryption of data, emails, and any client files. Included in the concern of privacy is the need to assure that data is disposed of in an appropriate manner. Recognizing that simply deleting a file may not clean it from storage and determining that web searches, data, and other information is routinely cleared from computer web browsers (APA, 2013) become a priority.

An additional standard of care suggestion is that agencies and service providers serve as advocates for technology use among and for their consumers. As mentioned previously, often, rural areas lack the infrastructure needed to support Internet services in rural communities. Consumers may not have access to the broadband needed to obtain Internet in their area and may

have limited cell phone services. Furthermore, consumers who have low income may also have limited access to technology and limited access to the Internet. In the Digital Age, information is being shared via the Internet. Lack of access is as important as a lack of transportation and a lack of accessibility in the workplace. Advocating at the local, state, and national level for increased access to the Internet assists the consumer in receiving services and also increases their chances of changing their level of income or status. With the necessary access and training, consumers who can receive services via online methods are more likely to also be able to obtain employment that can be done at home via online methods as well.

Consumer

Agency support, service provider training, and the development of policies and procedures to develop a standard of care all fall flat if the consumer is unable to access the technology or make use of telehealth services. As indicated in the research studies (Ispen et al., 2012a, 2012b), about 50% of consumers were unable to access email or telephone communications. Some issues were disability related and an inability to access the information in the format used and some issues were language and/or reading comprehension concerns, while other concerns were general access and limited use of or knowledge of different technologies that could be used.

Individuals who do not have access to technology (computers and/or Internet access) at home could possibly obtain access at the local library or community center. To this end Ispen et al. (2012b) reported that 70% of the consumers polled for their study indicated that computers and Internet services were available to them within their community. Community access to computers and Internet services, however, presents issues with physical accessibility of the facility, access to any modifications needed for their disability and concerns of confidentiality. Will a discussion on a public computer in a public setting remain private? Will the consumer

remember to log out after the discussion and will he or she remember to clear computer of any personal information prior to logging out of the computer? Often public facilities also put time limits on the use of their computers, and library or community center hours may not match up with the hours that services can be provided. To resolve some of these issues, it may also behoove agencies to work together to provide access to technology. For example, a VR agency located in County A, that serves Counties A–E, may develop a relationship with an Independent Living Center in County E, to allow consumers to use their computers and Internet services to receive distance telerehabilitation from the VR counselor who is residing in County A.

Similar to the issues of competency with the service provider, overall computer, technology, and digital literacy is needed with the consumer as well. Does the consumer know how to effectively and efficiently use the technology necessary to obtain services in this manner? Technology can be used to obtain services, set meetings with the service provider, conduct searches for medical information, join online support groups, apply to college, take online courses, and even apply for jobs. The need to fully understand how to access this information on one's own is a big part of assuring that the rural client is provided equitable services. The service provider then would need to provide support, training, and possibly even coaching to assure that the consumer takes on the task of learning how to best use technology (IRI, 2002a). Training, educating, and coaching can also be a shared task either across agencies or through the use of natural supports that the consumer may have more readily available. Perhaps

Research Box 4.1

See Cihak et al. (2015).

As discussed in the chapter, using technology to provide services to individuals with disabilities in rural areas comes with several challenges. One such challenge is the individual's digital literacy. Legislative

Acts addressing disability and employment, most recently, have all touched on the need to assure that individuals with disabilities have digital literacy skills. Digital literacy and the devices used to communicate online (smartphones, tablets, computers) facilitate better vocational opportunities, greater productivity at work, and greater independence at work, home, school, and life and provide a means of social inclusion. Using a single-subject research design called a multiple-probe design, Cihak et al. developed a study to teach four individuals with intellectual disabilities how to use email, across multiple platforms (laptop, tablet, and desktop computer).

Method: The four student participants in the study had some knowledge of the basics of computers but had not been able to independently use their email accounts prior to the intervention. Prior to teaching the skills, the researchers conducted a task analysis laying out the individual steps needed to access an email account, respond to an email, and compose a new email to a peer tutor. From turning on the device to signing out after sending the email, the researchers identified 21 steps in the task analysis. The procedures for the study included a baseline phase, a digital literacy instruction phase, and a maintenance phase. The digital literacy targeted emailing from a desktop, computer, then a laptop, and finally an iPad tablet. Instructions included providing verbal directions and demonstrations and practicing opportunities with reminder cues on how to complete the task, along with verbal and physical prompts to show students how to complete each step of the task. Finally, the maintenance phase tested the student's skills 9 weeks following the training.

Results: The students increased their mean percentage of task-analyzed steps following the training. Students were able to email independently, completely on average 86% of the tasks, after a mean of seven sessions, for the desktop with similar results for the laptop and iPad tablet. All students were able to understand the instructions 9 weeks later and were able to email as requested at this follow-up time. The study gives further details on each student's skill acquisition and maintenance skills following the training. Overall their average scores went from a mean in the 20% range to a mean score in the 90% range following the training.

Discussion: Each individual was able to acquire the skills and show maintenance of the acquired skills 9 weeks following the training. The skills were additionally maintained across the various platforms. Training across the various platforms served as a means of providing generalized learning in an effort to provide a basis for learning newer, updated platforms in the future. In the Digital Age, training must be inclusive of the fact that technology will continue to change. This study provides a means of developing training schedules for teaching individuals how to use the technology needed to enhance services to individuals with disabilities in rural areas.

enlisting the help of a family member who can provide instruction and guidance to the consumer or working with the local libraries and community centers to assist them in aiding the consumer could add to the consumer's digital literacy.

To assure that consumers in rural areas with disabilities are allowed as much access as possible, service plans and/or treatment plans will need to include necessary telecommunications and telecommunication training. Assisting a consumer in financing a computer, assuring that an individual has voice recognition software, and/or training someone to use video conferencing may enhance services but also may enhance the consumer's personal, educational, and employment opportunities as well. Service plans of the future

will need to include technology as well as the assistive technology needed to access the digital information that is available to others. Many of the consumer barriers to technology access can be addressed in assuring that assistive technology is in place along with the original device. Assuring that service providers are using technologies that best fit the consumer's disability, communication and language concerns may be as simple as using video conference instead of an email or an email instead of a phone call. Service providers in con-

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Discussion Box 4.2

Legislation such as the Assistive Technology Act of 2004 (P.L. 108–364), the Americans with Disabilities Act (P.L. 110–325), and the Workforce Innovation and Opportunity Act (P.L. 113–12B) encourages service providers to work assistive technology into service plans for persons with disabilities and encourages the provision of education on digital literacy. To provide services to individuals in rural areas through telecommunication, individuals will need the devices necessary to access the services. Assistive technology is categorized as either "hard" or "soft" technology. Hard technology includes physical items that do not need human interactions to function (e.g., computers). Soft technology on the other hand is those things that require human interactions (e.g., decision-making and training). Assistive technology encompasses a board range of devices from low tech (e.g., pencil grips, splints, paper stabilizers) to high tech (e.g., computers, voice synthesizers, computer screen readers, braille readers). The goal of technology in working with people with disabilities is to enhance the employability, education, communication, and daily functioning activities. In assuring that an individual can access the Internet, email, call, or video conference with service providers, it is important to assess the individual's

assistive technology needs. Based on functional limitations can a person type, read, hear, or see what is being communicated. Some things to keep in mind when selecting assistive technology include the following:

The person's functional needs and/or limitations.
The cost to purchase, train, maintain, and/or repair the device or technology.
Durability of the device and operability and dependability of the device.
Proper training and follow-up services to master the use of the device.
Potential of device increases the individual's level of independence.
The level of independence needed.
The amount of independence will the device give the individual.
Ease of use and safety to use independently.

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junction with the consumer will need to search for and learn how to use those technologies that best fit with the consumer's abilities as opposed to using those technologies that are the most readily available (i.e., email and telephone).

Future Implications and Summary

The beginning of the Information Age looked drastically different than the world we live in today. While computers were large, clunky, and only accessed by the wealthy, currently smartphones, laptop computers, and tablets have brought technology to the masses. Most of us could not have predicted the changes made in the last 10–15 years, much less those changes over the course of the last 30 years. Technology is advancing rapidly and has gotten increasingly faster, smarter, smaller, and more and more affordable. With that all we can predict in the next 10–15 years is that technology will change in a way that is expected to be brighter and better than it is now. Applications such as voice recog-

nition, text to talk, and hands-free use of items from phones to car may have been invented for convenience, but these conveniences also serve as almost a universal design, providing individuals with disabilities greater and greater access to technology and digital information.

Greater access to technology as a whole comes with greater opportunities to identify uses for technology in the provision of services. As mentioned within the chapter, smartphone applications are currently helping with domestic violence and crisis counseling. Websites, smartphone applications, and various social media outlets are also currently providing information on diagnosis, treatment, and first aid for many medical conditions. Individuals can locate online counseling, support groups, and other individuals with similar disabilities. While we used to bring a person into an agency for peer counseling or mentorship, individuals can now search out a mentor online who may live next door or may reside across the world.

As technology changes with the speed of light service providers, ethical boards and legislators will need to strive to keep up with the trends. Although governing bodies such as the American Psychological Association (APA, 2013) have developed guidelines for standards of care, they are also quick to point out that what they have produced is a guideline and not a requirement, standard, or regulation. Standards have been and continue to be adjusted as technology advances. In particular, who can service what consumers and where the services can take place are issues that many researchers continue to discuss (Ross, 2016). Governing bodies seem to be contemplating issues of licensure and jurisdiction with regard to distance, Internet, and telecounseling services. Questions such as whether licensure in one state allows for serving a client using distance or telecounseling methods in another state are important to clarify. More broadly, can state licensure boards work out a form of reciprocity that takes into account the needs of a more technologically advanced world? These are questions to be addressed as we advance in our efforts to provide services via technology.

Our research on the use of technology in providing services to individuals with disabilities is still in the exploratory phase. Even though Ispen et al. (2012a, 2012b) have done an excellent job of exploring the thoughts and actions of vocational rehabilitation counselors and consumers, studies are still needed to determine a connection between distance service provision and consumer outcomes. From the literature it appears that we have reviewed the barriers and have determined where we need to make changes to assure that we can offer services at a distance for rural consumers. Once offering services through the use of technology is utilized and explored more completely in a more standardized manner, our next step is to assure that these methods meet the needs of the consumers. Can we provide services at a distance for rural individuals with disabilities that lead to positive, social, medical, and vocational outcomes? This question remains to be answered.

Resources

1. The American Counseling Association, American Psychological Association and the Commission on Rehabilitation Counselor Certification have each addressed the use of technology and distance counseling in their ethical codes for professionals.
   American Counseling Association Ethics Code – Adopted 2014.
   Section H: Distance Counseling, Technology, and Social Media. https://www.counseling.org/resources/aca-code-of-ethics.pdf
   American Psychological Association Guidelines for Practice of Telepsychology. http://www.apa.org/practice/guidelines/telepsychology.aspx
   Commission on Rehabilitation Counseling Certification Code of Ethics – Adopted 2017.
   Section J: Technology, Social Media, and Distance Counseling. https://www.crccertification.com/filebin/pdf/Final_CRCC_Code_Eff_20170101.pdf
2. Funded through the Federal Assistive Technology Act, each state has an Assistive Technology Act Program that provides Assistive Technology support and assistance. Some programs provide training, device lend-

ing libraries and information and referrals regarding Assistive Technology. You can find your state ATAP on the following website: https://www.ataporg.org/programs

3. Centers for Independent Living (CIL) provide various services to individuals with disabilities and are available in every state. Often these centers provide services to individuals in rural areas with some having satellite offices in the most rural areas. CILs can be partnered to provide technology training, accessible technology or space for service provision. The Independent Living Research Utilization (ILRU) program provides a directory of CILs, alphabetized by state, then divided by county:http://www.ilru.org/projects/cil-net/cil-center-and-association-directory

4. Purple's Video Remote Interpreting (VRI) is an "on-demand service" that provides a sign language interpreter via webcam for communications between individuals who are deaf and individuals who are hearing and in need of a sign language interpreter. Purple: https://signlanguage.com/vri/

5. The Job Accommodations Network (JAN) is a source of information on disabilities, disabling conditions, accommodations and employment. JAN works with both employers and employees, consulting on issues of accommodations, related legislation and disabilities. JAN: https://askjan.org/links/about.htm

6. The Institute on Rehabilitation Issues (IRI) offers materials that address issues of importance in public rehabilitation or working with individuals with disabilities. Various publications specifically address technology, distance education and the Internet as a resource for service providers. IRI Publications: http://www.iriforum.org/books.aspx

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1. Anderson, M. (2015). The demographics of device ownership. The Pew Research Center: Internet, Science and Tech. Retrieved from http://www.pewinternet.org/2015/10/29/the-demographics-of-device-ownership/
   Pew Research Center conducts research, public opinion polling, demographic research and media content analysis along with other empirical social science research. Pew Research is a subsidiary of The Pew Charitable Trusts. Pew Research Center, Internet, Science and Tech provides data on technology, use and access: http://www.pewinternet.org/

2. Americans with Disabilities Act of 1990, Pub. L. 110–325. Retrieved from https://www.gpo.gov/fdsys/pkg/PLAW-110publ325/pdf/PLAW-110publ325.pdf

3. Assistive Technology Act of 2004, Pub. L. 108–364. Retrieved from https://www.gpo.gov/fdsys/pkg/PLAW-108publ364/html/PLAW-108publ364.htm

Case Study: Jacquelyn Thomson

Jacquelyn is a 42-year-old white female. She is a single parent of two young boys who are 6 and 8 years old. Jacquelyn and her sons live in a small rural town in Southern Illinois. The small town has a population of 800 people. The town closest to her is a 45-minute drive away and has a population of 20,000 people. This town is the biggest town within a 100-mile radius from her house. There are several small towns within a 50-mile radius, with her local human services office (i.e., public aid, vocational rehabilitation, one-stop shop) being in a town that requires she drive over an hour.

Jacquelyn is a trained Certified Nursing Assistant (CNA) and has worked in the local nursing homes since her divorce 10 years prior. At work one evening, in transferring a patient, Jacquelyn hurt her back. She had to drive 100 miles to find a doctor that could diagnosis her as having spondylolisthesis, a condition in which one of her vertebrae has slide forward over the bone below. Her condition affects her L5/S1 vertebra with the slip being listed as

Unstable and a Grade 1. She is not a candidate for fusion surgery, but the slip has caused a pinched nerve. She is in a fair amount of pain and has been warned that continuing to lift heavy objects will cause her vertebra to further slip which puts her at a risk for paralysis, bowel and bladder problems, and other long-term issues. Jacquelyn is otherwise a healthy woman who had enjoyed a fairly active life. Her ex-husband has moved out of the area and has little contact with her or their children. Her mother lives on the same street but is elderly and has been getting both physical and financial assistance from Jacquelyn over the last year or two.

As mentioned Jacquelyn's nearest human services offices require she drive an hour from her house. She is unaware of what services are available to her and has been encouraged by the diagnosing doctor to obtain physical therapy (PT), to obtain mobility aids to limit the pressure on her spine, and to consider either obtaining different employment or severely modifying her current job duties. Jacquelyn has been off work since the injury and is obtaining a limited amount of worker's compensation. She is struggling financially and has noted that her pain restricts her ability to sit for long periods of time, including the time it takes to drive to PT, to human services offices, and even to her doctor's appointments.

Questions:

1. What types of services might Jacquelyn benefit from obtaining?
2. What are some ways in which a human service worker could accommodate the fact that Jacquelyn is unable to travel to the offices for services?
   (a) What types of ethical and legal issues must be addressed in providing services in the manner in which you suggest?
   (b) What rural area issues might restrict her ability to obtain services without driving to the offices?
3. Using the Internet resources provided at the end of the chapter, provide a brief description of Jacquelyn's condition and suggested mobility aids, which could increase her mobility or at least decrease her pain.
   (a) What are some personal characteristics that may affect her use of technology and her ability to learn to use such equipment?
4. If you are working to assist Jacquelyn in obtaining new or modified employment, what steps would you take first to assist her in meeting her employment goals?

4. Individuals with Disabilities Education Act of 2004 Pub. L. 108–446 Retrieved from http://idea.ed.gov/download/statute.html
5. Workforce Innovation and Opportunity Act of 2014, P.L. 113–128 Retrieved from https://www.gpo.gov/fdsys/pkg/PLAW-113publ128/pdf/PLAW-113publ128.pdf

Instructional Features

Self-Check Questions

1. What some are reasons for using technology to enhance services to persons with disabilities in rural areas?
2. Other than email and text messaging, what are some ways a service provider can provide services using technology?
3. What are the ethical concerns regarding using technology in the workplace?
4. The chapter addresses various personal issues that might factor into if a person has access to or uses technology. What are a few of these factors?
5. The chapter addresses issues counselors have in using technology in providing services.

What are some ways in which agencies can better support the use of technology in service provision?

Field-Based Experiential Assignments

1. How much information do you have about rural areas and service provision for people with disabilities in rural areas? Using a map, identify a town that is not located within a metropolitan area and has a population between 10,000 and 50,000 people. The town cannot be a suburb of a bigger city or in the county with the bigger city (over 50,000 residents). To fully understand, identify a town that is at least 30–60 miles away from the nearest city of over 50,000 residents. Once you have identified this rural area, use the Internet to locate services in that town or area. Who provides transportation? How would a person get to a doctor's appointment if they could not drive? Where is the nearest hospital and/or doctor's office? Where is the nearest human services office? Do they have mental health services in the area? Do they have medical assistance such as physical therapy, occupational therapy, and speech therapy readily available? Do they have a medical supply store or someone in the town who can repair a broken wheelchair? How far would an individual have to drive to get to a specialist for any physical medical condition?

2. Imagine yourself as having to train someone on the use of technology so that the two of you could later use it to communicate. For this project start with developing a task analysis for training someone how to use your smartphone. Outline the exact steps it takes to unlock, turn on, login, and access your favorite or most used app on your phone. Once you have opened the app, develop the steps it would take to perform the tasks of the app (e.g., play the game, post on the social media site, etc.). End your task analysis with the steps it takes to log off of the app and close out of your phone. Ask a friend to help you try out your task analysis. Using only verbal commands (do not point, touch, or physically assist), direct the individual through the steps. Modify your steps as needed.

3. Conduct a small survey of the people you know regarding their use of email, smartphones, laptops, and computers. Be sure to include individuals from all age groups, people with varied amounts of knowledge and various disabilities (you probably know someone with a disability that is hidden like a learning disability, hearing loss, or low vision). In your survey ask questions regarding their daily use of technology, their knowledge, and the barriers they find in using technology. Finally, be sure to add questions regarding how comfortable they would feel about using technology to interact with a doctor, counselor, or service provider.

Multiple Choice Questions

1. In the Ispen et al. studies, the counselors reported which of the following as a major barrier to their using technology in service provision?
   (a) Lack of computer and/or email access
   (b) Lack of agency support for use of technology
   (c) Lack of knowledge regarding the use of technology
   (d) All of the above

2. In the Ispen et al. studies, the consumers report which of the following as one of the major barriers to their using technology?
   (a) Lack of access to the Internet, computers, or email
   (b) Lack of knowledge on the use of technology
   (c) Limited ability to use technology due to disability
   (d) None of the above

3. According to the chapter, _____ refers to the knowledge, skills, and ability to effectively use technology or access information through the Internet.
   (a) Digital or information literacy
   (b) Information Age awareness

(c) Tech-savvy knowledge

(d) Technological competencies

4. One of the main concerns in standards of care and ethics in providing services via telecommunication is which of the following?
   (a) Access to the Internet
   (b) Knowledge of the use of email
   (c) Privacy and confidentiality issues
   (d) Employment applications issues

5. What are some possibilities for accessing the Internet if a person doesn't have access at home?
   (a) The local library
   (b) A human service agency
   (c) A local community center
   (d) All of the above

6. Bordin's research indicates that _____ includes the factors of goal agreement, trust development, and the collaborative quality of the counseling/counselor relationship.
   (a) Therapeutic alliance
   (b) Counselor/client bond
   (c) Counselor/client goal setting
   (d) Therapeutic togetherness

7. The term used in Question 6 is a predictor of which of the following?
   (a) Negative counseling outcomes
   (b) Positive counseling outcomes
   (c) The likelihood that clients will return for services
   (d) B and C only

8. The Pew Research Center indicates which age group most likely to have access to a smartphone and/or a computer?
   (a) 18–59 years old
   (b) 21–65 years old
   (c) 18–39 years old
   (d) 49–65 years old

9. Mason et al. as far back as the 1980s identified four ethical issues in using technology in the workplace. These issues are:
   (a) Privacy, accuracy, property, and accessibility
   (b) Privacy, accessibility, accommodations, reasonable limits
   (c) Piracy, property accuracy, and accommodations

(d) Piracy, reasonable limits, privacy, and accessibility

10. Issues specific to technology in the counseling include which of the following?
    (a) Information retrieval, accessibility, and privacy
    (b) Informed consent, ethical mandates, and personalization
    (c) Informed consent, competence, and risk management
    (d) Information retrieval, consent, and risk management

Key

1 – B
2 – C
3 – A
4 – C
5 – D
6 – A
7 – D
8 – A
9 – A
10 – C

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