HHS Public Access

Author manuscript

Psychiatr Rehabil J. Author manuscript; available in PMC 2015 March 12.

Published in final edited form as:

Psychiatr Rehabil J. 2014 June ; 37(2): 99–106. doi:10.1037/prj0000070.

The Potential of Technology for Enhancing Individual Placement and Support Supported Employment

Sarah E. Lord, PhD and
Dartmouth Psychiatric Research Center and Center for Technology and Behavioral Health, Geisel School of Medicine, Dartmouth College

Susan R. McGurk, PhD
Boston University Center for Psychiatric Rehabilitation

Joanne Nicholson, PhD, **Elizabeth A. Carpenter-Song, PhD**, and **Justin S. Tauscher, MS, LADC, LCMHC**
Dartmouth Psychiatric Research Center and Center for Technology and Behavioral Health, Geisel School of Medicine, Dartmouth College

Deborah R. Becker, MA, **Sarah J. Swanson, MSW**, **Robert E. Drake, PhD**, and **Gary R. Bond, PhD**
Dartmouth Psychiatric Research Center, Geisel School of Medicine, Dartmouth College

Abstract

Topic—The potential of technology to enhance delivery and outcomes of Individual Placement and Support (IPS) supported employment.

Purpose—IPS supported employment has demonstrated robust success for improving rates of competitive employment among individuals with psychiatric disabilities. Still, a majority of those with serious mental illnesses are not employed (Bond, Drake, & Becker, 2012). The need to promote awareness of IPS and expand services is urgent. In this study, we describe ways that technologies may enhance delivery of IPS supported employment across the care continuum and stakeholder groups. Directions for research are highlighted.

Sources Used—published literature, clinical observations, IPS learning collaborative.

Conclusions and Implications for Practice—Technology has the potential to enhance direct service as well as workflow in the IPS supported employment process, which may lead to improved fidelity and client outcomes. Mobile and cloud technologies open opportunities for collaboration, self-directed care, and ongoing support to help clients obtain and maintain meaningful employment. Research is needed to evaluate efficacy of technology-based approaches for promoting client employment outcomes, to identify provider and organization barriers to using technology for IPS delivery, and to determine effective strategies for implementing technology with IPS in different settings and with diverse client audiences.

Correspondence concerning this article should be addressed to Sarah E. Lord, PhD, Dartmouth Psychiatric Research Center, 85 Mechanic Street Suite B4-1, Lebanon, NH 03766. sarah.e.lord@dartmouth.edu.

Keywords

employment outcomes; fidelity; self-directed care and support; supported employment; technology

The Individual Placement and Support (IPS) supported employment model has demonstrated robust success for improving rates of competitive employment among individuals with psychiatric disabilities (Bond, Drake, Becker, 2008; Bond, Drake, Becker, 2012). Yet, fewer than 15% of people with serious mental illnesses within the public mental health system are currently employed, though a majority want to work (Bond & Drake, 2008; McQuilken et al., 2003). The need to expand IPS services and promote awareness of IPS supported employment among vocational rehabilitation and mental health teams as well as consumers is urgent.

Additionally, despite strong evidence that IPS successfully helps individuals obtain competitive employment, many do not become steady workers, and relatively brief job tenures are common (Bond & Drake, 2008; Cook, Leff, et al., 2005). Thus, strategies to enhance and individualize IPS services to support clients in both obtaining and keeping a job are critical. In this study, we describe ways that existing and emerging technologies have the potential to enhance delivery of IPS supported employment across the care continuum and stakeholders (i.e., consumers as well as the IPS provider team). We describe current technology-based initiatives being undertaken by the Dartmouth Center for Supported Employment Technology as well as other research teams and outline directions for further research in the use of technology to enhance delivery of IPS supported employment for individuals with serious mental illness and other behavioral health disabilities.

The Potential of Technology

The rapid increase in access to the Internet and mobile communication technologies is creating new opportunities to engage people who have either never engaged with mental health services or who have disengaged (Marsch & Lord, in press). The evidence for technology-based behavioral health education, screening, assessment, treatment, and recovery support tools is growing rapidly (Brunette et al., 2011; Carroll et al., 2008; Chiauzzi, Green, Lord, Thum, & Goldstein, 2005; Dallery & Raiff, 2011; Lord et al.,2011; Marsch, 2012; Proudfoot et al., 2003; van der Krieke, Wunderink, Emerencia, de Jonge & Sytema, 2013). These tools constitute approaches to care delivered online or by way of mobile phone or tablet-based applications, either as stand-alone programs or as augments to care delivered by clinicians. Technology-based assessment and intervention approaches can produce outcomes comparable to, or better than, approaches delivered by trained clinicians (Marsch, 2012; Noar, Black, & Pierce, 2009). These therapeutic tools offer the potential to expand the reach of effective care to a broader client base, beyond the boundaries of traditional services. Offering a suite of technology-based tools for behavioral health care holds great promise for meeting increased service demands in light of health care reform under the Affordable Care Act (Pating, Miller, Goplerud, Martin, & Ziedonis, 2012).

The cost of implementation of technology-based care approaches is relatively minimal once developed. Additionally, fidelity of care can be enhanced through standardization of content

accessibility and processes (Marsch & Lord, in press). The ubiquity of technologies allows for dissemination to broader audiences (e.g., all clients in a clinic waiting room) *and* tailoring to individual characteristics and experiences (e.g., gender, previous work, job preferences). Users can access and review content anytime and at their own pace. Multimedia features (i.e., audio, video, text) and interactivity can accommodate different learning styles and cognitive capacities (Shavinina, 1998). Finally, data visualization capabilities and cloud computing offer accessible display of outcome information, flexible dissemination channels within and between service settings, and ready access to collaborative communication and shared resources for consumers and provider teams.

Access and Feasibility of Technology for Individuals With Serious Mental Illness

Internet and mobile technologies are nearly ubiquitous among young people and adults. More than 87% of all adults in the United States subscribe to mobile phone services, and 56% own a smartphone (Smith, 2013). At least 85% of adults 18 and over in the United States use the Internet (Zichuhr & Smith, 2013). Although a majority have home broadband access, nearly two thirds go online via mobile phones (Duggan & Smith, 2013). Although Internet access disparities still exist, socioeconomic and race/ethnicity disparities diminish when access via mobile phones is taken into account (Duggan & Smith, 2013). In addition, many public and health care settings (i.e., libraries, hospitals, community centers, treatment settings) offer computer and Internet capabilities.

Use of computer and mobile technologies by those with serious mental illness is only slightly lower than in the general population (Ben-Zeev et al., 2013). People with mental illness, even those with significant cognitive deficits, can successfully interact with technologies designed with their needs in mind (Chinman et al., 2007; Deegan, Rapp, Holter & Riefer, 2008; Rotondi et al., 2007). Further, clients are willing to use technology to facilitate clinical interactions (Deegan et al., 2008; Woltmann, Wilkniss, Teachout, McHugo & Drake, 2011). What follows is a brief discussion of technology initiatives underway to enhance IPS supported employment across the care continuum and provider team. The discussion is not intended as a systematic review of the literature, but rather to highlight the potential of technology for IPS through description of efforts of the author team as well as other researchers, as determined through peer reviewed published literature (2008–2013) retrieved from common databases (PubMed, PsycINFO) for this specific topic (“technology,” “supported employment”). The discussion has also been informed by routine conversations with the Dartmouth IPS Learning Collaborative, a 12-year-old initiative involving a network of IPS leadership from 16 states in the United States and three European countries, to promote dissemination and implementation of IPS supported employment (Becker, Drake, Bond et al., 2011).

Enhancing Knowledge About IPS: Promoting Awareness

As with translation of any evidence-based approach, newly hired employment specialists need training in IPS and psychiatric rehabilitation. Although IPS trainers work throughout the United States and internationally, rapid staff turnover results in ongoing demand for

training. IPS trainers at the Dartmouth Psychiatric Research Center have developed an online training course for employment specialists and supervisors. The curriculum includes text as well as demonstration videos to model skills. Quizzes throughout ensure learning consolidation. At the end of a module, participants receive a fieldwork assignment and share experiences in a discussion forum with other participants and the course trainers. More than 800 individuals from the United States and international organizations have taken the course since its launch in January 2010. Response has been overwhelmingly positive, with more than 95% indicating they were “highly satisfied” with the course, that it helped them in their work, and that they would recommend it to a colleague (Sarah Swanson, 2013, personal communication).

Studies indicate that close integration of vocational and mental health services and good communication among service providers yields more successful client outcomes (Cook, Lehman, et al., 2005). Yet, vocational rehabilitation counselors may be unfamiliar with the IPS supported employment model and may not understand their essential role in such a program. Our team is expanding the suite of online IPS learning curricula to include courses for vocational rehabilitation counselors and mental health providers to promote broader awareness of IPS among key provider constituents. These easily accessible education resources may increase adoption of IPS by counselors within traditional vocational rehabilitation settings. Future research will examine the efficacy of the online training strategies for fostering collaboration among IPS service providers and for promoting awareness and dissemination of IPS in diverse service agencies.

Engagement in IPS: Putting Knowledge Into Action

Most consumers want to work, yet many do not believe it is possible (Ali, Schur & Blanck, 2011; Bejerholm & Bjorkman, 2011; Mechanic, Blider & McAlpine, 2002; Ramsay et al., 2011). They have lost confidence and hope or have received negative messages from providers or family members (Waynor & Pratt, 2011), fear losing disability benefits (Cook, 2006), or are unaware of effective services (Tschopp, Perkins, Hart-Katuin, Born & Holt, 2007). Technology has the potential to address numerous barriers to employment for individuals with psychiatric disabilities. Technology-based information, offered through a Web site or mobile application, could increase awareness about supported employment, including types of jobs, the job choice and preparation process, expected outcomes, benefits counseling, and follow along supports. Technology can also bring personal testimonies directly to consumers by way of video, audio, or text, thereby promoting engagement.

Technology-based tools to educate consumers about IPS supported employment, promote motivation, and foster initial engagement can seed the first steps to competitive employment. The Dartmouth Employment Decision Support system was developed to promote initial engagement with IPS services (Drake et al., 2010; Haslett, 2013). The tablet-based application includes basic education about IPS, addresses barriers to employment, and facilitates self-referral to IPS services. Clients enter preferences for work and how they wish to handle disclosure of mental illness to employers. At the end of the 20-minute self-directed session, users receive a personalized report and are asked whether they want to meet with an

employment specialist to enroll in IPS. An affirmative response prompts outreach by an employment specialist.

A pilot of the program was conducted with 45 unemployed consumers not enrolled in vocational services. Relative to participants who received an IPS informational brochure, program participants were significantly more likely to self-refer to IPS and to attend an initial meeting with an employment specialist. A majority of consumers found the program easy to use and were highly satisfied with their experience (Haslett, 2013). These results indicate that this easily accessible, brief employment decision support system is a promising entrée into IPS. The simplicity and portability of mobile tablets supports the feasibility for use in a range of community-based organizations, broadening likelihood for linkage to IPS services.

Paving the Path to Employment

Consistent with principles of self-determination in recovery, technology can foster autonomy, empowerment, and self-efficacy by putting tools for expressing preferences, making choices, scheduling services and accessing supports directly in the hands of consumers. Through Internet and mobile applications, consumers can access personalized information on services and medication side effects, develop individualized job plans, and specify the skills and supports they need to prepare for employment, to find a desired job, to succeed in employment, and to change jobs as needed.

Consumers who obtain jobs consistent with their preferences and skills are more satisfied with their jobs and continue working longer than those who obtain jobs not matched to preferences (Kukla & Bond, 2012; Mueser, Becker & Wolfe, 2001). Yet, clients do not always obtain jobs in their preferred area for a number of reasons, including difficulty tracking preferences and changes in preferences over time. A transparent system whereby consumers can automatically document and update employment preferences could empower consumers and improve consumer–job matching by employment specialists.

The Dartmouth Career Profile (Swanson & Becker, 2013) is a semistructured interview that assesses consumer vocational interests and aspirations, strengths, concerns, and prior employment experiences. The profile provides the basis for development of an individualized job search plan. Harnessing the potential of mobile and Web technologies, the Career Profile can be translated to a technology-based delivery format, accessible to both the consumer and employment specialist, to promote collaborative development of a personalized profile that can be accessed for rapid updating and review, either independently or together. The flexible nature of a technology-based profile may enhance efficiency of the employment initiation process, and may increase consumer comfort to share information about sensitive topics, such as legal convictions and substance use. The interactive and dynamic database features of technology can also support consumers in becoming actively involved in creating and updating their profile as they launch on their individualized job search process.

Job Search and Preparation: Putting the Plan Into Action

Consumers appreciate strategies to help organize the employment search process. Low-burden strategies for job seekers to receive reminders regarding their personal job search plan (i.e., Remember to return job application to Apple Store today) could improve the likelihood of obtaining employment. Electronic tools that allow a client to set goals and to program discrete tasks, with timelines and automated reminder prompts, can readily serve this purpose and may be particularly useful for those with cognitive challenges (Steed & Lutzker, 1999; Chang, Chen, & Chou, 2012). A number of standard features of smartphones can also be used to assist clients in the process of looking for work, including navigation features to assist clients in travel to job sites, and calendar and scheduling tools with reminder prompts to organize appointments.

The job interview is an important step toward gaining successful employment, and is often a significant challenge for people with psychiatric disabilities. Researchers are using virtual reality techniques to create immersive job interview simulation experiences to foster job interview skills (Bell & Weinstein, 2011). In this prototype program, individuals can practice the interview process, obtain support from a “virtual coach” that provides feedback and encouragement during the simulated interview, and receive a written transcription and feedback about the interview process for further review and practice. Clients complete a job application about their employment history and skills. This information is used to personalize questions asked by the simulated employer.

In a pilot evaluation clients found the prototype interview easy to use, engaging, and helpful, and a majority endorsed feeling less anxious about the interview process and indicated they would use the program again (Bell & Weinstein, 2011). These preliminary results point to the promise of immersive technologies for providing safe and accessible skill-building experiences for individuals. Such simulation technology has the potential to aid in other areas of psychiatric rehabilitation to promote a range of skill learning. Similarly, well-executed and target-relevant video demonstrations can be powerful tools for skills training (Baranowski, Buday, Thompson & Baranowski, 2008; Corby, Enguidanos & Kay, 1996;McGraw-Hunter, Faw & Davis, 2006).

Overcoming Barriers to Employment Success

Despite the strong success of IPS for promoting competitive employment among those with psychiatric disabilities, a significant portion do not become steady workers and brief job tenures are common (Cook, Leff, et al., 2005). Factors associated with job retention include illness management, neurocognitive capacities (McGurk & Mueser, 2004), previous work history (Bond & Drake, 2008), the extent to which a job matches interests and competencies (Henry, 2004; Kukla & Bond, 2012), motivation to work (Dunn, 2008), possessing skills and self-efficacy to do the work (McGurk & Mueser, 2006a; Waghorn, Chant & King, 2005; Waghorn, Chant & King, 2007), and ongoing support (Bond & Kukla, 2011; McGurk & Mueser, 2006b; Murphy, Mullen & Spagnolo, 2005). Technologies can help to overcome many of these common barriers to employment success.

Overcoming Cognitive Challenges

Cognitive functioning is often impaired in people with serious mental illness and is associated with poor vocational functioning, including in persons enrolled in supported employment (McGurk & Mueser, 2004). Strategies to enhance cognitive functioning are therefore of interest in persons with serious mental illness wishing to improve their job prospects. Cognitive enhancement strategies include two distinct approaches: restorative task practice using cognitive exercises designed to improve cognitive skills, and coping, or compensatory, strategies designed to help people "work around" persisting impairments.

Thinking Skills for Work (McGurk, Mueser, Feldman, Wolfe, & Pascaris, 2007) is a cognitive enhancement program integrated with supported employment services, and utilizes restorative task practice and compensatory strategies. The program has been shown to improve cognitive and work outcomes in clients enrolled in vocational rehabilitation (Lindenmayer et al., 2008; McGurk, Mueser, DeRosa & Wolfe, 2009), including IPS supported employment (McGurk, Mueser & Pascaris, 2005; McGurk & Mueser, 2006a). Clients complete cognitive exercises using a standard computer software package. A program facilitator, or cognitive specialist, is a member of the supported employment team and facilitates the cognitive practice and development of coping strategies for the client to practice and implement in the job search and on the job. A randomized, controlled trial comparing supported employment alone to the combination of Thinking Skills for Work and supported employment showed that consumers in the combined intervention improved more in cognitive functioning and work outcomes. (McGurk et al., 2007).

The benefits of Thinking Skills for Work on cognitive functioning and job performance can inform strategies for use of mobile technologies for cognitive enhancement. For example, mobile applications could allow continuous access to restorative task practice for client-initiated skill practice, which can serve to extend and/or maintain benefits achieved from participation in time-limited, agency-based cognitive programs. Coping strategies, such as an invisible prompt (e.g., a vibrating phone), can ensure task attention in a client vulnerable to distraction. Audio and video features can be used to document employment experiences and record information to support working memory, and camera features can be used to document job task sequences to assist clients in task completion. The potential uses of mobile devices have particular relevance in cases of limited client contact, such as when clients inconsistently attend appointments with the employment specialist, or when work-site access to the employment specialist is limited (i.e., clients not disclosing the use of such supports to their employer).

Facilitating Job Matching

A key component of the IPS process is to foster job opportunities that align with consumers' preferences and interests. Job matching is optimized when employment specialists have a clear understanding of client preferences, and can pursue job development activities to meet these preferences. Harnessing of cloud computing and mobile technologies for documentation and sharing of job development employer contacts could build efficiencies into the job development process both within and across agencies. Alignment of client preference information with job development databases could facilitate more widespread job

placement and more targeted matching of consumer preferences with jobs. To this end, a number of states are already experimenting with use of commercial online customer relationship management systems to document job development activities.

Fostering Ongoing Support

Ongoing support for clients after they have obtained employment is associated with job tenure, and *quality* of follow-along support is key (Bond & Kukla, 2011). Strategies that promote real-time communication between consumers and employment specialists about experiences and progress and that allow clients to readily access support resources at the workplace could increase job tenure. Electronic dashboard features could allow clients and provider teams to monitor client progress and provide timely feedback and support when it is needed the most. Mobile self-management applications for consumers could foster job engagement, facilitate task prompting and practical problem-solving, promote self-care, and encourage connection with personal and professional social supports.

Enhancing IPS Care Coordination With Technology

The success of IPS supported employment depends on the degree to which the intervention is delivered with fidelity (Drake et al., 2012). As a team-based support intervention, communication among stakeholders and smooth care coordination contribute to fidelity (Drake et al., 2012). A typical employment specialist has an average caseload of 20, all at various stages of the employment process. Community behavioral health care has been slow to adopt electronic health record systems and other technologies to promote care delivery, despite the strong emphasis on technology associated with the meaningful use criteria of the Affordable Care Act (Molfenter, Capoccia, Boyle & Sherbeck, 2012). IPS supported employment is no exception; a majority of IPS practitioners rely on traditional in-person direct service and paper-based documentation in the field.

Technologies can pave the way for more accessible, and therefore perhaps more accurate, documentation of field efforts and a greater ability to track client progress and outcomes. Consider, for example, the utility of a mobile-accessible electronic dashboard system that provides easy-to-interpret alerts for employment specialists and supervisors about clients stalled in progress on their employment plan. Such a system could facilitate ready triaging and targeting of attention by the employment specialist. An analogous system for supervisors could help identify employment specialists in need of extra supervision or assistance. Mobile applications that include booster training modules of key IPS delivery principles could allow for on-demand, on-the-job access to strategies and resources for employment specialists and supervisors. Online social media outlets, such as discussion boards, that allow IPS providers to share experiences and strategies with colleagues in the United States and internationally can help foster support in delivery of IPS services, as well as dissemination of IPS to broader client populations.

Moving IPS to the Future With Technology

The examples noted above highlight the potential for technology to build efficiencies in IPS care management and coordination so providers can reach a broader client base with

targeted services. Technologies also present tremendous opportunities for cognitive enhancement and delivery of job-related supports at the work place to help clients obtain and retain the job they want. The potential ways in which technology can enhance standardization and streamlining of IPS care delivery in training, collaborative planning, communication, self-management support, and data management are depicted in Table 1. The author team is currently working on developing an integrated suite of technology tools that aligns with the constructs outlined this table. The introduction of technologies for delivery of IPS will pave the way for exciting research opportunities. For example, research is needed to examine the efficacy of different technology-based approaches for fostering client employment outcomes as well as for promoting reach and cost-efficiencies of IPS delivery. Comparative effectiveness trials will yield valuable information about the relative value of technology-based approaches to IPS compared with traditional delivery methods.

Research on the potential impact of technologies for IPS is in its infancy. There is still much to be learned about client, provider, and organizational barriers to use of technology for supported employment and factors that facilitate client and provider adoption and use of technologies. This research could include training needs for clinicians to facilitate use of technologies with clients. Research is also needed to explore strategies to promote implementation of technology for IPS with diverse client populations, such as those with primary substance use disorder or posttraumatic stress disorder, in different care settings, such as substance use treatment settings and primary care offices. Information garnered from studies focused on implementation of technology-based approaches for delivery of IPS supported employment may inform models of technology approaches for other evidence-based care practices for individuals with psychiatric disabilities.

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Table 1

Potential for Technology to Enhance IPS Supported Employment Process

Product domain	Stakeholder groups				
	Consumers and families	Employment specialists	Vocational rehabilitation	Administrators	Mental health team	Employers
				Supervisors / Trainers		
Instructional Resources to increase knowledge of and access to IPS	• Online IPS education and shared-decision making for engagement	• Online IPS training	• Online IPS training	• Online IPS training / • Online IPS training	• Online IPS training	• Online IPS education
Collaborative Planning Tools to elicit preferences and encourage consumer ownership	• Career profile • Job search plan • Follow along support plan • Workplace coping plans	• Career profile • Job search plan • Follow along support plan	• Career profile • Job search plan • Follow along support plan Service integration plan	• Supervision plan / • Training plan	• Service integration plan	
Communication to enhance collaboration among & between stakeholders	• On demand outreach • Discussion forum	• On demand outreach • Discussion forum	• On demand outreach	• On demand outreach • Discussion forum / • On demand outreach • Discussion forum	• On demand outreach • Discussion forum	• On demand outreach • Discussion forum
Self-Management Support Tools to aid in maintaining successful employment	• Self-care • Coping skills • Goal setting • Time management • Task prompting & reminders • IPS resource library	• Goal setting • Time management • Task prompting & reminders • IPS resource library	• Goal setting • Time management • Task prompting & reminders • IPS resource library	• Goal setting • Time management • Task prompting & reminders • IPS resource library / • IPS resource library	• IPS resource library	• IPS resource library
Data Management to enhance service quality	• Employment and service data displayed at multiple levels of aggregation • Fidelity reports prepopulated with consumer, employment specialist, and supervisor data					*Area for future work*