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The Status of Technology-Enhanced Education and Service Delivery in Rehabilitation Counselor Education

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Purpose: The purpose of this article is to discuss the upsurge of technology-enhanced rehabilitation education programs and telerehabilitation services, to provide examples of these advancements, and to discuss the implications of this technology for education and the field including the unique advantage to developing technological skills through participation in effective online coursework allowing rehabilitation graduates the requisite transferable skills for competent online service delivery.

Method: The authors completed a thorough review of the available literature on online technology-enhanced education programs and online telerehabilitation services.

Results: Rehabilitation counselor education and the delivery of rehabilitation services have capitalized on recent technological advancements and provide opportunities to reach students and consumers via the Internet.

Conclusion: It is clear that technology-enhanced education and clinical services will have an expanding role in the future of rehabilitation counselor education and practice. There is a unique advantage for students to develop technological skills through participation in effective online coursework. The skills learned from completing online courses are transferable skills for competent online service delivery.

Technology is instrumental in shaping the field of rehabilitation counselor education and practice. Over the past decade, there has been an explosion of online rehabilitation counselor graduate programs and technology-enhanced coursework (Bejerano, 2008; Benshoff & Gibbons, 2011; Council on Rehabilitation Education [CORE], 2012; Openshaw, Schultz, & Millington, 2008; Tansey, Schopieray, Boland, Lane, & Pruett, 2009). Many undergraduate- and graduate-level education programs are attempting to attract students and meet their needs by providing technology-enhanced programs and services whereby students do all their work online (Adams, DeFleur, & Heald, 2007; Allen & Seaman, 2006; CORE, 2006; Riemer-Reiss, 2000). Major advantages of this mode of education include minimizing

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geographic barriers and travel time for students and educators, decreasing the need for working professionals and parents to set aside large chunks of inflexible time slots for course sessions, enhancing the practical and professional applications of technological skills many students are already fostering, providing rehabilitation graduates the requisite transferable skills for competent online service delivery, and circumventing many disability-related issues for students (Benshoff & Gibbons, 2011; Adams et al., 2007).

In addition to influencing instructional methods, technology is impacting the delivery of rehabilitation and counseling services with the advancement of technology-based rehabilitation practices or telerehabilitation, a product of telemedicine. Telerehabilitation has emerged as a promising practice for the delivery of rehabilitation services over telecommunication networks and the Internet (Keaton et al., 2009; Moore, Guthmann, Rogers, Fraker, & Embree, 2009; Telerehabilitation, n.d.). It is cost-effective and convenient and allows experts in rehabilitation to engage in clinical consultation at a distance (Keaton et al., 2009; Riemer-Reiss, 2000). Most types of services fall into two categories: clinical assessment and clinical therapy. In addition, telerehabilitation can deliver therapy to a person who cannot travel to a clinic because the consumer has a disability or transportation issues. Typically, this is a consumer who may not receive any services if it wasn't for the availability of telerehabilitation (Moore et al., 2009).

The purpose of this article is to discuss the upsurge of technology-enhanced rehabilitation education programs and telerehabilitation services, to provide examples of these advancements, and to discuss the implications of this technology for education and the field including the unique advantage to developing technological skills through participation in effective online coursework allowing rehabilitation graduates the requisite transferable skills for competent online service delivery. This will be accomplished, in part, by describing and examining the effectiveness of Wright State University's (WSU) rehabilitation educator programs and an exemplary technologically based service program, the Consumer Advocacy Model (CAM), located in the Department of Community Health at WSU. The implications for education and the field are offered, alongside the advantages and disadvantages to both technology-enhanced education and distance service delivery.

ONLINE REHABILITATION COUNSELOR EDUCATION

Allen and Seaman (2010) conducted a survey of more than 2,500 colleges and universities nationwide and reported that approximately 5.6 million students were enrolled in at least one online course during 2009. This is equivalent to more than one in four higher education students taking at least one course online. In addition, online learning was an important part of 61% of all reporting institutions and a vital part of their long-term strategy. For-profit institutions reported a 10% increase in providing online services from 2009 to 2010 (Allen & Seaman, 2010). In 2013, the National Center for Educational Statistics reported that 90% of postsecondary institutions offer online programs. The increased student interest and the ability to reach students in any geographic area has led to more professionals returning to school and more institutions adopting online instruction, abating many disability barriers (Allen & Seaman, 2010; Bejerano, 2008; O'Malley & McCraw, 1999). This trend includes counselor training and rehabilitation counseling (Benshoff & Gibbons, 2011; Nelson, Nichter, & Henrickson, 2010; Openshaw et al., 2008; Riemer-Reiss, 2000; Tansey et al., 2009).

Tansey et al. (2009) suggest that online instruction and assessment of rehabilitation counseling skills should be evaluated for the same learning levels already generally provided within face-to-face instruction. Unfortunately, the demand for research in learning outcomes of online students has not been comparable

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with actual delivery of courses, leaving scarce evidence on the effectiveness of online instruction in rehabilitation counseling as well as determining the best teaching practices in this area (Tansey et al., 2009). In addition to assessing the effectiveness of online instruction, the reaction by students to online education is important to examine. Recent research has demonstrated that students in online counseling courses report higher levels of self-efficacy in counseling skills than students in a face-to-face course (Watson, 2012). It is plausible that this high level of self-efficacy would translate into confidence in their ability to counsel people with disabilities.

Four main concerns emerge when discussing online course instruction for counseling students. The first is the isolating experience of online instruction. Essentially, students who take online courses lack on-campus experiences that connect them with faculty and students (Adams et al., 2007; Bejerano, 2008; Oliver, Omari, & Herrington, 1998). By nature, the issue is exacerbated in the counseling field whereby human interaction is an essential component of the education experience (Benshoff & Gibbons, 2011). The second is the impact on learning that students experience because of missed opportunities for consultation and collaboration with colleagues that often encourage critical thinking skills. Traditional face-to-face education fosters a community where students engage, interact, and support each other (Adams et al., 2007; Bejerano, 2008; Crimando, Flowers, & Riggar, 2004). The isolation of technology may compromise the sense of community that develops with traditional methods. However, a sense of community can be greatly strengthened for some students. In particular, students who are shy, have trouble communicating, or are simply less aggressive in class. For those students, asynchronous online communication can offer a chance to participate in dialogue that is not accessible to them in a traditional setting. The third concern is that educators may find online teaching too time-intensive and relationally unrewarding (Bejerano, 2008). Setting up online courses takes a great deal of learning and planning. In addition, the opportunities to mentor, advise, and lead are limited by technology. Online teaching does not have the same dynamics as face-to-face teaching leading some instructors to feel frustrated. Lastly, there are inevitable technological difficulties that arise where backup plans need to be in place (Benshoff & Gibbons, 2011). Difficulties may arise with both educators and students.

Wright State University

WSU offers a complete online graduate program in Rehabilitation Counseling, in addition to at least one section of most undergraduate courses in Rehabilitation Services (Table 1). The number of students currently served in the graduate program has been steady at approximately 25 students a year, whereas the undergraduate program has witnessed exponential growth to between 200 and 300 students over the past 3–4 years, weathered minimally by the continued recessed economic climate. Both programs are fully accredited by the CORE. The department houses nine full-time tenure track faculty who teach courses in the CORE-accredited curriculum, and two of these faculty members are dedicated entirely to the Rehabilitation Counseling programs. Five adjunct faculty members also teach courses in the required curriculum.

Instructors have the flexibility to provide instruction either synchronously (through predesignated times set aside for online instruction) or asynchronously (no designated times). Through the online learning management system, instructors are able to post news items, events on a course calendar, and content information (PDFs, word documents, web links, videos, etc.), as well as create discussion topics, online chats, and group activities to engage students through peer interaction. Assignments and examinations are submitted online with the assistance of various restrictions and plagiarism software to protect the validity of the assignments. In addition, grades and feedback,

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TABLE 1. Wright State University: Undergraduate and Graduate Rehabilitation Courses Available Online

Undergraduate Rehabilitation Services Courses	
Intro to Rehabilitation Services	Community Resources
Case Management	Intro to Developmental Disabilities
Substance Abuse	Internship
Counseling Theory	Group Counseling
Core Graduate Rehabilitation Counseling Courses	
Foundations of Rehabilitation	Psychosocial Rehabilitation
Vocational Evaluation and Assessment	Case Management
Medical Aspects	Biopsychosocial-Spiritual Rehabilitation
Theory and Epidemiology of Addictions	Treatment and Prevention of Addictions
Practicum	Internship

participation, and communication are all maintained in real time as the course progresses.

With practical application effectiveness as the touchstone of the teaching philosophies ascribed by the rehabilitation faculty, the learning outcomes and activities that support the development and assessment of specific learning outcomes are often based on community engagement and skill artifacts. Some examples of practical application activities include community rehabilitation facility visit evaluation, developing of an individualized plan (treatment, job placement, case management, etc.), and knowledge translation presentations to specified populations. These activities, in combination with evidence-based practice and theory content, assist students with translating classroom experiences to real-world applications. Requiring the submission and delivery of these activities through online avenues (real-time chats, online discussions, and electronic communication) provide students the opportunity to build the skills necessary for professional distance rehabilitative services as well as combat the isolating effects of online learning and increase the opportunity for collaboration and consultation between students. Adding effective online course delivery into a program provides students with another skill or tool for optimal consumer outreach and service provision in rural or low-incidence populations, an important advantage to any graduate's job search. These activities, along with virtual office hours, allow faculty to improve the relational rewards important for enriching and encouraging mentoring and advising activities. Coupling with institutionally supported opportunities to focus on online course development, often more time-confusing upfront, faculty may feel more vested in creating meaningful online learning that can lead to deeper student learning and better honed distance-delivered service skills.

The university offers support provided by the Center for Teaching and Learning (CTL) and Computing and Technology Services (CaTS) that enhance online course opportunities as well as assist faculty to preplan for typical technological difficulties. WSU currently offers professional development training in both Quality Matters online course design standards and a four-course certificate program in online teaching practices. Learning communities and accessibility consultation are also available through CTL for all faculty and instructors. Coupled with excellent technical support by CaTS, WSU has the philosophy, infrastructure, and technology to provide exemplar teaching through any format.

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Effectiveness of Wright State University Online Rehabilitation Courses

The impact of these online learning efforts and institutional supports has yielded positive results for both undergraduate and graduate students at WSU. Although not only the result of online learning, both the 2011 and 2012 surveys of rehabilitation services employers and site supervisors revealed a 100% positive response to undergraduate rehabilitation services interns and employees. Respondents reported across the board *very satisfied* with content knowledge, clinical knowledge, commitment to diversity, use of technology, and professionalism of WSU undergraduate rehabilitation services students. In addition, 87.5% of graduating undergraduate student for the spring term of 2013 found employment within the rehabilitation field prior to finishing the internship and graduation.

Regarding the fully online graduate program, graduate students experience a 90% passing rate for the Certified Rehabilitation Counselor examination for the 2012–2013 academic years. This passing rate is well above the national average of 75%. Approximately 20% of the students are from underrepresented groups and currently hold an average cumulative grade point average (GPA) of 3.4. In addition, student outcomes are evaluated each year with the creation of "student portfolios." These portfolios assess student outcomes in six areas: Content Knowledge, Pedagogical Content Knowledge, Technology, Professionalism, Diversity, and Emotional Intelligence. Graduate students in the Rehabilitation Counseling program were performing optimally on all areas of the portfolio for the 2012–2013 academic years. These various points of evaluation provide evidence of sufficient learning and skill development at both the online undergraduate and online graduate level for WSU students.

TELEREHABILITATION

Beyond online course delivery, the field of rehabilitation has also experienced a growing demand for online service delivery with clinicians using similar technology they learned in school to deliver services to their consumers. An argument can be made that "telerehabilitation," a product of telemedicine, began in 1998 when the National Institute on Disability and Rehabilitation Research (NIDRR) funded the first Rehabilitation Engineering and Research Center (RERC) on telerehabilitation. It was awarded to a consortium of biomedical engineering departments at the National Rehabilitation Hospital (Telerehabilitation, n.d.). NIDRR funded the second 5-year RERC on telerehabilitation in 2004, awarding it to the University of Pittsburgh. This RERC was renewed in 2010 demonstrating the continued interest and viability in using telecommunications as a modality for rehabilitation assessment and therapy.

Similar to technology-enhanced education, the rehabilitation field benefits from telerehabilitation by providing services that have no geographic borders. Consumers can receive services in their home eliminating the need for childcare and circumventing many disability barriers (Keaton et al., 2009; Moore et al., 2009). Likewise, some of the disadvantages of telerehabilitation include the lack of Internet services, technological difficulties, confidentiality issues, insurance coverage, and inability to do drug testing via telerehabilitation (Moore et al., 2009). Unlike a one-size-fits-all model, the need for telerehabilitation must be evaluated based on the specific circumstances of the individual to be served.

Consumer Advocacy Model

One service provider that has been offering telerehabilitation services since 2007 is the CAM program. Their first telerehabilitation program, called *Deaf Off Drugs & Alcohol* (DODA), was developed with the support of a Substance Abuse and Mental Health Services Agency (SAMHSA) grant to provide online recovery support services for consumers who are deaf. Providing rehabilitation services to

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deaf consumers online is challenging because not all deaf individuals are fluent in American sign language (ASL) and familiar with deaf culture. In addition, there are very few assessment instruments validated for deaf consumers, scarce resources for recovery support for deaf consumers, and limited resources to pay for interpreting (Guthmann & Blozis, 2001; Moore et al., 2009; Moore & McAweeney, 2006).

A second telerehabilitation service offered at CAM is the Technology Assisted Care (TAC) program. Established in 2008, TAC is similar to DODA in that it was funded by SAMHSA and designed to address the barriers to substance use disorder and mental health treatment faced by consumers with coexisting disabilities. This program offers real-time online video outpatient substance abuse and mental health treatment services, such as psychiatric pharmacological management, mental health counseling, case management, substance abuse/addiction counseling, online assessment, 12-step groups, and consumer portals to access drug test results, treatment plan, appointment schedule, and counselor messages to consumers with disabilities. Synchronous services delivered are provided through high-speed, encrypted, video-conferencing technology, and secure portal access allows consumers various options to connect with providers asynchronously on evenings and weekends.

Each consumer's portal is created dynamically and is unique to fit the needs of that consumer. In addition, all services are available across platform and on mobile devices. Qualified, licensed counselors use evidence-based approaches to engage participants in treatment. Treatment strategies include motivational interviewing, strengths-based case management (which applies incentives for meeting treatment goals), and cognitive behavioral therapy. Those served by TAC include persons with disabilities who are experiencing barriers to successful treatment (e.g., persons with developmental disabilities, traumatic brain or spinal cord injuries). Outreach and services are also provided to former military and their families, especially veterans with a service-related or other disability that inhibited that person from fully benefiting from traditional treatment.

Both programs make every effort to meet consumers where they are, in terms of technology, accessibility, linguistics, and consumer preferences. Resources are available in the consumer's language of choice and are tailored in cooperation with providers to meet their needs. They also have increasing access to their health information in the form of their secure portal and have the option to decide their own level of involvement in the growing online recovery community. These services have been especially beneficial for deaf consumers, improving their access to culturally appropriate services (Moore et al., 2009).

Effectiveness of Consumer Advocacy Model Telerehabilitation Services

Evaluation of CAM's telerehabilitation services (DODA and TAC) indicated that these services are cost effective, reduce travel time for the counselor and the consumer, reduce waiting time between referral and receipt of services, reduce "no-shows," allow for group meetings regardless of consumers' location, improve access to consumer-centered services, improve access for underserved populations, provide services to many consumers who may not receive services otherwise, and facilitate the collaboration of rehabilitation resources across the state.

Since its inception, the DODA program has served consumers in 23 Ohio counties who experience barriers to successful treatment. If it was not for DODA, many of these individuals would never have received services because of their location and isolation. The population includes 71% profoundly deaf, of which 44% are fluent in ASL, 27% use Pidgin Signed English, and 27% do not sign at all but use oral communication (speech reading and voice), and are disproportionately underserved or unserved by traditional models (Moore et al., 2009). For further details, see Moore et al. (2009).

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During the first 3 years of the TAC project, 168 consumers with disabilities from across the state of Ohio received online counseling and case management. The average distance of a TAC consumer was 66.6 miles, with the furthest consumer living 209 miles away (Embree, Ford, Fraker, Kissell, & Wilson, 2014). Similar to the DODA consumers, many of these individuals would not traditionally have access to care at all as a result of geographic distance from appropriate providers, lack of transportation, or mobility issues related to disability. In the past 6 years, more than 73% of consumer contacts were conducted remotely and more than 84% of counseling contacts happened through technology (Embree et al., 2014). TAC consumers also had a dramatically lower rate of no-shows (11.1%) when compared to consumers receiving traditional treatment (20.6%). These rates were calculated based on scheduled appointments compared to appointments when the consumer did not arrive or called to reschedule. Appointments that were rescheduled prior to the appointment were not included.

In addition, consumers who started the program with active alcohol use reduced the number of days of use significantly after 6 months. Similarly, consumers who started the program with active illegal drug use also reduced the number of days of use significantly after 6 months (Embree et al., 2014).

THE FUTURE OF ONLINE EDUCATION AND TELEREHABILITATION

The current trends in technological advancements of rehabilitation counseling education and provision of rehabilitation services requires an examination of the implications for teaching and training and clinical practice. Online education and telerehabilitation are not only popular techniques currently used for education and treatment but their use is also increasing dramatically, having an ever-expanding influence in the future roles of rehabilitation counselors.

Teaching and Training Implications

Limited research exists on the effectiveness of online rehabilitation counseling education and online counseling education in general, but there has been plenty of research examining the differences in the effectiveness of technology-enhanced and traditional learning environments in other areas. The results of this research are mixed. Some researchers report that the two are comparable; others report an advantage to either technology-enhanced education or traditional instruction (Bejerano, 2008; Crimando et al., 2004; Harley, 2001; Keeton, 2004; Schultz & Finger, 2003; Tallent-Runnels et al., 2006). Regardless, growing popularity of online education has led many to project that online education will soon become the largest source of higher education in United States (Keeton, 2004; Openshaw et al., 2008; Tallent-Runnels et al., 2006). For this reason, rehabilitation researchers need to focus less on the effectiveness of online education compared to traditional education and more on the components, factors, and variables that increase the effectiveness of their courses (Riemer-Reiss, 2000; Tansey et al., 2009). National benchmarks for course evaluations such as Quality Matters (2011) are suggested as a way to certify an online course through a peer-reviewed process.

In line with this shift, many researchers have examined online teaching techniques and approaches (Arntzen & Hoium, 2010; Benshoff & Gibbons, 2011; Garrison, Anderson, & Archer, 2000; Tansey et al., 2009). Arntzen and Hoium (2010) advocate for an online applied behavior analysis teaching approach called *interteaching*. The focus of this approach is largely on manipulating current environmental conditions and variables that impact the way students act, think, and feel (Arntzen & Hoium, 2010). The rewarding aspects of this approach lend itself to online technology.

Benshoff and Gibbons (2011) offer three components to success with online counseling instruction: incorporate a well-planned interactive component, develop simple technologically

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based materials, and provide necessary training and technology support. Furthermore, instruction is more effective when instructors act as if these classes are face-to-face, using familiar language (e.g., "talk with you next week," "see you in class") and familiar structures (agendas and schedules). This technique is beneficial to students who are novel to online education.

Garrison et al. (2000) suggest three areas of presence: teaching presence, cognitive presence, and social presence. Instructors need to closely monitor student participation, perhaps more than the face-to-face environment, so that the students who are not participating can be encouraged to participate in class discussions. To foster a cognitive presence, Garrison et al. (2000) suggest that instructors need to be very intentional in cultivating an environment of critical inquiry, including providing an environment that encourages constructive dialogue among students and instructors. To create a social presence, instructors can involve and encourage students to connect with their peers in class, the community, and the use of humor and time for socializing at different points in class (Garrison et al., 2000). For example, at WSU, students visit a community rehabilitation facility, and they develop an individualized plan with a partner in the class (treatment, job placement, case management, etc.). These activities, in combination with evidence-based practice and theory content, assist students with translating classroom experiences to real-world applications.

Finally, Tansey et al. (2009) propose three learning domains: cognitive, affective, and psychomotor. These domains are assumed to be interconnected so that a focus or change in one domain will affect the other domains. These domains mirror Bloom's (1956) well-known work with the exception of a stronger emphasis on the affective domain within online education. Tansey et al. (2009) argue that only limited research exists regarding the effectiveness of online rehabilitation counselor training in developing affective knowledge. Affective knowledge is considered to be the development of values, attitudes, motivations, or feelings. The development of affective knowledge is a key component of practice as a rehabilitation counselor. Based on CORE requirements, development of affective knowledge is critical to perform as a rehabilitation counselor. Tansey et al. (2009) suggest that the affective domain of learning in rehabilitation counselor education may be best understood as the training of students to internalize ethics and related values, to adopt the principles of rehabilitation counseling in their professional services, and to develop the attitudinal competencies necessary to serve a diverse group of consumers. The revelation that attitudes are an essential feature of providing rehabilitation counselor services is not a novel concept but an important concept for online education.

Student Characteristics

Understanding student learning styles is important for both traditional teaching and online teaching. In particular, a student's self-efficacy, described as the beliefs or judgments an individual has about his or her ability to effectively counsel a consumer in the near future, is an important area of research in rehabilitation counseling education (Bard, Bieschke, Herbert, & Eberz, 2000; Bieschke, 2006). Watson (2012) compared self-efficacy levels of students participating in an online counseling course and students in a face-to-face course. Prior to taking the course, there were no differences in self-efficacy, but following the completion of the courses, those in the online course reported significantly higher levels of self-efficacy. A higher level of self-efficacy and confidence may affect their ability to counsel people with disabilities in a positive manner (Watson, 2012).

Given the infancy of online education in rehabilitation counseling, empirical findings like this can guide the development of curricula for educators, teaching to maximize learning by rehabilitation counseling students to the benefit of individuals with disabilities.

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An additional consideration for counselor educators and researchers is to develop a better understanding of the types of students who choose to enroll in online programs and those who choose to enroll in traditional programs. It may be the case that those students who enroll in online programs already have experience in their chosen profession and may feel more comfortable and confident with their abilities as a counselor (Watson, 2012). Further research is warranted.

Clinical Practice

Pedagogically sound and evidence-based provision at the service delivery level is a necessity in this ever-evolving, technologically driven society to ensure appropriate services to individuals with disabilities. Tate and Pledger (2003) argue that the rapid proliferation of technology in the rehabilitation field is a challenge for researchers and clinicians who have to quickly understand and master new technologies. In addition, they maintain that the administrative staff's perspective on the influence of rapidly changing technology used in clinical settings and the community could contribute to the understanding, appreciation, and use of technological advancements among clinical staff and consumers. The need for continued evaluation of the best practices regarding telerehabilitation and service delivery is a well-justified next step for the rehabilitation field (Tate & Pledger, 2003).

RESEARCH IMPLICATIONS

In view of the fact that the use of online technology in delivering rehabilitation services is still a relatively new phenomenon, it is not surprising that there is currently a general lack of empirical research concerning the effectiveness of using technology as an intervention tool in service delivery and in particular counseling (Telerehabilitation, n.d.). Rehabilitation researchers need to conduct many more controlled experiments and present the evidence to clinicians (and payers) that telerehabilitation is clinically effective. However, the main area of focus for research in telerehabilitation is demonstrating equivalence of assessment and therapy to in-person assessment and therapy (Telerehabilitation, n.d.). As of 2006, only a few health insurers in the United States will reimburse for telerehabilitation services. If continued research can demonstrate that telerehabilitation is equivalent or better to clinical encounters, it is more likely that insurers and Medicare will cover these telerehabilitation services.

Tate and Pledger (2003) strongly advocate for consumers and their families to be more involved with researchers and practitioners in the process of generating meaningful research in telerehabilitation. Including persons with disabilities in the research process promotes empowerment, and it is through this process that consumers can gain mastery over their own lives. This is critical in telerehabilitation given the fact that consumers using this mode need to have a certain amount of experience using computers and online technology. Nevertheless, the inclusion of consumers as researchers and evaluators of research is continually challenged and raises some important questions. Consumer and researcher collaboration can be better understood when researchers further examine the impact of consumer's technological literacy in the process of telerehabilitation (Tate & Pledger, 2003).

Lastly, a socioecological perspective for investigating the uses of technology within an environmental conceptualization of disability by including cultural, individual, and social factors that affect rehabilitation outcomes is suggested. This approach was first introduced by the seminal work of Wright (1983). Her work is considered the introduction of disability as a social issue in the field of psychology, and its impact continues even today. An example of this perspective is research examining access to technology from a cultural approach by exploring the use and accessibility of technology by traditionally underserved racial and ethnic populations. Similar to the focus on accessibility issues such as transportation or ramps, the advent

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of technology and the use of telerehabilitation require researchers to focus on outcomes related to technology.

Insurance, Reimbursement, and Credentials

Insurance coverage and credentials and/or certifications are two important issues related to the technological advancements of rehabilitation. Medicaid and Medicare do not cover telerehabilitation services in all states, and many private insurance companies do not reimburse for online counseling services. The CAM program is located in Ohio, where Medicaid and Medicare pay for telerehabilitation services. Thus, CAM was able to sustain the telerehabilitation services after the federal SAMHSA funding ended. At CAM, telerehabilitation services are billed at the same rate as traditional services, often not the case in other states. The only limitation is state licensing laws currently make it impossible for a counselor to offer telerehabilitation services across a state line.

The establishment of reimbursed telerehabilitation services might influence the continued debate facing educators, policymakers, and clinicians over the development of special credentials that mirror the new technology used in rehabilitation services and telerehabilitation. It may be necessary to develop qualifications and/or certifications that clinicians will be able to obtain to demonstrate requisite skills for the delivery of telerehabilitation as well as standards within the educational curriculum to ensure students are prepared for an ever more technologically advanced work setting.

Ethical Considerations

The Code of Professional Ethics for Rehabilitation Counselors (CPERC) requires counselors to be knowledgeable of the enforceable standards of the profession (Commission on Rehabilitation Councilor Certification, 2009). There are six ethical principles that apply to service delivery in general and to telerehabilitation (Chan, Bishop, Chronister, Lee, & Chiu, 2012; Davis & Jahner, 2010):

- *Autonomy*: to respect the rights of consumers to be self-governing within their social and cultural framework
- *Beneficence*: to do good to others and to promote the well-being of consumers
- *Fidelity*: to be faithful, to keep promises, and to honor the trust placed in rehabilitation counselors
- *Justice*: to be fair in the treatment of all consumers and to provide appropriate services to all
- *Nonmaleficence*: to do no harm
- *Veracity*: to be honest

These general ethical principles and others are found in the CPERC. They apply to the new technological developments and specifically telerehabilitation. However, not all professionals use these rules. Pape and Klein (1986) found that 71.2% of rehabilitation practitioners had never consulted a code of ethics to help solve an ethical dilemma. In addition, ethical codes are very detailed, and counselors may not use them. Counselors who do not use the code as a continued reference are less likely to recognize mandatory standards when they arise and might miss an opportunity to critically think an ethical issue (Markve, 2013). Lack of knowledge of ethical codes increases the possibility of standards violation and possible sanctions for the counselor and elevates the potential for harm to rehabilitation consumers. This can be exacerbated with the use of telerehabilitation.

In addition to the standard ethical issues in rehabilitation counseling, new ethical issues are raised because of telerehabilitation services. Privacy may be violated via the Internet at home or in the workplace, which may expose a consumer's personal details or details about the counseling encounter. Procedures or firewalls should be in place that restricts users from logging into this type of information. Once protection procedures are in place, sensitive topics

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can be discussed (Riemer-Reiss, 2000). Secure portals, similar to those used by CAM, are suggested as a way to protect consumer's confidentiality. Finally, privacy concerns and conforming to Health Insurance Portability and Accountability Act requirements are important issues to be addressed, although using encryption and appropriate firewalls will protect consumers' privacy (Telerehabilitation, n.d.).

CONCLUSIONS

As discussed earlier, technology is instrumental in shaping the field of rehabilitation counselor education and practice. There has been an explosion of online rehabilitation counselor graduate programs and technology-enhanced service delivery. These technologies have overlapping advantages and disadvantages. The overlapping disadvantages include the isolating nature of technology, technological difficulties, and confidentiality issues (Benshoff & Gibbons, 2011; Moore et al., 2009). The major advantages to both include reduced travel time, the ability to reach individuals who may not otherwise have access to education or treatment, and teaching rehabilitation students technological skills that not only benefit them but they can also transfer to the field (Adams et al., 2007; Bejerano, 2008; Oliver et al., 1998; Perry, Dalton, & Edwards, 2008). This is perhaps one of the most important benefits of online education. Graduate students who are primarily educated through the use of technology-enhanced education are prepared to work in settings similar to CAM that provide telerehabilitation services. Telerehabilitation is a mode of delivery that is increasing annually so this skill development is becoming even more important.

With the explosion of technology and disability-related knowledge, rehabilitation educators and service providers can bridge the gap between traditional modes of delivering education and service with technology-based methods as well as provide a format to disseminate knowledge to students and clinicians (Cousin & Deepwell, 2005). Communities of practice are a form of social learning and provide a way to organize and disseminate information as well as work on common goals and share common ideas. This process can facilitate collaborative learning among students, educators, and clinicians (Bezyak, Ditchman, Burke, & Chan, 2013; Openshaw et al., 2008). The advantages or benefits of communities of practice include learning by participation, gaining membership through group identity, and sharing a culture within the community. Educators and practitioners can cultivate communities of practice within distance-based education programs and the rehabilitation field by bringing the right people together, providing the right infrastructure, using the right evaluations, and using the right technologies. The benefits students, educators, and clinicians receive from membership in a community of practice are not only individual carry but can also potentially influence the profession as a whole (Cousin & Deepwell, 2005).

In summary, it is important for the field of rehabilitation including rehabilitation educators, researchers, practitioners, and policymakers to appreciate the growth of online education and telerehabilitation. The use of this technology has increased dramatically and will continue to do so, having an ever-expanding influence in the future roles of rehabilitation counselors.

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