

SIS Quarterly Practice Connections

A Supplement to *OT Practice*

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Technology

Technology use spans across all ages, settings, and occupations, and is an integral part of daily life. Technological advancements have given us a variety of tools for working with clients, such as assistive technology, applications, and telehealth, just to name a few. Technology also helps us stay organized and up to date by providing the latest information on our profession at the touch of a button.

This issue of the *SIS Quarterly Practice Connections* focuses on technology and how it can be integrated into helping our clients live life to its fullest. Examples vary from using telehealth to help an older adult client get the services she needs, to telepresence robotics for those who can't physically be in the workplace.

A pdf of this issue is on AOTA's website in the Publications section, and individual articles are posted within the appropriate SIS pages.

What do you think? Please let us know at sis@aota.org or join the discussions at OTConnections.org.

Donna M. Costa, DHS, OTR/L, FAOTA
Special Interest Section Council Chairperson

Special Interest Section Guide

AM	Administration & Management	MH	Mental Health
DD	Developmental Disabilities	PD	Physical Disabilities
E	Education	SI	Sensory Integration
EIS	Early Intervention & School	T	Technology
G	Gerontology	WI	Work & Industry
HCH	Home & Community Health		

Featured in this edition: Welcome messages from the Education, Gerontology, Physical Disabilities, and Technology SIS Chairpersons

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WPS is proud to announce that Diana Henry (MS, OTR/L, FAOTA), co-author of the SPM & SPM-P, will be co-presenting at the 2017 AOTA Annual Conference in Philadelphia, PA

Thursday, March 30, 2017, 2:00pm–3:30pm

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The New Sensory Processing Measure (SPM-2): An Assessment Tool to Meet Vision 2025, Best Practice, and Health and Well-Being Initiatives

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- Send comments or submissions to sis@aota.org.
- For more information on the Special Interest Sections, visit www.aota.org/sis.



Correction

In the article “A Review of Pediatric Assessment Tools for Sensory Integration,” in the August 2016 issue, the Sensory Integration and Praxis Tests (SIPT) were omitted from the table of assessment tools of sensory processing and integration. The online article has been updated to correct this error (<http://bit.ly/2bBwMWI>). The Sensory Integration Special Interest Section feels strongly about sound and scientific measurement in occupational therapy. The SIPT, a significant contributor to our practice area, is considered the gold standard in assessment of sensory functions as well as occupational therapy's current and only standardized assessment of pediatric tactile and praxis functions.

Newly Formatted Evidence-Based Webpages

AOTA's newly formatted Evidence-Based Practice webpages allow for easier access of evidence. These webpages include a variety of resources, among them Critically Appraised Topics (CATs), brief and digestible summaries of systematic reviews on topics that span a variety of practice areas. These resources are free to AOTA members.

Mission Statement

SIS Quarterly Practice Connections focuses on the role and application of research and other evidence to occupation-centered practice in areas of interest to members. It reflects the applicability and value of collaboration across specialty areas and settings.

Sponsored in part by A.T. Still University

Using Technology With Individuals With Developmental Disabilities to Foster Social Skills and Participation

DD

Rondalyn Whitney, PhD, OTR/L, FAOTA

The use of virtual reality and video games is increasingly prevalent in rehabilitation, and occupational therapy practitioners are taking advantage of the unprecedented array of opportunities available to clients in the virtual context. *Virtual context* refers to an environment in which social communication occurs in the absence of physical contact with individuals we deem to have social importance to us (American Occupational Therapy Association [AOTA], 2014). Video games have shown strong potential to positively affect learning and health, especially through their ability to successfully influence time use and identity formation (Griffiths, 2002; McGonigal, 2011).

Occupational therapy practitioners and game developers have much in common. For example, both groups of professionals enable others to build an inner sense of resilience as they engage in the day-to-day pursuit of meaningful occupations. Both groups cultivate strategies to design individualized, graded opportunities, so individuals can develop the capacity for social engagement and feel the exhilaration of triumph over adversity.

Gaming technology is becoming more widely available. For example, more than 1 million Apple iOS and Google Android applications (apps) are available for mobile devices (Gentry, 2015). Gaming, when used as an intervention, allows occupational therapy practitioners to easily track outcomes and record progress, compared with typical methods of progress monitoring (Proffitt & Foreman 2014). For example, games use algorithms to track progress and promote self-motivated accomplishment. Algorithmic progress tracking is easily applicable to therapeutic purposes, modifiable to encourage the just-right challenge, and adaptable for multiple contexts.

Occupational therapy practitioners think in algorithms but often lack the skills to convert that thinking into programming language—collaboration allows programmers to take advantage of therapeutic training when they create the algorithms. For example, identifying children who would be compatible for social skills intervention (i.e., groups) was a task that took significant clinical reasoning time from the senior therapist at a clinic. Working with a programmer, learner characteristics and needs were translated to a simple Excel spreadsheet (i.e., an algorithm) that allowed anyone in the clinic to assign group members more quickly than and as well as the senior therapist had previously done this task.

Occupational therapy practitioners and clinical researchers are exploring the use of video game play as a mechanism for optimizing therapeutic gains and reducing any negative effects of gaming. Mazurek and Engelhardt (2013) found that boys with inattention are

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at greater risk for poor habits related to video game play while having a greater affinity for role playing games than their peers. Creating adaptive performance patterns (habits, routines, occupational roles) for video play can support adaptive habits. Understanding that game play and role play are meaningful occupations can be used to “hack” social development, habit training, and functional attention for this same group. Clinicians may consider using the skills and interests individuals have in gaming as a strengths-based approach in therapy, identifying preferred activities, abilities, and interests.

Leisure and social participation are important areas of occupation; watching “asocial” individuals engage in virtual game play suggests an opportunity for using occupation as both intervention and outcome. Therapists are already working in this direction: AOTA

(n.d.) has collected more than 300 apps that have client-centered relevance to clinical outcomes, and the organization Games for Health Project, sponsored by the Robert Wood Johnson Foundation, provides occupational therapy practitioners and other health care providers with the opportunity to explore the many ways video games and health intersect (Games for Health, n.d.). For example, the Games for Health Twitter feed includes links to games for learning, immersive experiences that improve body and mind, and playful games to fight depression in seniors.

Individuals with autism spectrum disorders (ASDs) may benefit from the inclusion of gaming into their occupational therapy intervention plans. Social engagement and perceived support have been shown to provide a protective factor against feelings of loneliness

Table 1. How Gaming Technology Could be Used to Promote Social Engagement for Individuals With Developmental Disabilities

Age: Elementary School

Developmental expectations: Develop skills to make and keep friends, Learn to self-assess one’s own behaviors, Learn modulation in ways that promote and maintain relationships, Learn frustration tolerance necessary for habits of persistence (necessary for academic success), Negotiate conflict, Problem solve/use critical reasoning

Problems	Potential Barriers	Possible Technology Tools for Interventions
<ul style="list-style-type: none"> ➢ Non-engaging social behaviors ➢ Disruptive behavior ➢ Developmental delays affecting activities of daily living (ADLs; i.e., poor grooming, hygiene) ➢ Poor insight into disability ➢ Developmental delay in the area of social emotional competency ➢ Poor frustration tolerance ➢ Limited leisure interests ➢ Poor self-concept ➢ Poor skills in instrumental ADLs ➢ Limitations in performance patterns necessary for academic success ➢ At risk for mental health issues (depression, anxiety) 	<ul style="list-style-type: none"> ➢ Egocentrism (hyper focus on one’s own interests) ➢ Lack of awareness of social rules and expectations within multiple/changing contexts ➢ Not knowing one’s own interests and occupations that would further occupational engagement and satisfaction ➢ Difficulty finding shared meaningful occupations (what do you have in common?) ➢ Geographic isolation—lack of social opportunities and potential partners for friendship ➢ Inflexibility—social engagement <i>only</i> happens in face-to-face encounters 	<ul style="list-style-type: none"> ➢ During a multiplayer game with one peer, demonstrate use of learned strategies to reduce and modulate frustration ➢ Demonstrate team-based problem-solving skills during completion of assignment (i.e., roller coaster <i>WebQuest</i>, [Glencoe Online, 2002]) without display of socially disruptive behaviors ➢ Identify three friends to text or iChat to support homework completion ➢ Use <i>Chore Wars</i> (Davis, 2006) to identify group role and negotiate for ideas during assigned classroom work ➢ Demonstrate the ability to identify and solve problems related to academic success; work in small groups to create online games and study tools (Quizlet, 2009) to support learning

Age: Middle School

Developmental expectations: Form one’s identity within sociocultural contexts, Become concerned with appearance, Learn how to “fit in,” Navigate gender differences, Form positive interactions with peers and adults across multiple contexts

Age: High School

Developmental expectations: Develop skills for close relationships (intimacy vs. isolation) necessary for team projects, Develop skills for close relationships to support safety, Recognize and perform one’s role in academic groups, Listen to others in group and one-on-one interactions to solve assigned and anticipated performance problems

Problems for Middle School and High School	Potential Barriers	Possible Technology Tools for Interventions
<ul style="list-style-type: none"> ➢ Difficulty finding friends/shared interests ➢ Poor insight into social norms ➢ Non-engaging social behaviors ➢ Sensory problems affecting ADLs (i.e., poor grooming, hygiene) ➢ Poor frustration tolerance ➢ Vulnerable to exploitation (unable to recognize true friendship and mal-intended attention) ➢ Limited range of interests, which prevents employability options ➢ Limited social competency, which affects job acquisition ➢ Rigidity of thought, which affects flexibility/post-secondary options 	<ul style="list-style-type: none"> ➢ Poor awareness of social rules and expectations within multiple/changing contexts creates frustration and withdrawal, which further reduces opportunities for learning and growth ➢ Fewer occasions for being in cohesive social groups—isolated from established groups through which deepening satisfying/ common interests during teen years (i.e., “hanging out”) ➢ Geographic isolation—lack of social opportunities and potential partners for friendship, which breaks down post-secondary school—and not having skills to form new friendships ➢ Believing social engagement <i>only</i> happens in face-to-face encounters but having limited access to like-minded friends in the school social community 	<ul style="list-style-type: none"> ➢ Create school assignments that leverage unique interests (e.g., identify group role [leader, scribe, data guy, etc.] during group project) ➢ Demonstrate problem-solving skills that show SWOT analysis of team members’ strengths and weaknesses and how those contribute to the project’s success or failure ➢ Identify three friends to text or iChat to support homework completion ➢ Use online networking tools to find four individuals who share common interests and create a project that will add to an ePortfolio ➢ Compare and contrast available apps that would support greater employability skills

Example: An after-school enrichment program is created by the occupational therapist for middle school and high school students. Students learn to use technology as a tool for social interaction (i.e., smart gaming); work in face-to-face and online teams to solve problems and complete academic assignments; and participate in a group focused on improving online safety (i.e., strategies to address and reduce cyberbullying; how to identify online scams, cyber threats, and cyber predators).

in adolescent boys with ASD (Lasgaard, Nielsen, Eriksen & Goossens, 2010), yet students with developmental disabilities continue to report social isolation and social dissatisfaction, even in educational environments with enriched therapeutic support (Locke, Ishijim, Kasari, & London, 2010). Further, wanting to be part of a friendship, but not having friends, is considered to be a predictor of poor health outcomes (Berkman & Syme, 1979; Cacioppo & Patrick, 2009). Occupational therapy practitioners can use the virtual context to help individuals with ASD cultivate social relationships that are based on trust, mutual obligations, and respect within a community of gamers.

Affinity Adventure (Whitney & Robson, 2015) is an interactive video game for individuals with ASD and related developmental disabilities aims to “hack reality” by structuring an experience that motivates players to participate in the step-by-step process of making a friend. Along the way, players learn about their own unique interests and strengths, as well as areas of “social coolness” that they can improve and practice, both in the virtual world and the real one. Other examples of gaming tools that can be used with this population include *Chore Wars* (Davis, 2006) and roller coaster *WebQuest* (Glencoe Online, 2002). Table 1 provides examples of clinical problems that could be addressed by using different gaming tools at different times during development.

Conclusion

Occupational therapy practitioners can use virtual reality, including video games, to support the acquisition of many different skills with individuals with developmental disabilities. Video games can be integrated into an individualized and graded occupational therapy intervention plan to promote social engagement. In addition, video games may provide some individuals with developmental disabilities with a sense of mastery pleasure that translates to other social contexts.

Additional Resources

- iStrong—Interest-based careers (<http://www.surpassyourgoal.com/product/the-strong-interest-inventory-istrong/>)
- Discovery Kids—Build your own roller coaster (<http://discoverykids.com/games/build-a-coaster>)
- Jane McGonigal's Ted Talk: Gaming Can Make a Better World (https://www.ted.com/talks/jane_mcgonigal_gaming_can_make_a_better_world?language=en)

References

- American Occupational Therapy Association. (n.d.). Children and youth apps. Retrieved from <http://www.aota.org/Practice/Children-Youth/CY-Apps.aspx>
- American Occupational Therapy Association. (2014). Occupational therapy practice framework: Domain and process (3rd ed.). *American Journal of Occupational Therapy*, 68(Suppl. 1). <http://dx.doi.org/10.5014/ajot.2014.682006>
- Berkman L. F., & Syme, S. L. (1979). Social networks, host resistance and mortality: A nine-year follow-up study of Alameda County residents. *American Journal of Epidemiology*, 109, 186–204.
- Cacioppo, J., & Patrick, W. (2009). *Loneliness: Human nature and the need for social connection*. New York: Norton.
- Davis, K. (2006). *Chore Wars* [PC game]. Retrieved from <http://www.chorewars.com>.
- Games for Health (n.d.). About the Games for Health project. Retrieved from <https://gamesforhealth.org/about/>
- Gentry, T. (2015, September). Mobile technologies as vocational supports for workers with cognitive-behavioral challenges. *Technology Special Interest Section Quarterly*, 25(3), 1–4.
- Glencoe Online. (2002). An Internet WebQuest: Roller coaster physics. Retrieved from <http://www.glencoe.com/sec/science/webquest/content/rollercoast.shtml>
- Griffiths, M. (2002). The educational benefits of videogames. *Education and Health*, 20(3), 47–51.
- Lasgaard, M. A., Nielsen, A., Eriksen, M. E., & Goossens, L. (2010). Loneliness and social support in adolescent boys with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 40, 218–226. <http://dx.doi.org/10.1007/s10803-009-0851-z>
- Locke, J., Ishijim, E., Kasari, C., & London, N. (2010). Loneliness, friendship quality and the social networks of adolescents with high-functioning autism in an inclusive school setting. *Journal of Research in Special Educational Needs*, 10, 74–81. <http://dx.doi.org/10.1111/j.1471-3802.2010.01148.x>
- Mazurek, M. O., & Engelhardt, C. R. (2013). Video game use and problem behaviors in boys with autism spectrum disorders. *Research in Autism Spectrum Disorders*, 7, 316–324.
- McGonigal, J. (2011). *Reality is broken: Why games make us better and how they can change the world*. New York: Penguin.
- Proffitt, R., & Foreman, M. (2014, September). Low-cost virtual reality and game-based technologies in rehabilitation. *Technology Special Interest Section Quarterly*, 24(3), 1–3.
- Quizlet. (2009). Quizlet. Retrieved from <https://quizlet.com>.
- Whitney, R., & Robson, K. (2015, April). *Building social skills through community based activities: The affinity adventure*. Presentation at the AOTA Annual Conference & Expo, Nashville, TN.
- Rondalyn Whitney**, PhD, OTR/L, FAOTA, is founding chairperson of Occupational Therapy at Clarkson University in Potsdam, New York. Her research focuses on family quality of life when parenting a child with a disability—primarily ASD and ADHD—and the use of technology as a method to reduce socioeconomic and geographic barriers. Her work on the power of online gaming has evolved from her collaboration with Kraig Robson of Isodynamics. She can be reached at whitneyrondalyn@gmail.com.

About the Developmental Disabilities SIS

The Developmental Disabilities Special Interest Section (DDDIS) focuses on how occupational therapy assessment and intervention can facilitate the inclusion of individuals with developmental disabilities across the lifespan in home, school, work, and community life. The DDSIS provides a forum for practitioners, educators, students, and researchers to exchange information and strategies and to network by highlighting best practice, current trends, and research updates.

- Meet the DDSIS committee members at www.aota.org/DDDIS.
- Join the OT Connections discussion at http://otconnections.aota.org/sis_forums/f/11.aspx.



AOTA Critically Appraised Topic Series: Autism Spectrum Disorder

A Product of the American Occupational Therapy Association's Evidence-Based Practice Project

This Critically Appraised Topic (CAT) is one in a series of systematic reviews summarizing the evidence related to autism spectrum disorder. For more information on the methodology and to read additional CATs in the series, visit <https://www.aota.org/Practice/Children-Youth/Evidence-based.aspx#autism>.

Focused Question

What is the evidence for the effectiveness of interventions within the scope of occupational therapy practice to improve social communication for persons with autism spectrum disorder (ASD)?

Clinical Scenario:

Current estimates indicate that 1 in 68 children in the United States has an autism spectrum disorder (ASD; Centers for Disease Control and Prevention, 2014). In addition, many adolescents and adults live with the disorder. The diagnostic criteria for ASD include impairment in social communication skills and the presence of restricted and repetitive behaviors and patterns of interest (American Psychiatric Association, 2013). Difficulties with social communication can significantly interfere with function and participation. Occupational therapy practitioners can help individuals with ASD engage in daily activities such as education, selfcare, play, leisure, and work. Interventions occur in many different settings including outpatient, school-based, and early intervention services. Occupational therapy practitioners working with individuals with ASD must have a clear understanding of the social communication difficulties that are central to the diagnosis in order to provide effective treatment across a wide range of occupations. The purpose of this systematic review is to summarize current evidence for social communication interventions for individuals with ASD.

Summary of Key Findings:

Twenty-two Level I, one Level II, and one Level III articles were included in this review. Themes included the Picture Exchange Communication System (PECS), naturalistic behavioral interventions (e.g., milieu therapy, functional communication training, pivotal response training), developmental interventions (e.g., DIR/Floortime® [Developmental Individual differences Relationship-based]), classroom-based interventions (e.g., TEACHH), parent-mediated interventions (e.g., PACT, Autism 123), sensory-motor (e.g., REST), imitation training, and joint attention training.

PECS (strength of evidence = strong)

Two Level I studies showed small to moderate improvements in social communication and socialization, with the best effects in younger children and those with comorbid intellectual disability. Three Level I studies noted improvements in rate of initiation of communication and use of PECS. However, effects were not maintained at 10 months. One Level II study indicated that PECS was more effective than conventional language therapy in improving social behaviors, cooperative play, joint attention, requests, and initiations.

Naturalistic behavioral (strength of evidence = moderate)

Three Level I systematic reviews support improvements in joint attention, communication initiations, requesting, and spontaneous verb use.

Developmental (strength of evidence = moderate)

Two Level I systematic reviews reported small, positive gains in spontaneous communication and parent-child interactions. There were, however, mixed results, with some studies showing no effect. One Level III study resulted in increased spontaneous verbalizations and imitation.

Classroom-Based (strength of evidence = insufficient)

One Level I systematic review indicated that most studies were of low quality and findings were mixed.

Parent-Mediated (strength of evidence = strong)

Three Level I randomized controlled trials noted improvements in initiations, joint attention, reciprocal social interaction, vocalizations, and pointing. The best results were reported for Autism 1-2-3 and PACT. One Level I systematic review indicated improvements in parent-child interactions and communication behavior.

Sensory-Motor (strength of evidence = insufficient)

Two Level I studies, both systematic reviews, noted that a variety of interventions report mixed results on social outcomes. In general, studies included in these reviews were of low quality.

Imitation Training (strength of evidence = moderate)

Two Level I randomized controlled trials showed improvements in elicited and spontaneous imitation, joint attention and social-emotional skills. Children with higher pretreatment play skills benefited most.

Joint attention training (strength of evidence = strong)

Joint attention: Three Level I randomized controlled trials noted improvements in joint attention, initiation, and responding in intervention groups. Effect sizes for these studies were moderate to large.

Social curriculum focused on joint attention: One Level I randomized controlled trial showed improvements in socially engaged imitation, but not in joint attention or shared positive affect. Gains were maintained at 6 months.

Bottom Line for Occupational Therapy Practice:

The strongest evidence exists for PECS, joint attention, and parent-mediated strategies to improve social communication in children with ASD. Occupational therapy practitioners should consider using PECS as part of a comprehensive intervention to improve social participation. Parent-mediated interventions are particularly effective in early intervention and have shown positive effects for both child behavior and parent-child interactions. In particular, joint attention behavior has been observed to increase following parent- or caregiver-mediated interventions. Joint attention is a prerequisite for engaging in more complex activities related to the occupation of social participation. Occupational therapy practitioners should consider facilitating caregiver-mediated joint attention interventions as part of a comprehensive early intervention for clients with ASD.

Naturalistic behavioral, developmental, and imitation training also appear to be effective but require further investigation. This includes strategies such as milieu therapy, functional communication training, DIR/Floortime® and pivotal response training. Occupational therapy practitioners should proceed with caution when implementing these strategies to improve social communication in clients with ASD because further research is needed to systematically explore outcomes in these areas.

There is insufficient evidence at this time to support the use of classroom-based and sensorymotor strategies. Occupational therapy practitioners should consider the use of other techniques to improve social communication in clients with ASD.

This work is based on the evidence-based literature review completed by

Kelly J. Tanner, PhD, OTR/L; Brittany Hand, MOT, OTR/L; Gjyn O'Toole, MEdStud, GradDip TEFL, BA, Dip Occ Therapy; and Alison E. Lane, PhD, OTR/L.

References can be found at <http://bit.ly/2bxz6dx>.

Empowering Stakeholders Through Data-Driven Decision Making

SI Diana A. Henry, MS, OTR/L, FAOTA; and Gayle Lindsay, OTD, OTR/L

Data-driven decision making (DDDM) is designed to organize and guide reasoning and “provides a framework for reasoning through the occupational therapy process with a focus on utilization of data to guide and measure outcomes” (Schaaf, 2015, p. 2). Occupational therapy practitioners can use DDDM to empower team members or stakeholders (family, community members, and school staff who are in a child’s life) when addressing participation issues across environments. This article explores collecting data, challenges for practitioners, using an electronic format for evaluation, and a case example highlighting a tool for addressing sensory processing.

Researchers emphasize the importance of capturing the “stakeholders’ perception of [the child’s] strength and participation challenges” (Schaaf & Mailloux, 2015, p. 48) because sensory features can affect a child’s occupations, as well as family and school routines. Therefore, it is critical to empower the stakeholders when addressing sensory integration within their individual contexts. The systematic approach of DDDM assists practitioners in using clinical reasoning and data collection (Schaaf, 2015).

When time is limited, an electronic navigation tool to score assessments combined with an electronic sorting program based on therapists’ clinical reasoning will help to answer the question, “What’s next?” Information provided through both of these electronic tools must be based on careful standardized assessment and developed from observations, across multiple environments, of the child’s participation challenges and strengths, including his or her sensory processing abilities. The tools should support practitioners in using clinical reasoning and consultation skills in the intervention process. When these tools are used as a springboard for guiding the stakeholders in brainstorming, idea generation, and problem solving, this team of individuals can develop the “capacity building” skills that will make them the experts in supporting the child in each of their own environments (Henry, 2014). This may make the process of service delivery in schools, homes, hospitals, and outpatient clinics more thorough and efficient.

The American Occupational Therapy Association (AOTA; 2014), the Patient Protection and Affordable Care Act (2010), and the Centers for Medicare & Medicaid Services policy (Gasparini, Champagne, Stephany, Hudson, & Fuchs, 2015) identify best practice

as involving the child’s family and school staff in goal setting and intervention. When addressing challenges in sensory integration, the stakeholders are pivotal beyond the treatment room in supporting the child for improved behavioral and functional outcomes throughout the child’s life.

Why Practitioners Should Collect Data

Occupational therapy practitioners must use data to monitor progress, make decisions, and demonstrate efficacy (Laverdure, Henry, & Schefkind, 2015). AOTA’s Code of Ethics (2015) requires recording and reporting client outcomes (AOTA, 2015), and AOTA’s Centennial Vision (2007) calls us to use evidence-based practice. In addition, progress monitoring is legally and ethically mandated by several federal laws including the Individuals with Disabilities Education Improvement Act of 2004, which requires ongoing measurement of student progress, and the Every Student Succeeds Act, which requires authentic assessment and progress monitoring (U.S. Department of Education, 2016).

Challenges

Research is pivotal for implementing best practice, yet many practitioners in the “trenches” are challenged by job descriptions that do not include research time in their workload. Although teamwork is often expected, existing systems are not always set up for extensive collaboration with “outside” stakeholders (Barnes & Turner, 2001). Personal experience, and conversations with several therapists in public schools and in outpatient hospital settings, reveal that time and organizational structure for communication, team meetings, and financial compensation are often lacking.

Research is important to maintain the viability of our profession, and it is essential for translating the outcomes of clinical research into practice. Occupational therapy practitioners are challenged with time constraints to achieve productivity levels, while simultaneously engaging in professional pursuits. These constraints affect the ability to engage in research activities in the workplace, resulting in a dearth of evidence to support strategy suggestions for key stakeholders to implement in their individual environments (Bennett et al., 2003). Lack of time, mentorship, and support from administrators often serve as barriers to evidence-based practice. A culture must be established that is dedicated to research. Electronic navigation tools that score assessments and sort individual test items reduce time barriers and can facilitate the process of discovery necessary to collect ongoing data to guide best practice.

One application that can be explored is when occupational therapists suggest sensory-based strategies to stakeholders. This recommendation does not always include standardized assessments and evaluation results. In addition, occupational therapists may choose sensory-based strategies based on what they’re most familiar with.

Electronic Format for Evaluation, Scoring, Choosing Strategies, and Data Collection

We now have the ability to analyze a greater quantity of data with more efficiency through technology than we could with manual methods (Agus, 2016). One resource is the Sensory Processing Measure (SPM; Parham, Ecker, Miller Kuhaneck, Henry, & Glennon, 2007), a rating scale designed for paper or electronic completion by stakeholders. The SPM is available through a secure platform link that meets HIPAA requirements. All stakeholders have the ability to

About the Sensory Integration SIS

The Sensory Integration Special Interest Section (SIS) focuses on the research and development of sensory integration theory, assessment, and intervention as applied in occupational therapy practice. Sensory integration is used to enrich the occupational performance and participation of individuals with a variety of disabilities across the lifespan by focusing on the neurobiological, sensory, and praxis foundations of occupation.

- Meet the SIS committee members at www.aota.org/SIS.
- Join the OT Connections discussion at http://otconnections.aota.org/sis_forums/f/19.aspx.

enter data individually—one of the benefits of the SPM. Practitioners can obtain a “bird’s eye view” of the child’s sensory processing across environments through this process.

Additionally, the SPM Quick Tips online module (Henry, 2014) allows the therapist to sort and filter item responses to help select an intervention based on one or more of these objectives: (1) address underlying deficits through both Ayres Sensory Integration® intervention and sensory-based strategies; (2) provide family or staff training; (3) teach self-advocacy; (4) adapt the task, materials, or environment; and (5) use cognitive and behavioral strategies to support participation. Quick Tips intervention reports are generated electronically from selected strategies and shared with stakeholders. Brainstorming results in embedding strategies in the child’s routines. Each team member records the frequency of implementation on the SPM Quick Tips record form. This process allows for quantifiable, objective, and qualitative data when used with goal attainment scaling, the SPM test–retest, and completion of satisfaction surveys.

Case Example

Ben, a 6 year old diagnosed with autism spectrum disorder, was evaluated using the SPM to address sensory processing challenges noted at home and across school environments. Quick Tips intervention reports were generated based on assessment results. The occupational therapist met with Ben’s teacher and mother to address sensory processing issues within the context of all relevant environments. They brainstormed using the Quick Tips intervention reports as a springboard. Ben was seeking proprioceptive input, so his teacher and mother chose strategies such as him pressing his hands against the doorway to reduce his door slamming. These strategies fit within Ben’s natural routines. They recorded the frequency of interventions on the Quick Tips record form.

Progress was reported during the intervention phase. The music teacher reported that Ben was more engaged than previously, as evidenced by participating in music lessons, waiting to take his turn when playing instruments, and increased vocalization when singing. These engagements were revealed through improved SPM retest scores. After independently implementing the chosen tips, both the teacher and Ben’s mother reported improved eye contact, decreased door slamming, and increased self-advocacy. SPM retest scores (see Figure 1, page 8) revealed improvement in the some of the interpretive ranges. Sustained carryover through the second year post-initial intervention was reported by Ben’s occupational therapist. Collaborative empowerment among team members was an essential component of successful carryover of supports.

Conclusion

Navigation tools such as the SPM and Quick Tips empower the

communication and ongoing data collection necessary to implement evidence-based practice. When team members are empowered, goals and interventions are more personalized, relevant, and result in better outcomes (Barrett, Henry, Rockow, & Drexler, 2016).

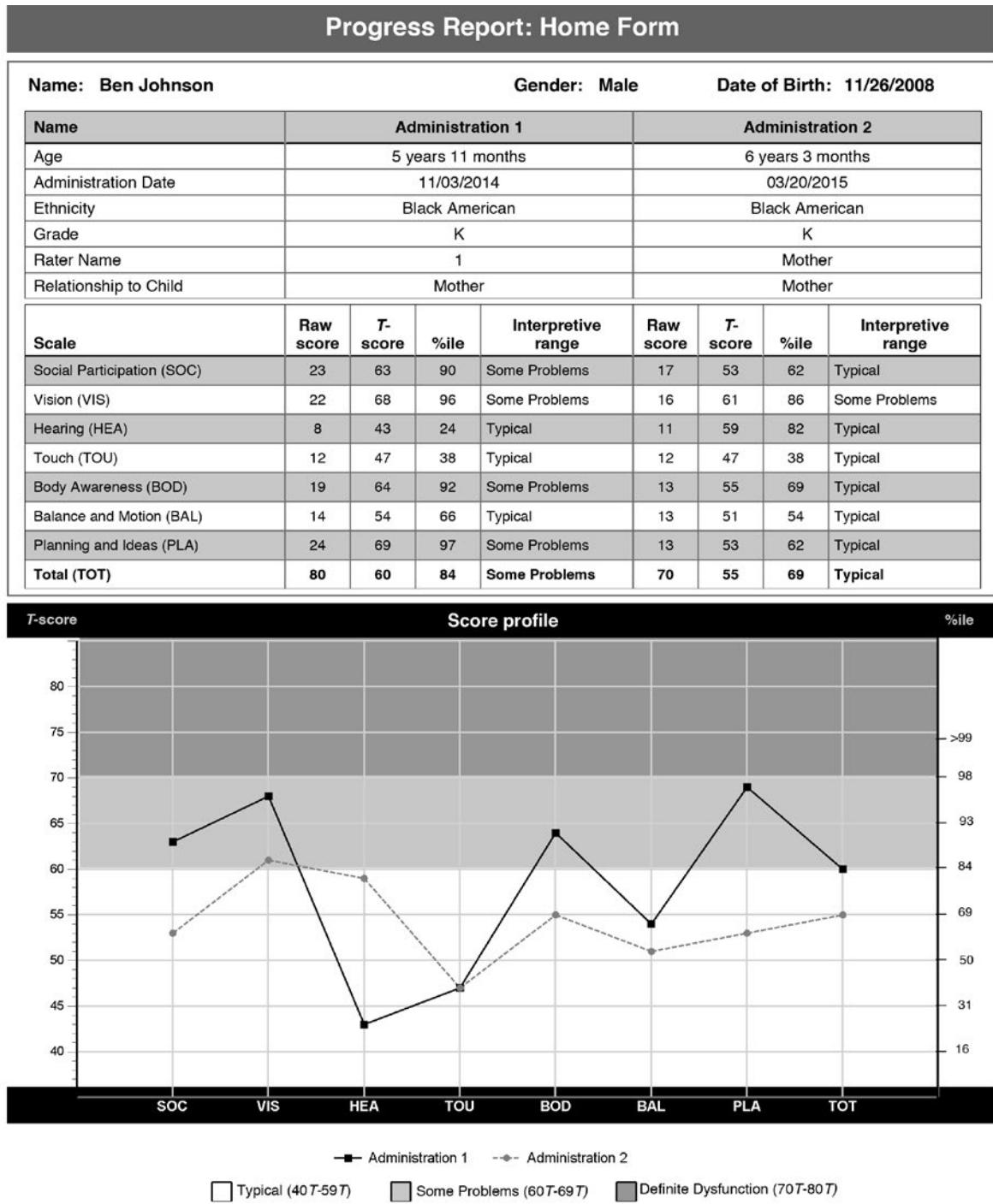
References

- Agus, D. B. (2016). *The lucky years: How to thrive in the brave new world of health*. New York: Simon & Schuster.
- American Occupational Therapy Association. (2007). AOTA’s Centennial Vision and executive summary. *American Journal of Occupational Therapy*, 61, 613–614. <http://dx.doi.org/10.5014/ajot.61.6.613>
- American Occupational Therapy Association. (2014). Occupational therapy practice framework: Domain and process (3rd ed.). *American Journal of Occupational Therapy*, 68(Suppl. 1), S1–S48. <http://dx.doi.org/10.5014/ajot.2014.682006>
- American Occupational Therapy Association. (2015). Occupational therapy code of ethics (2015). *American Journal of Occupational Therapy*, 69, 6913410030p1–6913410030p8. <http://dx.doi.org/10.5014/ajot.2015.696S03>.
- Barnes, K. J., & Turner, K. D. (2001). Team collaborative practices between teachers and occupational therapists. *American Journal of Occupational Therapy*, 55, 83–89. <http://dx.doi.org/10.5014/ajot.55.1.83>
- Barrett, K., Henry, D., Rockow, A., & Drexler, S. (2016, May). *Evaluating the use of the Sensory Processing Measure Quick Tips (SPM Quick Tips)™ program*. Poster session presented at the Northern Arizona Research at the Flagstaff Medical Center, Flagstaff, AZ.
- Bennett, S., Tooth, L., McKenna, K., Rodger, S., Strong, J., Ziviani, J., ... Gibson, L. (2003). Perceptions of evidence-based practice: A survey of Australian occupational therapists. *Australian Occupational Therapy Journal*, 50, 13–22.
- Gasparini, R., Champagne, M., Stephany, A., Hudson, J., & Fuchs, M. (2015). Policy to practice: Increased family presence and the impact on patient- and family-centered care adoption. *Journal of Nursing Administration*, 48, 28–34.
- Henry, D. A. (2014). *SPM Quick Tips* [Online Evaluation System]. Los Angeles: Western Psychological Services. Retrieved from <http://www.wpspublish.com/store/p/2991/sensory-processing-measure-spm>
- Individuals with Disabilities Education Improvement Act of 2004, PUB. L. 108-446, 20 U.S.C. § 1400–1482 (2004).
- Laverdure, P., Henry, D., & Scheffkind, S. (2015). *Data collection in schools* [Virtual chat]. Retrieved from http://otconnections.aota.org/galleries/aota_podcasts/m/pediatric_virtual_chats/default.aspx
- Parham, L. D., Ecker, C., Miller Kuhaneck, H., Henry, D. A., & Glennon, T. J. (2007). *Sensory Processing Measure (SPM): Manual*. Los Angeles: Western Psychological Services.
- Patient Protection and Affordable Care Act, Pub. L. 111-148, 42 U.S.C. §§ 18001–18121 (2010).
- Schaaf, R. (2015). Creating evidence for practice using data-driven decision making. *American Journal of Occupational Therapy*, 69, 6902360010p1–6902360010p6. <http://dx.doi.org/10.5014/ajot.2015.010561>
- Schaaf, R. C., & Mailloux, Z. (2015). *Clinician’s guide for implementing Ayres Sensory Integration®: Promoting participation for children with autism*. Bethesda, MD: AOTA Press.
- U.S. Department of Education. (2016). Every Student Succeeds Act (ESSA). Retrieved from <http://www.ed.gov/essa>.

Evidence Supports Joint Attention Interventions for Children With Autism

According to a systematic review on early childhood and early intervention, evidence supports using joint attention interventions for children with autism to improve social initiation, imitation, play, and spontaneous speech. To find out more and learn about other early childhood best practices in areas such as cognitive development, social-emotional development, feeding, and motor performance, check out the *Occupational Therapy Practice Guidelines on Early Childhood: Birth to 3 Years, Critically Appraised Topics*, and the July/August 2013 Special Issue of AJOT at www.aota.org/Practice/Children-Youth/Evidence-based.aspx.

Figure 1. Sensory Processing Measure Test Scores



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Technology and School System Practice: A Practitioner's Guide to Success

EIS

Matthew Press, DAD2, MHS, OTR/L, ATP

Most occupational therapy practitioners know that assistive technology (AT) can help our students, but do we really understand the scope of who it can help as well as how to match the technology with each student? AT is designed to increase functional outcomes and “level the playing field” by allowing a student with a disability to better access learning, according to the Individuals with Disabilities Education Improvement Act (IDEA) of 2004. Technology used to be regularly considered for students with severe disabilities. However, the federal mandate is very clear that AT must be considered for all students with a disability (IDEA, 2004).

Practitioners working in the school system are challenged to keep current and work within the mandates of school system legislation, such as Response to Intervention (RtI). RtI is a specific multi-tiered system of support (MTSS) that requires “high-quality instruction and interventions matched to student need, monitoring progress frequently to make decisions about changes in instruction or goals, and applying child response data to important educational decisions” (National Association of State Directors of Special Education, 2006, p. 2). The first tier of the multi-tiered system requires targeted instructional materials for academic achievement and behavioral supports for all students. This article will serve to guide practitioners to increase their understanding of the pedagogy of technology in the schools and how to consider technology for all students.

Universal Design for Learning

The concept of Universal Design for Learning (UDL) proposes that curriculum should be designed to be accessible by all students (Rose & Meyer, 2002). Using the UDL approach puts the focus on the first tier of the MTSS pyramid, focusing on serving the needs of all students as part of their core instruction in a preventive and proactive way. The framework for UDL is set up with three guiding principles: Multiple Means of Engagement, Multiple Means of Representation, and Multiple Means of Action & Expression (National Center on Universal Design for Learning, 2014).

Multiple Means of Engagement

The first principle, Multiple Means of Engagement, provides guidance on how to gain and sustain student interest in learning (National Center on Universal Design for Learning, 2014). This often includes educating our multidisciplinary teammates about proper positioning for optimal learning, adapting activities to engage students with different academic levels, and understanding sensory processing needs and how to meet these various needs in a classroom environment in socially appropriate ways. One preventive approach targeted toward increasing all student engagement includes going through primary classrooms at the beginning of the school year and adjusting desk heights to a best fit for each student. Another includes educating teachers about movement breaks throughout the day with a free online resource such as GoNoodle (2016). Research shows that increased levels of aerobic fitness in children has a positive effect on cognitive function and school achievement (Chaddock-Heyman et al., 2013). GoNoodle allows teachers to use kid friendly, movement-driven music videos to provide an aerobic movement break.

Multiple Means of Representation

The second principle, Multiple Means of Representation, provides guidance on how to make materials available to the widest group of learners (National Center on Universal Design for Learning, 2014). As practitioners, we are well-versed in activity analysis and often scaffold materials to meet individual needs during therapy sessions. If we apply this on a larger scale, we can work with our educational partners to use these same methods on curricular materials. For example, a typical lower grade elementary assignment might include reading a book and writing a book report. Applying the second principle of UDL would allow the student other options than visually reading the book. These options can range from low tech (e.g., picture symbols) to high tech (e.g., watching a video, using digital tools to add audio for text). These options let students receive the same information in different ways. Livescribe Smartpens (Livescribe, n.d.) can record an entire passage, allowing the student to listen to each page by touching the pen to a small dot placed on each page of the book. Bookshare (2009) is an online repository where students with physical, visual, or cognitive disabilities can gain digital access to educational materials.

Multiple Means of Action & Expression

The third principle, Multiple Means of Action & Expression, guides practitioners to allow the students to use different methodologies to demonstrate their knowledge (National Center on Universal Design for Learning, 2014). Using the example from principle two, instead of a written report, students could give an oral report, create a traditional poster board display, or even create a comic strip portrayal of the story. Software such as Comic Life (plasq, n.d.), allows a student a high-interest way of expressing the same content as their peers in a different format. Students could also express themselves and their knowledge of the material through drawing or acting out the story.

With the effort to create a universally designed environment and curriculum, we as practitioners focus on proactively removing many barriers to access for all students as is mandated in Tier one of the RtI process. However, there will be students who need more individualized access to materials.

SETT Framework

While practitioners need to focus on the environment and curriculum, they have to consider the individual student as well. One approach that is often used in the school environment is the SETT framework (Zabala, 2005). This approach gives a lens through which to view the interplay of the *Student's* skills, *Environmental* factors, and the *Tasks* the student is trying to accomplish. Once the interplay of these three components is considered, the individualized education

About the Early Intervention & School SIS

The Early Intervention & School Special Interest Section (EISSIS) provides resources to support the practice, leadership, and advancement of practitioners serving youth, families, and teams in early intervention and school programs. It promotes the meaningful participation of youth and families in their everyday lives where they live, learn, and play.

- Meet the EISSIS committee members at www.aota.org/EISSIS.
- Join the OT Connections discussion at http://otconnections.aota.org/sis_forums/f/17.aspx.

program (IEP) team can focus on finding *Tools* that meet those identified needs. The IEP team consists of the student's parents, teachers, and other notable individuals (U.S. Department of Education, 2006).

The SETT framework provides IEP teams with a consistent approach to recognizing barriers to student performance and then identifying the specific features or tools that can be used to overcome those barriers (Zabala, 2005). One of the best ways to move through the process is to use the Wisconsin Assistive Technology Initiative (WATI) AT decision-making guide (WATI, 2009). This documentation tool follows the SETT framework and begins with a place for users to document sensory, motor, and cognitive abilities and needs of the student; moves through environmental considerations; and then allows for a breakdown of the component tasks that are difficult for the student. Once the bigger picture is revealed, the IEP team narrows the focus to where technology intervention should be considered. Lastly, the team works together to brainstorm ideas, prioritize tools to be trialed, and develop an intervention and follow-up plan to be implemented.

Case Example

Jake, a fifth grade special education student who receives basic reading and written expression services from the resource teacher, struggles to get his thoughts onto paper. He is able to verbalize his ideas and has complete thoughts on the topics his class writes about. He can see and hear within functional limits. He is easily distracted, leading to off-task behavior, but he responds to verbal redirection. When Jake attempts to write, he struggles to form the letters, which leads to a slow writing speed of 5 to 7 words per minute. At Jake's school, fifth grade rotates through three different academic classrooms each day.

At the most recent problem solving meeting, Jake's grade-level team and special education teacher asked the occupational therapist for ideas to replace Jake's paper and pencil for assignments longer than a sentence, such as a typing device or dictation system. Jake uses an iPad at home for games and YouTube, and he can use the on-screen keyboard to type as well as use his voice to dictate into the search window. The team decided to trial a portable word processor, a laptop from the class computer cart, and an iPad. After basic competency training for each device, a schedule was created for implementation over the next month. Teachers collected data on Jake's typing speed, amount of work produced, ease of turning in assignments, and time on task. They found that the portable word processor allowed him to type faster and easily transfer assignments over to the teacher's computer through a wireless connection, and it didn't present any distractions by way of extra features. The laptop allowed Jake to type his papers faster, complete basic research on the Internet, and print directly to the school printers. The iPad allowed him the same features as the laptop, but he was distracted with some of the different applications and was off task more than with the other devices.

Upon review of the data, it was decided that the laptop already in the classroom was the best tool to meet his needs—removing the barrier to typical paper-and-pencil tasks for assignments longer than a sentence—without adding unnecessary, distracting features. The device was easily moveable through all three classrooms and Jake could take it home to complete homework. Despite the fact that the technology was already in the classroom and present for all students, Jake needed to access it to receive his free and appropriate public education (Rehabilitation Act of 1973) so it was properly

Find more information on RtI, UDL, and school system practice at
<http://www.aota.org/Practice/Children-Youth/School-based/RTI.aspx>

documented on his IEP. In the AT section of the IEP, the team noted that Jake needed access to a portable typing device with the ability to print independently to school network printers and access the Internet. If this support was not documented in Jake's IEP, he would not be guaranteed access to comparable technology if, for example, the computer carts were no longer available to his grade level, or if he were to move to another school.

Conclusion

Occupational therapy and technology fit well together in the RtI process and allow practitioners to showcase our skill set not only as experts in removing barriers for special education students, but also as pre-referral specialists who can provide training and support throughout the entire campus. Practitioners can help create a healthy school environment and "level the playing field" for all students through AT solutions.

References

- Bookshare. (2009). Bookshare. Retrieved from <https://www.bookshare.org/home>
- Chaddock-Heyman, L., Erickson, K. I., Voss, M. W., Knecht, A. M., Pontifex, M. B., Castelli, D. M., ... Kramer, A. F. (2013). The effects of physical activity on functional MRI activation associated with cognitive control in children: A randomized controlled intervention. *Frontiers in Human Neuroscience*, 7(72), 2–13.
- GoNoodle. (2016). GoNoodle. Retrieved from <https://www.gonoodle.com/>
- Individuals with Disabilities Education Improvement Act of 2004. Assistance to States for the Education of Children With Disabilities. 20 USCS §1401(1)(2)34 C.F.R. 300.5
- Livescribe. (n.d.). Livescribe Smartpens. Retrieved from <https://www.livescribe.com/en-us/smартpen/>
- National Association of State Directors of Special Education. (2006). Response to intervention: NASDSE and CASE white paper on RtI. Retrieved from <http://www.nasdse.org/Portals/0/Documents/Download%20Publications/RtIAnAdministratorsPerspective1-06.pdf>
- National Center on Universal Design for Learning. (2014). About UDL. Retrieved from http://www.udlcenter.org/aboutudl/udlguidelines_theorypractice
- plasq. (n.d.). Comic Life. Retrieved from <http://plasq.com/>
- Rehabilitation Act of 1973, Pub. L. 93-112, 29 U.S.C. §§ 701–796
- Rose, D. H., & Meyer, A. (2002). *Teaching every student in the digital age: Universal design for learning*. Alexandria, VA: ASCD.
- U.S. Department of Education. (2006). Topic: Individualized education program (IEP), team meetings and changes to the IEP. Retrieved from http://idea.ed.gov/explore/view/p_root,dynamic,TopicalBrief,9
- Wisconsin Assistive Technology Initiative. (2009). *Assessing students' needs for assistive technology (ASNAT): A resource manual for school district teams* (5th ed.). Retrieved from <http://www.wati.org/content/supports/free/pdf/ASNAT5thEditionJun09.pdf>
- Zabala, J. (2005). Using the SETT framework to level the learning field for students with disabilities. Retrieved from http://www.joyzabala.com/uploads/Zabala_SETT_Leveling_the_Learning_Field.pdf
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Innovation for Human-Centered Technologies in the Home

HCH**Su Jin Lee, MS, OTR/L**

With the wave of baby boomers reaching retirement age and the increasing life expectancy of individuals with disabilities, creating opportunities and resources to facilitate independence in the home has taken on new urgency. The technology industry has been quick to recognize the opportunities offered by the convergence of human longevity and technological revolutions. This has fueled a rapid growth in the technologies intended to facilitate aging in place, such as sensor-based networks for activity monitoring, emergency help systems, online tools to help older adults self-manage chronic conditions, accessible consumer appliances, and home adaptations.

However, not all technological innovation is inherently successful, and unfortunately, the implementation of technology is frequently unsuccessful in practice. Research has shown that more than 35% of all assistive technology devices have been unused or abandoned within the first 3 months of acquisition (Gray, 2003; Ripat & Strock, 2004). Reasons behind abandonment vary, but the primary determinant of product dissatisfaction is a poor match between the technology and the user's abilities, needs, preferences, tasks to be accomplished, and context of the technology's use (Haven,

2009). These statistics reflect that technological innovations undertaken without a comprehensive understanding of the intended user's needs are hampered by numerous usability problems (Czaja & Lee, 2007) and lack of perceived usefulness by potential users (Chen & Chan, 2011), which eventually leads to market failure. Arguably, the most important step in reducing cases of abandonment is to improve the method of designing technologies for better usability and effectiveness.

Occupational therapists can be an important source for bridging the informational gap between users and designers. Occupational therapists have long been an important point of contact for connecting individuals with technology that enables participation in meaningful daily activities. In addition, occupational therapists are noted for the ability to present a realistic, day-to-day scenario for individuals who are dependent in activities of daily living (Waite, 2016). This article will examine the importance of, as well as the challenges associated with, understanding the design-relevant needs of older adults and individuals with disabilities, and the role of occupational therapy in this collaborative effort.

Occupational Therapy Input

Occupational therapists have a strong role to play in conveying the needs of clients to technology developers through the following skills:

Knowledge of everyday habits and routine formation. Successfully implementing technology requires its seamless integration into

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users' natural environments and routines. Occupational therapy practitioners are leading experts in the development of habits and routines (American Occupational Therapy Association, 2014) and can be an invaluable source of contextual information related to clients' lives. From contributions in evaluating the need, selecting the right technology, or training in technology use, occupational therapy practitioners' holistic understanding of individuals has proven to be indispensable in realizing an optimal match between personal abilities and environmental demands.

Wide knowledge base on function. Occupational therapists have a wide base of knowledge that spans body structures and functions, health conditions, and disabilities, along with the ability to communicate their implications for daily function. Designers need to consider the wide-ranging abilities of potential user groups, and occupational therapists can identify which design features can enhance access and usability based on specific impairments or limitations of end users. Occupational therapists understand the vast diversity of abilities and needs that exist within the same demographic, all of which should be accommodated to ensure usability for target users.

Task analysis. Through our expertise in task analysis, occupational therapy practitioners understand that participation in activities and occupations that are meaningful to the client involves emotional, psychosocial, cognitive, and physical components. Successful adoption of technologies in the home requires consideration of all of these factors, as they can notably affect the desirability and social acceptability of any product. Insight generated from task analysis with an occupational therapy perspective can be valuable in accurately determining what users require from a product.

User-Centered Design for Product Development and Innovation

User-centered design is an approach that supports the entire development process—from generating the initial idea to bringing the product to market—with user-centered activities to create applications that are easy to use and represent added value for the intended users. User-centered design methods include completing a literature review, and conducting interviews, surveys, focus groups, and ethnographic and observational research. A better initial understanding of needs and preferences allows good concepts to be generated and selected more quickly, leading to fewer dead ends, fewer design iterations, and fewer design defects that become costly to fix later in the design process (McGrath, Anthony, & Shapiro, 1992). Technologies developed with a good understanding of the users' needs increase the likelihood that clinicians will be able to find products that match the occupational needs of their clients.

About the Home & Community Health SIS

The Home & Community Health Special Interest Section (HCHSIS) provides resources and support for occupational therapists and occupational therapy assistants who provide services in the home and community. Examples include home health, adult day services, senior housing, wellness programs, community mental health centers, home modification, and accessibility consultation. The HCHSIS also includes the Home Modification Network.

- Meet the HCHSIS committee members at www.aota.org/HCHSIS.
- Join the OT Connections discussion at http://otconnections.aota.org/sis_forums/f/15.aspx.



Explore the Health & Wellness section
of AOTA's apps database at
[https://www.aota.org/Practice/
Health-Wellness/HW-Apps.aspx](https://www.aota.org/Practice/Health-Wellness/HW-Apps.aspx)

Including the end user input in design; considering specific abilities and limitations of the end user; and optimizing training for the end user in using new technologies (e.g., age-specific instructional designs) can lead to satisfaction with and successful use of technology by individuals with functional limitations (Hersh, 2010; Rogers, Stronge, & Fisk, 2005).

Interdisciplinary Collaboration to Address User Needs

Unexamined assumptions held by designers and engineers can lead to inappropriate technology, overdesign, or the right solution to the wrong problem (Lynch, 2015). However, despite the existence of user-centered methodologies, obtaining a full understanding of needs and translating them into an innovative product remains a notable challenge. Technology developers must identify exactly what aspect of the reported functional limitations is difficult for these populations, but this is not an easy task for those who have limited knowledge about the end users. According to Harrington, Mitzner, and Rogers (2015), most of the data available about assistive technology use by older adults are at a descriptive level but lack the qualitative detail that would benefit developers.

Recognizing the challenges associated with uncovering user needs, the technology industry works closely with health care professionals, researchers, and consumers to identify and create new home products (Renda, 2012). Using technology to facilitate independence and aging in place is a complex process, and as such its success hinges on successful interdisciplinary collaboration from the outset of the development process. Relevant collaborators include professionals who develop the hardware and software necessary for running the technology (e.g., programmers, engineers); design or construct the home environment (e.g., architects, builders, developers); make funding and policy decisions about community-wide technologies (e.g., municipal building and zoning departments); develop products that facilitate task performance in the built environment (e.g., product and assistive technology designers, engineers, product manufacturers); and help users interact successfully with the built environment (e.g., rehabilitation professionals, housing specialists).

Opportunities for Occupational Therapy Practitioners

Opportunities for occupational therapy practitioners to become involved in technology development are emerging. For example, health "hackathons"—summits that bring together engineers, clinicians, entrepreneurs, and designers to develop innovative solutions to health problems within a limited time frame—are an excellent way for occupational therapy practitioners to showcase how their knowledge could influence development decisions in a major way. Such involvement can increase awareness among other professionals about the value of occupational therapy. Further, practitioners can foster relationships with their local communities (e.g., university, school, corporations) by providing insight on current clinical practices and trends that may affect technology development. Such insight can be beneficial in identifying research and development opportunities, and can lead to unique projects to create technology that addresses specific areas of need.

Development of the Smart Bathroom Technologies

The need for interdisciplinary collaboration, including the value of occupational therapy input in technology development for the home, is exemplified at the Center for Assistive Technology and Environmental Access (CATEA), a research center within the Georgia Institute of Technology. CATEA has been a leader in the interdisciplinary effort to help older adults and individuals with disabilities remain at home. They conduct a variety of research and development projects to explore cutting-edge technologies to solve real, deeply human needs for older adults and individuals with disabilities.

Part of the project is devoted to developing “smart bathroom” technologies to facilitate safe and independent activities of daily living in the bathroom, to better accommodate the changing abilities of older adults and individuals with disabilities, especially those with progressive, chronic conditions. To realize a technology-enabled solution to address such unmet needs, the Smart Bathroom Technologies project envisions developing a bathroom environment capable of assessing an individual’s abilities at any point in time and spontaneously adjusting supportive environmental features to accommodate those abilities. This would require an array of sensing technologies to be embedded in the room (e.g., floor, walls, ceiling fixtures) to measure function (e.g., gait, balance, posture, grip strength); forces exerted on the toilet, bathtub, sink, and grab bars; locations where fixtures and grab bars are used; and a vision system (e.g., Kinect) or smart floor to track the individual entering the bathroom for identification and gait.

Integral to this project is the member diversity and interdisciplinary approach of the team. The team comprises faculty, staff, and students of multiple disciplines, including industrial design; systems, electrical, and mechanical engineering; human-computer interaction; occupational therapy; gerontology; psychology; and public health. All have different and relevant perspectives on technology applications for older adults and what it takes for successful technology to be developed. Occupational therapists contribute their skills in interacting with individuals with a wide range of functional abilities and needs, and translating their input into design improvements and help to facilitate understanding about challenges older adults experience when performing activities of daily living in the bathroom environment. The occupational therapists are also primarily responsible for the usability testing of the technologies once a feasible prototype is finalized.

Conclusion

As technology becomes ever more complex and exerts an increasing presence in our daily lives, the value of occupational therapists in facilitating the seamless integration of technology into clients’ daily routines is becoming even more pivotal. This change not only highlights the importance of keeping up with the latest technologies, but also presents unprecedented opportunities for collaboration with partners with whom the profession has had limited contact under the medical model of care.

References

- American Occupational Therapy Association. (2014). The role of occupational therapy in primary care. *American Journal of Occupational Therapy*, 68, S25–S33. <http://dx.doi.org/10.5014/ajot.2014.686S06>
- Chen, K., & Chan, A. (2011). A review of technology acceptance by older adults. *Gerontechnology*, 10, 1–12.
- Czaja, S., & Lee, C. (2007). The impact of aging on access to technology. *Universal Access in the Information Society*, 5, 341–349.
- Gray, D. (2003). Delivering AT in the community through an interdisciplinary approach. In G. Craddock, L. McCormack, R. Reilly, & H. Knops (Eds.), *Assistive technology: Shaping the future* (pp. 61–65). Washington, DC: IOS Press.
- Harrington, C., Mitzner, T., & Rogers, W. (2015). Understanding the role of technology for meeting the support needs of older adults in the USA with functional limitations. *Gerontechnology*, 14, 21–31.
- Haven, S. (2009). Assistive technology assessment—Find the right tools. Retrieved from <http://www.techpotential.net/assessment>
- Hersh, M. (2010). The design and evaluation of assistive technology products and devices, part 1: Design. In J. H. Stone & M. Blouin (Eds.), *International encyclopedia of rehabilitation*. Retrieved from <http://cirrie.buffalo.edu/encyclopedia/en/article/309/>
- Lynch, C. (2015). Design for aging: Perspectives on technology, older adults, and educating engineers. *Anthropology and Aging*, 36, 127–134.
- McGrath, M. E., Anthony, M. T., & Shapiro, A. R. (1992). *Product development: Success through product and cycle-time excellence*. Boston: Butterworth-Heinemann.
- Renda, M. (2012, September). Gerontechnology: Technology helping older adults live at home. *Gerontology Special Interest Section Quarterly*, 35(3), 1–4.
- Ripat, J., & Strock, A. (2004). Users’ perceptions of the impact of electronic aids to daily living throughout the acquisition process. *Assistive Technology*, 16, 63–72.
- Rogers, W., Stronge, A., & Fisk, A. (2005). Technology and aging. *Reviews of Human Factors and Ergonomics*, 1, 130–171.
- Waite, A. (2016). Safe exit: Occupational therapy’s role in discharge planning. *OT Practice*, 21(11), 8–12.

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Stress Management Techniques for Occupational Therapy Practitioners

PD

Cassandra Winters, MOT, OTR/L

Health care professionals must strive to find a balance between caring for patients and maintaining their own personal well-being. Stress, burnout, secondary trauma, and emotional fatigue are common for health care workers, especially those who work with patients with chronic or terminal illnesses (Breen, O'Connor, Hewitt, & Lobb, 2014). Over time, stress can lead to decreased psychological well-being and job dissatisfaction, and it has the potential to result in decreased quality of patient care (Jennings, 2008). In addition, stress can reduce health care professionals' attention and concentration, and it has been shown to negatively affect problem solving and communication skills (Raab, 2014). Facilitating the well-being of employees in a company or organization ensures enhanced quality of care, in addition to maintaining both patient and employee satisfaction.

Professional development efforts within an organization that increase feelings of personal accomplishment and decrease emotional exhaustion among occupational therapy practitioners can lead to a reduction in stress and burnout (Schlenz, Guthrie, & Dudgeon, 1995). By using basic stress reduction exercises and techniques on a daily basis, practitioners can increase their job satisfaction and enhance the quality of patient care. In addition, occupational therapists can incorporate these techniques into treatment sessions in a variety of practice settings to facilitate improved patient management of stress and pain, and increase patient engagement in meaningful occupations. A pilot study conducted at a comprehensive cancer center with occupational and physical therapists aimed to identify levels of stress experienced as a result of caring for patients with cancer, and to provide stress management strategies that can easily be incorporated by clinicians on a daily basis.

Background

The National Institute of Mental Health (NIMH, n.d.) defines stress as "the brain's response to any demand." The NIMH describes the experience of stress as subjective, therefore experienced by individuals in a variety of ways. Acute stress activates the body's sympathetic nervous system. Examples include positive and negative events such as riding a roller coaster or slamming on the brakes in one's car, respectively. Stress is inevitable; however "eustress" is a positive form of stress that is considered beneficial for the individual (Merriam-Webster, n.d.). This type of positive stress may provide motivation and creativity for achieving goals. Examples of positive stressors include buying a house, applying for a promotion, or planning a vacation.

While some stressors are considered beneficial, chronic stressors at work or home can lead to declines in mental and physical health. Chronic stress can lead to physical complications (e.g., impaired immune system), and worsening of conditions like depression, anxiety, heart disease, and possibly cancer. In the 2016 Work and Well-Being Survey published by the American Psychological Association, one in three Americans reported chronic stress on the job. In addition, 10 billion workdays are lost globally every year because of mental disorders like depression, anxiety, and stress (World Health Organization, 2016).

In the hospital setting, occupational therapy practitioners work on the front line of patient care and need to display empathy and

compassion, as well as prioritize patient needs. The ability to empathize, which is an important skill for practitioners to develop and use in all settings, has been linked to susceptibility for developing compassion fatigue (Raab, 2014). If coping strategies are not routinely integrated and practiced, emotional, physical, and mental exhaustion can occur, which are common side effects of empathy and compassion fatigue. One study by Gupta, Paterson, Lysaght, and von Zweek (2012), examined emotional burnout and coping strategies used by occupational therapists. The authors found high levels of emotional exhaustion reported by 35% of participants, high levels of cynicism reported by 44%, and low professional efficacy reported by 25%. Occupational therapists in the study reported using coping strategies such as spending time with family; maintaining professional/personal balance; controlling work responsibilities; maintaining a sense of humor; and engaging in self-awareness/self-monitoring. Although more research needs to done into the causes of work-related burnout, participants reported basic coping strategies as effective in improving job satisfaction.

Stress Reduction in a Cancer Center

After a review of the literature, a pilot study was designed by this author to assess the effectiveness of stress reduction strategies used by occupational and physical therapists working at a comprehensive cancer center. An initial department-wide survey found that 60% of the therapists felt high levels of stress at least "half the time" at work, while 21% reported feeling stressed "most of the time." Additionally, 21% responded "yes" to experiencing a disruption in work-life balance; 60% reported experiencing this disruption "sometimes." An intervention was designed to address these concerns.

Participants were asked to complete a survey in which daily stress levels were rated on a 5-point scale, before and after the intervention. Sessions took place during each participant's lunch break in a quiet, dimly lit room. Intervention techniques used during the 20-minute sessions included silent meditation/mindfulness, body scanning, and guided visualizations.

Interventions

Mindfulness entails paying attention to the present moment with a nonjudgmental and open awareness of one's sensations, thoughts, and feelings (de Jong et al., 2016). Mindfulness can help occupational therapy practitioners "cope with stress, connect with their patients, and improve their general quality of life. It also helps mental health professionals by reducing negative emotions and anxiety, and increasing their positive emotions and feelings of self-compassion"

About the Physical Disabilities SIS

The Physical Disabilities Special Interest Section (PDSIS) addresses the needs of practitioners who serve individuals with physical dysfunction resulting from a wide range of conditions. The PDSIS also includes the Hand Rehabilitation Subsection for those who address dysfunction of the hand and upper extremity, and the Driving/Driver Rehabilitation Network to educate and support therapists to provide pre-driving screens or driver assessments and training, or to serve as referral sources to appropriate agencies.

- Meet the PDSIS committee members at www.aota.org/PDSIS.
- Join the OT Connections discussion at http://otconnections.aota.org/sis_forums/f/16.aspx.



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(The Greater Good Science Center at the University of California, Berkeley, 2012). One example is 5 minutes of “mindful breathing.” One can focus attention on the inhale and exhale, appreciating the body’s rhythm and sensations.

Body scanning is a form of progressive muscle relaxation. Occupational therapy practitioners can effectively use this type of relaxation technique to better manage pain, anxiety, or stress by releasing physical tension and quieting the mind. Body scanning can also help with focused attention, concentration, and better body awareness. Body scanning can be done while sitting in a chair, progressively relaxing the muscles from head to toe while possibly noticing areas of tension or discomfort, observing one’s thoughts, and gently bringing one’s awareness back to the body.

Similarly, *guided imagery* and *visualizations* can be practiced by occupational therapy practitioners to decrease work-related stress and anxiety. A recent study of health professionals found that 3 hours of online guided imagery training resulted in improvements in stress, anxiety, empathy, and self-efficacy (Rao & Kemper, 2016). Guided imagery examples include using audio recordings, instructors, or one’s imagination to engage in a vivid daydream. Sitting in a comfortable, relaxed position, one can spend 5 minutes exploring mental images of a day at the beach, a trip to the mountains, or a favorite relaxing vacation spot.

Although evidence-based research supports the use of mindfulness meditation, more research is needed to support the feasibility and effectiveness of these techniques.

Results

The sample size of this study consisted of 25 participants, with 74% reporting moderate–high stress levels during the morning work hours, and 76% reporting moderate–high stress levels at work directly before the session occurred. After the interventions, only 5% reported moderate or high stress and 95% reported increased well-being and a reduction in work-related stress and anxiety. In a 6-week follow-up with the participants, 75% reported using stress reduction techniques for their own self-care.

Implications for Occupational Therapy Practitioners

Initial results from this pilot study suggest that simple techniques of fewer than 20 minutes can significantly affect the level of perceived stress during the work day for occupational therapy practitioners and other health care professionals. Developing short-term coping strategies and long-term resilience can decrease the likelihood of developing stress-related disorders (Schneiderman, Ironson, & Siegel, 2005). Components of self-compassion can be modified by mindfulness interventions, positively affecting self-judgment, feelings of isolation, and compassion fatigue (Raab, 2014).

Although some stressors are unavoidable, learning to effectively manage stress levels through mindfulness, guided imagery, and body scanning techniques may help health care professionals improve job satisfaction, lifework balance, and overall quality of life.

Welcome From the PDSIS Chairperson

Elena Espiritu, OTD, OTR/L, BCPR

On behalf of the incoming Physical Disabilities Special Interest Section (PDSIS) committee, I want to thank AOTA’s members for the opportunity to serve. We appreciate the work that the outgoing committee has provided over the past 4 years and their help and guidance in ensuring a smooth transition. Our committee is composed of a combination of academics and practitioners striving together to present the best evidence to affect practice. Our committee members are:

- Stephanie Bachman (Hand Subsection Coordinator)
- Anne Hegberg (Driving/Driver Rehabilitation Network Manager)
- Carlene Johnson (Education-Research Coordinator)
- Katie Polo (Quarterly Editor)
- Sara Raduski (Forums Coordinator)
- Suzanne Taylor (Oncology Forum Moderator)

Based on AOTA’s Vision 2025 and strategic priorities, and in response to our rapidly changing health care system, over the next 3 years we plan to focus our efforts on the following:

- Exploring opportunities for practice outside of traditional physical disabilities diagnoses and settings (e.g., primary care, managing chronic health conditions, community-based practice)
- Sharing treatment resources and outcome measures that are based on evidence and can be easily implemented into clinical practice
- Maintaining client-centered and collaborative interprofessional practice despite challenges of productivity standards and changes in reimbursement

We look forward to collaborating with PDSIS members and engaging them on matters that are most important to them. Should you have any questions, comments or suggestions, please feel free to contact me at elena.espiritu@belmont.edu.

Conclusion

Occupational therapy practitioners help individuals live life to its fullest; however, they are susceptible to experiencing compassion fatigue and burnout because of the high demands of the health care environment. Considering one’s own self-care (e.g., mental, physical, emotional, spiritual) is essential for the well-being of both the clinician and the patient, especially in a fast-paced hospital or cancer care setting (Raab, 2014). Health care professionals in all practice settings can incorporate stress management techniques into their day to reduce the negative effects of stress. The potential benefits of practicing mindfulness and regular stress management techniques can have a considerable positive effect for occupational therapy practitioners in their daily clinical practice, in addition to their own personal self-care.

References

- American Psychological Association. (2016). *2016 work and well-being survey*. Retrieved from <http://www.apaexcellence.org/assets/general/2016-work-and-wellbeing-survey-results.pdf>

- Breen, L. J., O'Connor, M., Hewitt, L. Y., & Lobb, E. A. (2014). The "specter" of cancer: Exploring secondary trauma for health professionals providing cancer support and counseling. *Psychological Services*, 11, 60–67.
- de Jong, M., Lazar, S. W., Hug, K., Mehling, W. E., Hölzel, B. K., Sack, A. T., ... Gard, T. (2016). Effects of mindfulness-based cognitive therapy on body awareness in patients with chronic pain and comorbid depression. *Frontiers in Psychology*, 7, 967. <http://doi.org/10.3389/fpsyg.2016.00967>
- Greater Good Science Center at the University of California, Berkeley. (2012). What is mindfulness? Retrieved from <http://greatergood.berkeley.edu/topic/mindfulness/definition>
- Gupta, S., Paterson, M. L., Lysaght, R. M., & von Zweck, C. M. (2012). Experiences of burnout and coping strategies utilized by occupational therapists. *Canadian Journal of Occupational Therapy*, 79, 86–95.
- Jennings, B. M. (2008). Work stress and burnout among nurses: Role of the work environment and working conditions. In R. G. Hughes (Ed.), *Patient safety and quality: An evidence-based handbook for nurses* (Chapter 26). Rockville, MD: Agency for Healthcare Research and Quality. Retrieved from: <http://www.ncbi.nlm.nih.gov/books/NBK2668/>
- Merriam-Webster. (n.d.). Eustress. Retrieved from <http://www.merriam-webster.com/medical/eustress>
- National Institute of Mental Health. (n.d.) *Adult stress—Frequently asked questions*. Retrieved from <https://www.nimh.nih.gov/health/publications/stress/>
- stress_factsheet_ln_142898.pdf
- Raab, K. (2014). Mindfulness, self-compassion, and empathy among health care professionals: A review of the literature. *Journal of Health Care Chaplaincy*, 20, 95–108. <http://dx.doi.org/10.1080/08854726.2014.913876>
- Rao, N., & Kemper, K. J. (2016). The feasibility and effectiveness of online guided imagery training for health professionals. *Journal of Evidence-Based Complementary & Alternative Medicine*, Advance online publication. <http://dx.doi.org/10.1177/2156587216631903>
- Schlenz, K. C., Guthrie, M. R., & Dudgeon, B. (1995). Burnout in occupational therapists and physical therapists working in head injury rehabilitation. *American Journal of Occupational Therapy*, 49, 986–993. <http://dx.doi.org/10.5014/ajot.49.10.986>
- Schneiderman, N., Ironson, G., & Siegel, S. D. (2005). Stress and health: Psychological, behavioral, and biological determinants. *Annual Review of Clinical Psychology*, 1, 607–628. <http://doi.org/10.1146/annurev.clinpsy.1.102803.144141>
- World Health Organization. (2016). *Out of the shadows: Making mental health a global development priority*. Retrieved from http://www.who.int/mental_health/advocacy/wb_background_paper.pdf
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Occupational Therapy's Distinct Value in Addressing Driving

In a recent 4-minute AOTA Everyday Evidence Podcast on driving safely as you age, occupational therapist Wendy Stav, PhD, OTR/L, SCDCM, FAOTA, discusses the distinct value of occupational therapy services to help older adults stay on the road for as long as possible despite age-related changes. Stav is author of the *Occupational Therapy Practice Guidelines for Driving and Community Mobility for Older Adults* and author of a driving and community mobility systematic review article featured in the November/December 2014 special issue of *AJOT*. You can view the podcast at www.aota.org/Practice/Researchers/Evidence-Podcast.

Assisting Transition Through Website Building

MH

Sharon Cavanaugh, BA, OTR/L; David M. Merlo, MS, COTA/L, CPRP, ROH; David Griffio; and Jayani Cosmas

As occupational therapy practitioners are expanding their roles in school-based transition planning, website building can be a valuable intervention to address transition goals. This article will explain how the first two authors developed web-based technology as a purposeful, meaningful, and occupation-based therapeutic modality through the Work Appreciation for Youth (WAY) program. Website building was used to increase self-awareness and promote self-advocacy in youth aged 14 to 21 years with emotional and behavioral disorders (EBD) in an alternative high school. Youth with EBD have less successful transition outcomes when compared with students in the general population (Nochajski & Schweitzer, 2014). Students created personal websites as interventions for more successful transition from high school. These websites highlighted students' interests, talents, and goals, while assisting with transition resources. The occupational therapist and occupational therapy assistant worked closely with vocational specialists and teachers to implement intervention sessions. This article introduces evidence

to promote further research to support web-based technology as a therapeutic intervention.

The literature review revealed a small number of studies using website development as intervention. Schmitt, Dayanim, and Matthias (2008) found that developing websites increased adolescents' feelings of mastery and self-expression. Website building also contributed to improved self-esteem (Valkenburg & Peter, 2011). More evidence identified using other technologies for self-expression. Photovoice, a photography-based intervention, demonstrated increased self-awareness, self-reflection, and self-efficacy (Foster-Fishman, Nowell, Deacon, Nievar, & McCann, 2005). Harley and Hunn (2015) showed Photovoice was effective in gaining insight on hope and spirituality among low-income African-American adolescents. A recovery narrative-based Photovoice benefitted participant reflection on the effects of disability on their identities, demonstrating that narrative program outcomes assisted empowerment and community integration (Mizock, Russinova, & DeCastro, 2015). Yi-Frazier and colleagues (2015) used Instagram, a photo sharing application, for adolescents with diabetes and found that a face-to-face support component was necessary for them to be comfortable sharing personal images. Similarly, the National Alliance on Mental Illness's program, Smarts for Advocacy, assisted people with mental illness to turn their personal stories into succinct narratives, leading to increased self-advocacy (Pandya, 2012).

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The Work Appreciation for Youth Program

The WAY program was designed for at-risk high school youth with EBD to develop the skills needed to choose, get, and keep a job, while appreciating the purpose of education and the value of work (Coles, 2013). Every student in the WAY program had the opportunity to develop an individualized website, as a portion of transition services. Other services were individualized transition interventions, job readiness training, life-skills workshops, and career exploration. Websites were created through collaboration between students and practitioners to showcase students' talents, goals, and individual information. Occupational therapy practitioners' role in transition services was to empower students to develop their own transition plans, rather than prescribing plans for students.

Weebly (2015) was chosen as a web hosting platform, allowing students without advanced computer skills to create websites. Weebly uses drag-and-drop functions for ease of use. Choices of themes and design options afforded the opportunity for creativity and individualism. As autonomous creators, students were more engaged and much more attentive in developing websites than they had been in more prescribed activities.

Students presented their websites at Committee on Special Education meetings, individualized education program (IEP) meetings, and state vocational rehabilitation meetings. The opportunity for students to be actively involved in the IEP process resulted in increased self-awareness (Conaboy et al., 2008). Websites could also be used at job interviews, showcasing student success and abilities as well as work experiences. Students in this high school had options to embed their résumés within their websites and to revise their website content at any time, reflecting their current information. The websites were accessible and available after high school graduation.

Privacy issues when using web-based technology were addressed by teaching and enforcing student Internet safety and appropriate disclosure of personal information. Content filtering software was used to limit student access to age-appropriate sites. Available Weebly safety features were used, including administrative monitoring, password protection capabilities, and content filtering.

It is impossible to disregard the influence of technology on youth born after 2000. Digital technology has become a considerable component of society's cultural, social, and virtual contexts (Blair, Claster, & Claster, 2015). As occupational therapy practitioners, observing frequent technology use within classrooms at this alternative high school inspired incorporating website building into therapeutic intervention. Within this computer-based intervention, the challenge became how to engage students as creators. In addition to Weebly, students learned to use other technology, such as iPads, digital scanners, search engines, and cameras. Students were encouraged to document field trips, major life events, accomplishments, and day-to-day activities. During online research to gather information related to interests or future jobs, students narrowed search results through reflective moments, which enabled them to process their thinking or experiences into content for their websites. Students increasingly shared their websites with others, once they believed the websites were true representations of their lives and experiences.

Case Example

TJ was 17 when he started receiving transition services within his classroom. While classmates participated in prescribed activities, TJ remained withdrawn. Even with the introduction of technology-based web activities, TJ was reserved and showed little interest in

About the Mental Health SIS

The Mental Health Special Interest Section (MHSIS) focuses on occupational therapy practice in traditional mental health settings as well as in emerging practice areas, such as forensics/corrections, school mental health, early intervention for psychosis, and primary care. The MHSIS addresses services to benefit the psychosocial needs of individuals in all practice areas and engages members to work on initiatives promoting the role of occupational therapy in mental health care systems.

- Meet the MHSIS committee members at www.aota.org/MHSIS.
- Join the OT Connections discussion at http://otconnections.aota.org/sis_forums/f/22/aspx.

engaging. When asked why, his answer was simple: he wanted more freedom to create and take ownership of his webpage. Intervention sessions were then restructured from restricted template-based websites to empty webpages where students organized and created content as desired. TJ and other students involved in website building participated in 45-minute intervention sessions once a week. After the template-based approach was discarded, TJ filled his website with his own artwork as he chose. This was a turning point, as TJ now accessed his website independently and showed his work to others. He identified his strengths, built his self-confidence, and told his story through his art and his website. Further, he demonstrated initiative in assisting other students. Through TJ's role shift, the traditional practitioner/student association was transformed, with practitioners developing a lateral and equal relationship with TJ. Opening traditional roles to a more level playing field allowed TJ to teach staff and community members who he really was.

This was also a turning point for the website-building intervention. Though some students benefitted from engaging with formatted websites, others preferred more autonomy. The original website-building plan expanded to include more freedom with uploading content. The WAY program was asked to present the website-building concept to various audiences. TJ was asked to showcase his work and, despite his nerves, presented his website masterfully. This quiet and withdrawn young man overcame fear and experienced a victory while expressing himself in the best way he could—digitally. TJ has since presented his website and his story to numerous occupational therapy classes, the state occupational therapy association conference, and even traveled to Baltimore for the American Occupational Therapy Association's (AOTA's) Annual Conference & Expo. TJ graduated from high school and maintained contact with the WAY program. He found a niche with animation and gaming through freelance projects.

Program Outcomes

Building personal websites promoted self-awareness in students with EBD in the WAY program, consistent with findings of Schmitt and colleagues (2008) that constructing personal websites positively affected identity development. Students reported showing webpages to teachers, counselors, potential employers, and other professionals. During an IEP meeting, one student used the personal website to self-advocate and have IEP goals changed to become more meaningful. Students also reported that website building enabled them to learn about and advocate for themselves better.

At its core, the process of developing websites with students was a relationship-building activity. By allowing students to create

content freely, they shared personal stories and had conversations with clinicians, facilitating positive relationships. Clinicians assisted students in reflecting on experiences and personal goals, benefiting the therapeutic environment. Clinicians' therapeutic use of self, through actively listening and facilitating conversations about goals and personal experiences, was an essential part of the process (AOTA, 2014). Building therapeutic relationships was identified as a strong indicator for positive outcomes; the Intentional Relationship Model (IRM) has described these relationships as a precursor for engaging clients (Bonsaksen, Vøllestad, & Taylor, 2013). The six IRM therapeutic modes (advocating, collaborating, empathizing, encouraging, instructing, and problem-solving) were used in the website developing sessions. Practitioners used empathizing and encouraging modes to facilitate collaborative relationships while students were developing webpages and when gathering information to discuss personal goals.

Summary

While no formal research exists on website building as an occupational therapy intervention, the WAY program begins to support website development as a timely and important occupation for youth in transition. Potential exists for web-based intervention application beyond transition contexts into other settings and populations. Using Weebly to build personal websites became much more than just filling a page with text and pictures. It allowed practitioners and clients to meet on a level playing field, where students felt comfortable sharing personal information. Students taught occupational therapy practitioners and others about themselves using a variety of media. Through practitioners' therapeutic use of self, plus the platform of technology, the WAY students became stronger self-advocates.

References

- American Occupational Therapy Association. (2014). Occupational therapy practice framework: Domain and process (3rd ed.). *American Journal of Occupational Therapy*, 68, S1–S48. <http://dx.doi.org/10.5014/ajot.2014.682006>
- Blair, S. L., Claster, P. N., & Claster, S. M. (2015). Foreword. In S. L. Blair, P. N. Claster, & S. M. Claster (Eds.), *Sociological studies of children and youth, Vol. 19. Technology and youth: Growing up in a digital world* (pp. xiii – xvii). Bingley, UK: Emerald Group.
- Bonsaksen, T., Vøllestad, K., & Taylor, R. (2013). The Intentional Relationship Model—Use of the therapeutic relationship in occupational therapy practice. *Ergoterapeuten*, 56(5), 26–31.
- Coles, A. (2013). The investment payoff: Reassessing and supporting efforts to maximize the benefits of higher education for underserved populations. Retrieved from <http://www.ihep.org/assets/files/publications/G-L-the-investment-Payoff-final-april-2013.pdf>
- Conaboy, K. S., Davis, N. M., Myers, C., Nochajski, S., Sage, J., Schefkind, S., & Schoonover, J. (2008). FAQ: Occupational therapy's role in transition service and planning. Retrieved from <http://www.aota.org/-/media/Corporate/Files/Secure/Practice/Children/transitions.pdf>
- Foster-Fishman, P., Nowell, B., Deacon, Z., Nievar, M. A., & McCann, P. (2005). Using methods that matter: The impact of reflection, dialogue, and voice. *American Journal of Community Psychology*, 36, 275–291. <http://dx.doi.org/10.1007/s10464-005-8626-7>
- Harley, D., & Hunn, V. (2015). Utilization of Photovoice to explore hope and spirituality among low-income African American adolescents. *Child & Adolescent Social Work Journal*, 32, 1–13. <http://dx.doi.org/10.1007/s10560-014-0354-4>
- Mizock, L., Russinova, Z., & DeCastro, S. (2015). Recovery narrative Photovoice: Feasibility of a writing and photography intervention for serious mental illnesses. *Psychiatric Rehabilitation Journal*, 38, 279–282. <http://dx.doi.org/10.1037/prj0000111>
- Nochajski, S. M., & Schweitzer, J. A. (2014). Promoting school to work transition for students with emotional/behavioral disorders. *Work: Journal of Prevention, Assessment & Rehabilitation*, 48, 413–422.
- Pandya, A. (2012). NAMI in our own voice and NAMI smarts for advocacy: Self-narrative as advocacy tool. *Journal of Psychiatric Practice*, 18, 448–450. <http://dx.doi.org/10.1097/01.pra.0000422744.79871.1a>
- Schmitt, K. L., Dayanim, S., & Matthias, S. (2008). Personal homepage construction as an expression of social development. *Developmental Psychology*, 44, 496–506. <http://dx.doi.org/10.1037/0012-1649.44.2.496>
- Valkenburg, P. M., & Peter, J. (2011). Online communication among adolescents: An integrated model of its attraction, opportunities, and risks. *Journal of Adolescent Health*, 48, 121–127. <http://dx.doi.org/10.1016/j.jadohealth.2010.08.020>
- Yi-Frazier, J. P., Cochrane, K., Mitrovich, C., Pascual, M., Buscaino, E., Eaton, L., ... Malik, F. (2015). Using Instagram as a modified application of Photovoice for storytelling and sharing in adolescents with type 1 diabetes. *Qualitative Health Research*, 25, 1372–1382. <http://dx.doi.org/10.1177/1049732315583282>
- Weebly. (2015). Weebly features. <https://www.weebly.com/features>
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Evidence Supports Addressing Psychosocial Elements of Cancer Survivorship

A recent systematic review reveals moderate to strong evidence that addressing psychosocial components of cancer survivorship is beneficial for survivors, regardless of age or the type or stage of cancer. To learn more and find out about key findings in other areas such as complementary and alternative medicine, exercise rehabilitation, symptom management, and multidisciplinary rehabilitation, check out the Critically Appraised Topics on cancer at www.aota.org/Practice/Rehabilitation-Disability/Evidence-Based.aspx#Cancer.

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Delivering Occupational Therapy Services Through Telehealth to Older Adults: Current Considerations

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Ranelle M. Nissen, MS, OTR/L

Technology is available for use in multiple areas of our daily lives. One use of technology is to support, improve, and deliver health care services by means of telehealth (American Telemedicine Association [ATA], n.d.). Occupational therapy services delivered via telehealth include evaluation, intervention, remote monitoring, supervision, and consultation (American Occupational Therapy Association [AOTA], 2013a). Occupational therapy services delivered through telehealth can be provided using audio and video conference systems, electronic medical records, and other telecommunication technologies (ATA, n.d.).

Current evidence supports telehealth as an effective delivery method for occupational therapy services for the rehabilitation (Chumbler et al., 2012; Ng, Polatajko, Marziali, Hunt, & Dawson, 2013) and in-home monitoring (Bendixen, Levy, Olive, Kobb, & Mann, 2009) of older adult clients.

Multiple considerations must be addressed when determining if telehealth is an appropriate delivery method (see Table 1).

User Acceptance

Common factors of user acceptance are perceptions about the technology, cost, and convenience. It is important to determine perceptions of technology to identify whether telehealth will be an acceptable delivery method for occupational therapy services. A system that has a user-friendly operation and documented levels of security features increases the acceptance of telehealth (Demiris et al., 2010).

Multiple factors go into determining the cost of a system, including cost of equipment, cost for setup, and recurring charges such as Internet access and payment for services. Using common technology, such as a telephone or basic Internet connection can reduce the cost of delivering occupational therapy services via telehealth for both the older adult client and the practitioner (Bendixen et al., 2009). Compared with the costs of travel required by the practitioner or client for an in-person visit, telehealth services have been shown to be the same or less expensive (Bendixen et al., 2009; Bujnowska-Fedak & Grata-Borkowska, 2015).

An older adult client may find it more convenient to receive services at home. Telehealth services can eliminate the need for the client or therapist to travel a long distance in rural areas and for clients with limited means of community mobility to access services (Barlow, Liu, & Sekulic, 2009). The choice to receive services for convenience must be made by the older adult client in conjunction with best practice determined by the occupational therapist (AOTA,

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Table 1. Considerations for Using Telehealth Services

These considerations are from the American Occupational Therapy Association's (AOTA's) position statement on telehealth (AOTA, 2013a) and telehealth advisory opinion (AOTA, 2013b). To determine whether to provide occupational therapy by means of telehealth, the occupational therapist must consider the following:

- The complexity of the client's condition
- The knowledge, skill, and competence of the occupational therapy practitioner
- The nature and complexity of the intervention
- The requirements of the practice setting
- The client's context and environment
- The client's comfort and competence with the technology

Ethical considerations:

- Inform the client about the implications of telehealth versus in-person delivery model
- Determine whether the services being provided in line with occupational therapy professional standards, AOTA's position statement on telehealth (AOTA, 2013a), and the AOTA Code of Ethics (2015)(AOTA, 2015)
- Ensure privacy, security, and confidentiality are not compromised
- Understand and adhere to procedures if there is any compromise of security related to health information
- Assess the effectiveness of the telehealth intervention through current research and ongoing monitoring of client response
- Recognize the need to be culturally competent in the provision of telehealth, including language, ethnicity, socioeconomic, and educational background

2013a). Ultimately, the client has the choice to turn down services delivered through telehealth. Using telehealth as a convenience for the practitioner violates the AOTA Code of Ethics (2015) (AOTA, 2013b). However, older adult clients may find that remote monitoring provides a sense of security by allowing them to remain in their own home (Bujnowska-Fedak & Grata-Borkowska, 2015).

Licensure

Licensure dictates the delivery of occupational therapy services in each state, including services delivered through telehealth (AOTA, 2013a). Some states do not provide guidance or clarity about the differences between face-to-face and telehealth services; in these cases practitioners must rely on a best faith effort to uphold the legal requirements of their state's licensure laws. For example, some states allow all types of services as long as the same quality standards as face-to-face service delivery are upheld, while others limit the type of service to consultative only (Calouro, Kwong, & Gutierrez, 2014). Another issue common in many state licensure laws is physical presence. Because all states require a license to practice, occupational therapy practitioners must be licensed in the state where they are providing services. However, practitioners must also be aware of current state licensure laws regarding the legal view of physical presence and provision of services across state lines.

Reimbursement

Occupational therapy services to older adults may be paid through third-party payer sources such as Medicare, Medicaid, private insurance, or private pay. Currently, Medicare does not reimburse for occupational therapy services delivered through telehealth (Centers for Medicare & Medicaid Services [CMS], 2016). Practitioners must understand each state's Medicaid policy before delivering telehealth services. Not all states have published this policy, so practitioners

may have to contact their state's Medicaid office to see what's covered. For clients using private insurance, practitioners must contact the insurer about the plan's telehealth reimbursement policies. Private pay may also be an option if the client agrees to the fee for services. Even states that require coverage of telehealth services may not reimburse at the same rate as in-person visits.

Case Example

Doris was an 87-year-old woman who lived at home with her husband. She spent several days in the hospital because of an exacerbation of congestive heart failure (CHF) symptoms. Doris had a history of uncontrolled CHF because of poor dietary decisions. After hospitalization she wanted to return home but required assistance for many of her daily occupations because of weakness. She would need to rely on her spouse, who had some mild health issues. Doris and her husband lived more than 50 miles from the nearest occupational therapy clinic and preferred not to have a therapist come regularly to their home. Travel to the clinic required time and cost that would have created a notable burden on them. After discussion with the occupational therapist, Doris and her husband decided that telehealth services might be a good option for them.

The therapist confirmed that Doris had access to the Internet and felt comfortable with basic computer navigation. The therapist also identified that Doris lived in a different state from her. The therapist checked licensure laws in her and Doris' states and determined that she could provide services to Doris because she was licensed in both, and the laws allowed for telehealth delivery of occupational therapy services. Because Doris was on Medicare, the therapist could not be reimbursed for telehealth services, so the billing department discussed a private pay fee schedule with Doris and her husband. They all agreed to the terms of the fee schedule. Generally under Medicare if a service is expected to be denied, as is the case with telehealth, providers must provide beneficiaries with an Advance Beneficiary Notice of Noncoverage (CMS, 2014).

The therapist made an initial visit to the home, as determined in the agreement for services, to conduct a home evaluation and to assist Doris in setting up a secure video conference application on her computer. The therapist provided a tutorial on how to navigate the features of the video conference application to assure Doris and her husband both felt comfortable with the system. The therapist also spoke with Doris' husband to assure he was able to assist Doris as needed during the occupational therapy sessions delivered through telehealth. The therapist and Doris were then ready to meet for future occupational therapy sessions by means of the video conference system. The therapist also identified that Doris would benefit from an in-home monitoring system to allow the nurse at the home health agency

About the Gerontology SIS

The Gerontology Special Interest Section (GSIS) provides resources and support for clinicians, researchers, educators, and students who are addressing the complex needs of older adults along the continuum of care. It highlights new and innovative intervention approaches for older adults with physical, psychosocial, and developmental needs, as well as relevant policy impacting current geriatric practice.

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to track Doris' health status on a regular basis to manage control of her CHF. Doris and her husband were satisfied with the telehealth therapy sessions and, with the addition of home health nursing, were able to participate in their daily activities in and around their home.

Conclusion

While there are considerable hurdles to delivering occupational therapy services through telehealth to older adults, there is also notable promise of beneficial opportunities. Occupational therapy practitioners must consider user acceptance, legal requirements, and payer source regulations in addition to following best practice guidelines (AOTA, 2013a; ATA, 2010). When practitioners follow best practice guidelines to assure user acceptance and follow all regulations, telehealth can be an effective delivery method alternative to traditional face-to-face services.

References

- American Occupational Therapy Association. (2013a). Telehealth. *American Journal of Occupational Therapy*, 67, S69–S90. <http://dx.doi.org/10.5014/ajot.2013.67S69>
- American Occupational Therapy Association. (2013b). American Occupational Therapy Association advisory opinion for the ethics commission—Telehealth. Retrieved from <https://www.aota.org/~media/corporate/files/secure/advocacy/state/telehealth/telehealth%20ethics.pdf>
- American Occupational Therapy Association. (2015). Occupational therapy code of ethics (2015). *American Journal of Occupational Therapy*, 69, 6913410030p1–6913410030p8. <http://dx.doi.org/10.5014/ajot.2015.696S03>
- American Telemedicine Association. (n.d.). What is telemedicine? Retrieved from <http://www.americantelemed.org/about-telemedicine/what-is-telemedicine#.V3V5zUsrJhE>
- American Telemedicine Association. (2010). *A blueprint for telerehabilitation guidelines*. Retrieved from <http://www.americantelemed.org/resources/telemedicine-practice-guidelines/telemedicine-practice-guidelines/blueprint-for-telerehabilitation-guidelines#.V3V5lksrJhf>
- Barlow, I. G., Liu, L., & Sekulic, A. (2009). Wheelchair seating assessment and intervention: A comparison between telerehabilitation and face-to-face service. *International Journal of Telerehabilitation*, 1, 17–27.
- Bendixen, R. M., Levy, C. E., Olive, E. S., Kobb, R. F., & Mann, W. C. (2009). Cost effectiveness of a telerehabilitation program to support chronically ill and disabled elders in their homes. *Telemedicine and e-Health*, 15, 31–38.
- Bujnowska-Fedak, M. M., & Grata-Borkowska, U. (2015). Use of telemedicine-based care for the aging and elderly: Promises and pitfalls. *Journal of Smart Homecare Technology and TeleHealth*, 3, 91–105.
- Calouro, C., Kwong, M. W., & Gutierrez, M. (2014). An analysis of state telehealth laws and regulations for occupational therapy and physical therapy. *International Journal of Telerehabilitation*, 6, 17–23.
- Centers for Medicare & Medicaid Services. (2014). Fee for service Advance beneficiary notice of noncoverage. Retrieved from <https://www.cms.gov/Medicare/Medicare-General-Information/BNI/ABN.html>
- Centers for Medicare & Medicaid Services. (2016). *Medicare claims processing manual: Chapter 12—Physicians/nonphysician practitioners*. Retrieved from <https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/clm104c12.pdf>

Welcome From the GSIS Chairperson

Jenny Martinez, OTD, OTR/L

It is a pleasure to introduce myself as the incoming Chairperson of the Gerontology Special Interest Section (GSIS). This is a special but challenging time for our profession and gerontology practice. As we prepare to commemorate the profession's 100th birthday, it is essential that we are prepared to demonstrate the value of occupational therapy amidst a changing health policy landscape and are committed to providing high-quality care to all people, including those who are most vulnerable.

As incoming Chairperson, I'd like to first express my gratitude to the outgoing GSIS Committee for their hard work and commitment to moving the GSIS forward. It is also a privilege to introduce the incoming GSIS Standing Committee Members:

- ▶ Noralyn Pickens, OT, PhD, our editor for the *SIS Quarterly Practice Connections*
- ▶ Jamie Schaap, MSOT, OT, our forum coordinator
- ▶ Sarah Blaylock, MS, OTR/L, our education and research coordinator

I would also like to thank Julie Ann Nastasi, ScD, OTD, OTR/L, SCLV, FAOTA, for her continued support as moderator of the Low Vision forum and recognize the contributions of our Advisory Council members. Together, we are committed to supporting GSIS members as we work to achieve Vision 2025 and enhance occupational therapy practice for older adults. We encourage you to become involved in the Gerontology forum in the AOTA members section on OT Connections (http://otconnections.aota.org/sis_forums/f/14.aspx), share your expertise through presentations and publications, and reach out to us so we can continue to serve you.

- Chumbler, N. R., Quigley, P., Li, X., Morey, M., Rose, D., Sanford, J., . . . Hoenig, H. (2012). Effects of telerehabilitation on physical function and disability for stroke patients: A randomized, controlled trial. *Stroke*, 43, 2168–2174.
- Demiris, G., Charness, N., Krupinski, E., Ben-Arieh, D., Washington, K., Wu, J., & Farberow, B. (2010). The role of human factors in telehealth. *Telemedicine and e-Health*, 16, 446–453.
- Ng, E. M. W., Polatajko, H. J., Marziali, E., Hunt, A., & Dawson, D. R. (2013). Telerehabilitation for addressing executive dysfunction after traumatic brain injury. *Brain Injury*, 27, 548–564.

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Evidence Shows Exercise Can Help ADL Performance in People With Dementia

Did you know that there is strong evidence to support the benefit of exercise to improve or prevent decline in ADL performance for people with dementia? To find out more and learn about other evidence best practices to guide and inform services for individuals with Alzheimer's disease and related disorders, check out the Critically Appraised Topics at www.aota.org/Practice/Productive-Aging/Evidence-based.aspx#Alzheimers.

Rehabilitation, Disability, & Participation

Assistive Technology: An Occupational Therapy Perspective on the Importance of Making, Inclusion, and Use

T

Holly Cohen, OTR/L, ATP, SCEM, CDRS

Assistive technology (AT) is often used to help people improve their performance on tasks they want and need to do. The Assistive Technology Act of 2004 defines AT as “any item, piece of equipment, or product system, whether acquired commercially, modified, or customized, that is used to increase, maintain, or improve the functional capabilities of individuals with disabilities.” Simply put, AT is any technology that helps facilitate independence for the user, and it can vary from low- to high-end. Low-tech devices, such as a reacher or a shoehorn, are the most commonly used. As occupational therapy practitioners know, AT can be instrumental in improving the independence and quality of life of the user. The primary purpose of AT intervention is not remediation or rehabilitation of an impairment, but provision of hard and soft technologies that enable an individual with a disability to be functional and independent in activities of daily living (Cook & Polgar, 2007). Occupational therapy practitioners have the skill set to not only prescribe AT but also to be involved in its design and creation.

Occupational Therapy and Making

The *maker movement* is an umbrella term for the increasing prevalence of independent inventors, designers, and tinkerers (Voight, 2014). The idea of “making” is most simply creating objects, including tools and devices. Occupational therapy practitioners have long been makers under this definition. As long as the field of occupational therapy has been in existence, occupational therapy practitioners have been making or adapting tools, and involving their clients in the design and process. Using arts and crafts as part of a movement to celebrate individualism and design arose in the early 1890s. Proponents of this movement asserted that the change from an agrarian to a manufacturing society resulted in a society of dissatisfied workers who were bored by monotonous and repetitive working conditions (Schwartz, 2012). The founders of the occupational therapy profession were heavily influenced by these ideas, with William Rush Dunton, Susan Johnson, and Adolf Meyer advocating for the occupational use of quilting, crafts, and creative pursuits as key to health and rehabilitation.

The idea of creating client-centered solutions, including the individual as an integral part of the design process, is at the very core of the occupation therapy profession. Occupational therapy practitioners were and are makers. Over the years, as practitioners adapted to the medical model due to changes in the health care reimbursement system, the incorporation of making and creating changed. Increasing

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Join the Conversation!

Holly Cohen will join Technology SIS Editor Megan Edwards Collins for a virtual chat about this article at 11 a.m. on Thursday, Dec. 8. AOTA members are invited to listen in and submit questions during the chat. Join us at www.talkshoe.com/tc/138131 to participate or listen to the recorded call.

productivity demands, coupled with the widespread availability of “off-the-shelf” devices, have de-emphasized the role of occupational therapy practitioners as makers. We still commonly create splints and orthoses but are now usually purchasing from catalogs items that we once created in clinics, such as built-up utensils and pencil grips. This all but eliminates customizations for the user and takes the individual out of the design process. Although prefabricated devices might work for some, they cannot meet the needs of all the clients with whom we work. Eliminating that customization and inclusion of the client in the design process can also affect user “buy-in.” The single most important reason devices are not used by consumers is lack of their involvement in selection (Scherer, 2002). Individuals who are involved in selection in a meaningful way will generally be more satisfied with services (Scherer, 2002). This can also be said for customizing a device or tool.

Occupational Therapy and Do It Yourself

Beyond including clients in device selection and design, there is an increase in the Do-It-Yourself (DIY) mindset, creating for the needs of the individual in a less expensive manner. Creating or “making” new technology is often perceived as very difficult and time consuming. Additional constraints on the making process can include a lack of comfort on the part of occupational therapy practitioners, limited time available in a clinical setting, and even liability for the “maker” if the device doesn’t work. The DIY or maker community is showing that these concerns don’t have to become barriers. Individuals with impairments, their caregivers, and health care providers are creating and sharing solutions to meet needs.

Tools traditionally thought to be only in manufacturing spaces are now available to be used by people from all walks of life and backgrounds, in all settings. This includes 3-D printers, laser cutters, and milling machines, which can all be controlled by a computer. It is not unheard of for someone to have at least one of these devices, such as the 3-D printer, in their home. The availability of this technology allows us to create prototypes of solutions for access and independence, on an as-needed basis. It is allowing for a “design for one” solution with increased customization. This approach also highlights the need for computer access for a person with a disability. The computer is the great equalizer. If someone can access a computer, they can access all of these customization tools and more. Users can create their solutions through these tools with increased ease. Social media has been instrumental in the access to and dissemination of DIY solutions. It is empowering others to look at alternative versus conventional solutions. Sites like Pinterest, Instructables, Thingiverse, and even Etsy feature DIY AT solutions that are searchable with terms like *disability* or *assistive technology*.

Additionally, areas known as “makerspaces” are cropping up all over the world. A makerspace can be described as a community center

Welcome From the TSIS Chairperson

William E. Janes, OTD, MSCI, OTR/L

It is an honor to serve the Association as Chairperson of the Technology Special Interest Section (TSIS). My goal is to be a resource to you, the AOTA membership.

Every occupational therapy clinician, researcher, educator, and student uses technology in the course of their work. Whether it’s a complex power mobility device or a pencil and notepad, we all use technology every day—and so do our clients. The boundaries between what we call “assistive technology” and just “technology” are arbitrary and becoming increasingly meaningless.

Regardless of the complexity or the cost of any given tool, TSIS is here to help you find new options, appraise the evidence, and incorporate technology into your practice. The TSIS Standing Committee cannot achieve these goals alone. We are committed to serving as a resource to connect members with one another and find solutions. Visit us at <http://aota.org/TSIS> to view the resources we have available, and click through to our OT Connections Forum (http://otconnections.aota.org/sis_forums/f/20.aspx) to get involved.

Finally, it is my great pleasure to introduce to you the TSIS Standing Committee: Education/Research Coordinator Rachel Proffitt, Forums Coordinator Mindy Garfinkel, and *Quarterly* Editor Megan Edwards Collins. Early in their terms, they have already proven themselves to be incredibly talented, energetic, and creative. Thanks to their efforts, our Quarterlies and Virtual Chats will continue to bring you actionable evidence to improve your practice, popular events like Conference Appy Hour will continue and grow, and our social media presence will expand to engage AOTA members in your already-thriving communities.

with shared tools and collaborative makers. Makerspaces combine the manufacturing equipment described above, community, and education for the purpose of assisting users to design, prototype, and create new devices (Makerspace, 2014). Makerspaces are being formed in libraries and schools, and as standalone not-for-profit organizations. Recently, makerspaces have been formed in health care centers and hospitals to facilitate the creativity of health care professionals. The MakerNurse organization, for example, was launched with the goal of examining nurse innovation in U.S. hospitals and identifying tools and resources that could help more nurses bring their ideas to fruition and lead improvements in patient care. They have begun “MakerHealth” programs, which include the physical space for prototyping, including training and integrating the prototypes into operations (MakerNurse, 2013). This approach takes the design and customization process out of the hands of those within the health care system and returns it to members of the community at large.

How Can We All Work Together? Inclusion in Making

Prescribing AT, including training, is important, but including the user is crucial. Occupational therapists have the experience to assess the person’s function and make recommendations to meet their goals. The user has the unique perspective of the daily struggles they experience. The viewpoint and perspective of the user are essential

for device use acceptance as well as for a successful customization process (Hurst & Tobias, 2011).

Technology abandonment is often discussed among AT professionals. To improve technology acceptance, design efforts should focus on matching the device's features to the user's needs, instead of matching the user to the device. Not doing so contributes to the high rate of AT abandonment (Sears & Jacko, 2012). Involving the individuals with whom we work in the design and selection of technology has the potential to decrease the abandonment of devices. Having the user involved in designing the device or tool demonstrates to the individual what they can do and can empower them to think outside of the box and create their own solutions. For example, many times I see clients who want to do only one action, such as use an adaptive mouse. Once that individual is independent with mouse use, through the appropriate adaptations, they often start to ask, "what else can I do?" Occupational therapists can suggest additional technologies to provide independence in other areas of their lives such as environmental controls or adaptations to meet a vocational goal.

Making in Practice

Occupational therapy practitioners with adequate support can put inclusive making at the center of their practice. I started the comprehensive AT service at NYU Langone Medical Center 14 years ago to address the needs of adults and children across all services. During the initial period of developing the AT program, I began to take classes at the Interactive Telecommunications Program (ITP) at New York University. It was there that I learned about making and how it could be an integral part of occupational therapy. It was also at ITP that I met John Schimmel, a like-minded adjunct professor at ITP and a programmer who was also motivated to create new technology to increase the independence of users when off-the-shelf technology did not meet their needs. Through our collaboration we created DIYAbility, in 2011. DIYAbility is an organization that strives to educate individuals with and without disabilities on AT, assisting users with creating their own solutions to increase their independence through device use. Since its inception, DIYAbility has created "one-off" devices with individuals as part of the making process, held hacking workshops to teach individuals how simple it can be to adapt their own devices, and held webinars for occupational therapy practitioners.

Conclusion

As occupational therapy practitioners, we need to think beyond the *use* of technologies to also embrace making and tinkering. Customization needs to be part of our "tool box," creating and involving end users to make the devices more valuable to our clients. Incorporating the individual's ideas and thoughts into the design will increase their "investment" in its use. Not only can our clients learn from us, but we

About the Technology SIS

The Technology Special Interest Section (TSIS) encompasses the use of assistive technologies, telehealth, health application "apps," virtual reality, and gaming technologies used to enhance occupational performance, participation, role competence, and quality of life. It also provides a forum for learning about technologies specific to individuals with disabilities—seating, positioning and mobility, reasonable accommodations, augmentative communications, and adaptive computer access—as well as for exploring technologies for program administration and client evaluation and treatment.

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can learn from our clients. Making opens up practitioners' thinking and increases our comfort level to enhance the field of occupational therapy. Through the incorporation of making we can continue to grow as providers.

References

- Assistive Technology Act of 2004. Pub. L. 108-364. 29 USC 3002, STAT. 1710, p. 118
- Cook, A. M., & Polgar, J. M. (2007). *Cook & Hussey's assistive technologies: Principles and practice* (3rd ed.). St. Louis: Mosby.
- Hurst, A., & Tobias, J. (2011). Empowering individuals with do-it-yourself assistive technology. *ACM SIG ASSETS Conference on Computers and Accessibility*. Dundee, Scotland.
- MakerNurse. (2013). MakerHealth spaces. Retrieved from <http://makernurse.com/makerhealth-spaces/>
- Makerspace. (2014). What's a makerspace? Retrieved from <http://spaces.makerspace.com/>
- Scherer, M. J. (2002). The change in emphasis from people to person: Introduction to the special issue on assistive technology. *Disability and Rehabilitation*, 24, 1-4.
- Schwartz, K. B. (2012). History and practice trends in physical dysfunction intervention. In H. M. Pendleton & W. Schultz-Krohn (Eds.), *Pedretti's occupational therapy: Practice skills for physical dysfunction* (7th ed.; pp. 18-27). St. Louis: Mosby.
- Sears, A., & Jacko, J. (2012). *The human-computer interaction handbook: Fundamentals, evolving technologies, and emerging applications* (3rd ed.). New York: CRC Press.
- Voight, J. (2014, March). Which big brands are courting the maker movement, and why: From Levi's to Home Depot. *AdWeek*. Retrieved from <http://www.adweek.com/news/advertising-branding/which-big-brands-are-courting-maker-movement-and-why-156315?page=2>
- Holly A. Cohen**, OTR/L, ATP, SCEM, CDRS, is a program manager at NYU Langone Medical Center, adjunct professor at New York University, as well as the co-founder of DIYAbility, all located in New York City. She gave a TED Talk in February 2016 on adapting toys and consumer electronics for accessibility, educating users in creating their own solutions, and including all in design. She can be reached at holly@diyability.org.



Evidence Addresses Depression in Adults With Stroke

A 2014 systematic review reveals moderate evidence to support the effectiveness of problem-solving techniques and motivational interviewing to address depression in adults with stroke. To find out more and learn about other key evidence recommendations to guide and inform mental health services for adults with stroke, check out the Critically Appraised Topic, the Practice Guidelines, and the *AJOT* systematic review article at www.aota.org/Practice/Rehabilitation-Disability/Evidence-Based.aspx.

Sponsored in part by Rocky Mountain University of Health Professions

Telepresence: A Job Accommodation Option for Workers

WI

Katharyn Parini, MSOT

Occupational therapy practitioners have a role in intervention and advocacy to help employers and employees identify and implement accommodations that enable clients to be productive and effective at their workplace, to fulfill employer expectations, as well as to engage in the meaningful occupation of work. Telepresence is a potential accommodation for clients and employees who experience injury, disability, or disease that limits mobility in or access to the workplace, to gain and sustain meaningful and productive employment.

A focus of occupational therapy practitioners is to facilitate and support individuals in selecting work opportunities, participating in employment-seeking tasks, and engaging in performance of job tasks (American Occupational Therapy Association [AOTA], 2014). Individuals experiencing chronic conditions, functional limitations, or progressive illnesses may require occupational therapy services such as injury prevention, work rehabilitation, transitional return-to-work programs, environmental modifications, accommodations, task adaptations, and education about employment and disability (Jaegers, Finch, Dorsey, & Ehrenfried, 2015). Interventions focus on maximizing participation and performance in the workplace and may

include evaluating job demands and clients' performance capacity, identifying job modifications, implementing assistive technology, advocating for reasonable job accommodations to maintain or gain employment, and exploring funding options and resources.

In the most recent U.S. Census Bureau's American Community Survey statistics, 34.5% of the most common disabilities among people who are employed are ambulatory or independent living difficulties (Erickson, Lee, & von Schrader, 2014). People experiencing mobility disabilities have decreased participation in employment because of difficulty finding adequate transportation and completing work tasks due to accessibility issues (Rimmer, Riley, Wang, Rauwirth, & Jurkowski, 2004).

It is important that clients are able to maintain participation through employment, which supports health and well-being (AOTA, 2011). According to Coenen and Kok (2014), flexible work schedules and telework increase employee productivity and can positively affect workplace organizational performance. New and evolving technology, such as telepresence robots, provides options for adapting the workplace or environment and context to improve participation.

Telepresence Robotics: An Overview

Video conferencing (e.g., Skype, Facetime), phone calls, email, and other electronic messaging platforms can assist with working from home. While these types of technology are useful, they have limita-

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tions such as a two-dimensional view of the remote environment and exclusive control and placement of the remote device by the people in the remote location.

Telepresence robots are remote controlled, moving stands with a screen that displays two-way audio and video of the remote user (i.e., the worker at home), and allow the user to have three-dimensional engagement with the workplace or environment in which the telepresence robots are located. In addition, people in the workplace or environment can interact with the remote user in real-time and “face-to-face.” Telepresence robots also provide opportunities for increased social interactions between the people in the environment and the remote user. For example, the worker may be an engineer who uses a wheelchair and cannot travel to a workplace because of skin integrity issues. However she can operate the robot and move virtually through the workplace with co-workers to view a project, ask questions, or point out concerns. As this technology advances, occupational therapy practitioners have a potential role in implementing telepresence robots as a viable job accommodation, as well as providing training and adaptation of the technology to control the device.

Some telepresence robots (see Table 1) can be connected to wireless Internet interfaces and allow the user to control the robot through a computer browser (Revolve Robotics, 2016; Suitable Technologies, 2016; VGo Communications, 2012).

Table 1. Options for Telepresence Robots

Name	Price	Connectivity	Website
Kubi	\$500 to \$550 with tablet	Bluetooth and WiFi	https://www.revolverobotics.com/get-kubi/
VGo	\$4,995 with subscription	Verizon LTE or WiFi	http://www.vgo-com.com/
BeamPro	\$1,995	WiFi	https://suitabletech.com/store/product/beam-plus/

The Kubi robot is small enough for tabletop conferencing (Revolve Robotics, 2016), while the VGo can be adjusted to a height of 5' tall, which allows for eye-level contact with people in the workplace or environment (VGo Communications, 2012). Employees working remotely may control the robot through keyboard controls, a mouse, joysticks, and eye tracking. Depending on the situation, the cost of the robot may be paid by the employer, be an out-of-pocket expense for the employee, or be shared between the employer and employee. In addition to the cost of the telepresence robot, there may be additional costs for Internet connectivity.

Currently, telepresence robots are being used for learning in school systems, working in places of employment, and participating in leisure activities in the community. Researchers have found that telepresence robots benefit individuals with cognitive and physical impairments in social activities (Leeb et al., 2015; Tsui et al., 2014). This is because the user is essentially embodied in the telepresence robot, providing a physical presence in the environment that provides the user with the ability to make eye contact, travel through space, and view as well as interact with the three-dimensional world.

Little research is available regarding the use of telepresence as a job accommodation for people with disabilities seeking employment. However, telepresence robots have been shown to aid individuals in their occupation of being a student (Bloss, 2011). Bloss (2011)

About the Work & Industry SIS

The Work & Industry Special Interest Section (WISIS) focuses on the distinct role of occupational therapy in assisting people and groups across populations to engage and reengage in the meaningful occupation of work throughout the lifespan. The WISIS is dedicated to understanding the relationship of work to human development, motivation, and performance and supporting occupational therapy practice in a wide variety of settings. The WISIS provides a forum for networking with peers and other professionals, a means to access clinical resources, and a way to share emerging service delivery systems.

- Meet the WISIS committee members at www.aota.org/WISIS.
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reported that a student was able to use a VGo telepresence robot when he was medically unable to attend his classes. This robot enabled the student to engage in social interactions that would not have been available otherwise, such as watching sporting events, attending lunch with friends, and having the sense that he was face to face with a speaker. The student was also able to participate in his education more thoroughly through engaging in classroom discussions, attending lectures, and interacting with professors.

Occupational therapy practitioners can adapt telepresence robots for clients who have motor deficits that prevent access to web controls. These assistive technology devices can be adaptations to the computers that connect to the robots in the remote location. Assistive technology devices can include head tracking, eye-gaze tracking, and mouth joysticks (Assistive Technology Industry Association, 2016). Occupational therapy practitioners have the skills to choose appropriate adaptations and implement them, as well as to educate clients on using these adaptations. Kristoffersson, Coradeschi, and Loutfi (2013) expressed concerns about telepresence robotics for people with severe motor disabilities, who may not have the motor control or strength to be able to access and operate controls. However, a possible adaptation for people who are unable to access controls is a brain-computer interface that can translate neural impulses through electrodes or an implant. Brain-computer interfaces have been shown to improve quality of life in individuals with severe motor disabilities (Leeb et al., 2015) by following the neurological impulses of the user. Occupational therapists can work with and make referrals to specialists in this type of interface for clients and employees who have severe motor disabilities.

Telepresence as an Accommodation

The Americans with Disabilities Act of 1990 requires employers to provide reasonable accommodations to employees with disabilities. The process of determining these accommodations begins with an employee request to the employer, which may be accomplished verbally or in writing, stating the medical need and type of accommodation desired. Occupational therapy practitioners may suggest appropriate accommodations in these situations, such as increasing accessibility to physical structures, working from home, modifying work schedules, providing adaptive equipment, and modifying job tasks (Job Accommodation Network, n.d.).

Although telepresence robotics is not yet a common request or recommendation, many studies have shown that client satisfaction with telepresence robotics is positive (Kristoffersson et al.; Leeb

et al., 2015). It is also important to note that telepresence robotics are not solely for people with disabilities, but they can be used by anyone who has an Internet connection and has the software to connect to a robot that has already been set up. Occupational therapy practitioners considering telepresence as an accommodation should become technologically aware of the interface, connectivity, and controls. Occupational therapy practitioners may work together with and assist with training the employee or client to establish the most effective use of the telepresence robot. Most corporate websites for telepresence robots contain tutorials, instructions on usage, features of the robot, and software guides (Revolve Robotics, 2016; VGo Communications, 2012).

A Telepresence User

Henry Evans sustained a major stroke at the age of 40, which resulted in quadriplegia and impaired speech. After his stroke, Henry began using telepresence robots to complete his goals, and said that using telepresence robots is the closest he has gotten to being able to walk again. He uses the robots for traveling, working, socializing, and sightseeing (e.g., visiting museums). In these cases, Henry simply connects to a robot that has already been established at the location he wishes to "visit."

Henry began Robots for Humanity (2013) with a goal of providing people in need with telepresence robots so they can go to work, go to school, socialize, and travel. Henry's long-range vision of telepresence robotics for people with disabilities extends to legislation, beginning with implementing telepresence robots in businesses as a reasonable accommodation under the Americans with Disabilities Act. Henry hopes to see telepresence robots in every business for people with and without disabilities to use. Potential benefits of this goal are that the robots would be free and accessible to all employees who have a wireless Internet connection, allowing more of them to work remotely due to inclement weather, transportation issues, etc., increasing productivity and improving participation in the occupation of work (H. Evans, personal communication, April 22, 2016).

Conclusion

Occupational therapy practitioners may have a role in implementing the use of telepresence robots to increase clients' and employees' participation in employment and other occupations. Using telepresence as a job accommodation provides an additional opportunity to help occupational therapy practitioners, clients, and employers maximize the fit between the person and the device, as well as the person, the occupational tasks, and the environment. Telepresence may be instrumental in increasing employees' and individuals' well-being as a result of work participation.

References

- American Occupational Therapy Association. (2011). Occupational therapy services in facilitating work performance. *American Journal of Occupational Therapy*, 65(Suppl.), S55–S64. <http://dx.doi.org/10.5014/ajot.2011.65s55>
- American Occupational Therapy Association. (2014). Occupational therapy practice framework: Domain and process. *American Journal of Occupational Therapy*, 68(Suppl.), S1–S48. <http://dx.doi.org/10.5014/ajot.2014.682006>
- Americans With Disabilities Act of 1990, Pub. L. 101-336, 42 U.S.C. §§ 12101–12213 (2000).
- Assistive Technology Industry Association. (2016). What is AT?. Retrieved from <https://www.ata.org/at-resources/what-is-at/>
- Bloss, R. (2011). High school student goes to class robotically. *Industrial Robot: An International Journal*, 38, 465–468.
- Coenen, M., & Kok, R. A. W. (2014). Workplace flexibility and new product development performance: The role of telework and flexible work schedules. *European Management Journal*, 32, 564–576.
- Erickson, W., Lee, C., & von Schrader, S. (2014). 2012 disability status report: United States. Ithaca, NY: Cornell University Yang Tan Institute. Retrieved from http://www.disabilitystatistics.org/reports/2012/English/HTML/report2012.cfm?fips=2000000&html_year=2012&subButton=Get+HTML#introduction
- Jaegers, L., Finch, D., Dorsey, J., & Ehrenfried, H. (2015, March). Supporting occupational therapy practice in work & industry: Hot topics. *Work & Industry Special Interest Section Quarterly*, 29(1), 1–4.
- Job Accommodation Network. (n.d.). Employees' practical guide to negotiating and requesting reasonable accommodations under the Americans with Disabilities Act (ADA). Retrieved from <https://askjan.org/Eeguide/IIRquest.htm#HowdoIrequest>
- Kristoffersson, A., Coradeschi, S., & Loutfi, A. (2013). A review of mobile robotic telepresence. *Advances in Human-Computer Interaction*, Article ID 902316, 1–17. <http://dx.doi.org/10.1155/2013/902316>
- Leeb, R., Tonin, L., Rohm, M., Desideri, L., Carlson, T., & Millán, J. D. (2015). Towards independence: A BCI telepresence robot for people with severe motor disabilities. *Proceedings of the IEEE*, 103, 969–982.
- Revolve Robotics. (2016). Get Kubi. Retrieved from <https://www.revolverobotics.com/get-kubi/>
- Rimmer, J. H., Riley, B., Wang, E., Rauworth, A., & Jurkowski, J. (2004). Physical activity participation among persons with disabilities. *American Journal of Preventive Medicine*, 26, 419–425. <http://dx.doi.org/10.1016/j.amepre.2004.02.002>
- Robots for Humanity. (2013). Robots for Humanity overview. Retrieved from <http://r4h.org/>
- Suitable Technologies. (2016). Beam + Smart Presence System. Retrieved from <https://suitabletech.com/store/product/beam-plus/>
- Tsui, K. M., McCann, E., Mchugh, A., Medvedev, M., Yanco, H. A., Kontak, D., & Drury, J. L. (2014). Towards designing telepresence robot navigation for people with disabilities. *International Journal of Intelligent Computing and Cybernetics*, 7, 307–344.
- VGo Communications. (2012). VGo. Retrieved from <http://www.vgocom.com/>
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Critically Appraised Paper Offers Interventions to Treat Work-Related Injuries

Interested in interventions to treat pain in clients with work-related upper-limb injuries? Based on a peer-reviewed article, the Critically Appraised Paper (CAP) at <http://goo.gl/qgyqNe> provides an at-a-glance summary of how self-administered exercise programs in combination with ergonomic workplace improvements can be used to reduce pain and increase productivity with work-related tasks. For other CAPs and information on opportunities to submit or serve as a reviewer for a CAP, visit www.aota.org/Practice/Researchers/Evidence-Exchange.aspx.

Sponsored in part by A.T. Still University

Leadership Development Through Online e-Portfolio Creation

E Shirley P. O'Brien, PhD, OTR/L, FAOTA; and Jennifer Hight, OTD, OTR/L

The use of portfolios as a learning and professional development tool has been a part of occupational therapy education for several decades (Crist, Wilcox, & McCarron, 1998; Kramer & Stern, 1994; Powell & Greenberg, 2009). Based on a constructivist orientation to teaching and learning, portfolios represent a type of active learning strategy that supports self-evaluation through reflection, capitalizing on the self-motivation and curiosity of adult learners (Green, Wyllie, & Jackson, 2013; Kolb, 1984). Portfolios may be used as a showcase of one's best work, as well as a way to demonstrate growth and development in a professional program (Green et al., 2013). Within the health professions, portfolios may also be used to evaluate competence and learning outcomes (Garrett, MacPhee & Jackson, 2013; Hinojosa & Howe, 2016).

The incorporation of portfolios at the graduate level has particular importance given the need for students to not only learn core clinical competencies, but also to acquire professionalism, role identity, and a commitment to lifelong learning. For practicing occupational therapists who engage in postgraduate training, the portfolio

serves yet another purpose, as it may guide the transformation from therapist to therapist-leader. Portfolio creation offers a particularly valuable learning and evaluation tool for post-professional doctor of occupational therapy (PP-OTD) program faculty who aim to develop leaders of the profession.

The growth of online PP-OTD programs within the past several years has provided occupational therapists more flexibility and enhanced opportunities for pursuing the OTD degree. Given the potential usefulness of portfolios in guiding leadership development, portfolio creation within online PP-OTD programs requires a format that supports active learning and self-reflection while simultaneously integrating technology. With these requirements in mind, the faculty in Eastern Kentucky University's (EKU's) PP-OTD program have established an electronic portfolio (e-Portfolio) that supports student leadership development throughout the curriculum.

Selecting the e-Portfolio Platform

Selecting a web-based site for an accessible, user-friendly e-Portfolio required exploring products available both within EKU's learning management system (LMS; Blackboard), and commercial online platforms. Criteria included affordability, ease of use and access, multimedia options, and ongoing control functions and help features. The goal was to find an e-Portfolio that could be shared for program purposes in the short term with faculty and peers, and long term with employers, clients, and other stakeholders. The Blackboard portfolio

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option was cost effective as it was within the institutional LMS, but it was rejected based on lack of portability, ongoing maintenance, and control post-graduation. Google Sites was explored as a first option, as it is free; however, student feedback about ease of use, particularly merging documents, uploading multimedia products, and help functions encouraged faculty to look for an alternative site. Faculty worked with an instructional designer to explore other potential sites, which included Weebly (n.d.) and Wix (n.d.). Based on the set criteria, faculty opted for Wix to meet programmatic needs.

e-Portfolio Creation

PP-OTD students begin the portfolio process in EKU's five-course leadership seminars. Each course is offered in an intensive 8-week format, with a 6-week summer course. Class sequence is determined by when the student enters the program. Students curate their portfolios to showcase their finest professional work. The portfolio is an authentic evaluation product, demonstrating learner-centered progress through the PP-OTD in meeting program outcomes. Students critically select work demonstrating prominence of their leadership abilities and competencies, including multimedia products (e.g., videos), papers, and graphic images (e.g., pictures, charts). The strategic role of faculty in portfolio creation is to facilitate the learners' professional development and socialization to advanced leadership knowledge, skills, and competencies for ongoing growth in occupation-based, evidence-based practice. The EKU PP-OTD program has a dedicated program outcome focusing on leadership: Graduates will serve as leaders of change, at local, state, and national levels using tools such as program development, research, client education, and evidence-based practice. Throughout the leadership courses, faculty use guided questions to promote critical thinking and clinical reasoning within student reflections about leadership applications in practice.

Students begin the skeleton of the leadership e-Portfolio in the first leadership seminar by writing leadership vision and mission statements. Artifacts are added that demonstrate how learning experiences support the program outcomes and curricular themes. Students write scholarly self-reflections discussing how the artifacts and experiences support and/or contribute to attaining the program outcomes. Plans for ongoing development are noted, along with literature support. The self-evaluation narratives are updated in each of the leadership seminars, culminating in the capstone leadership course. In addition, the e-Portfolio includes links to the student's unique applied leadership experience(s), capstone project, contact information, and résumé or curriculum vitae. Students share their portfolios with peers for feedback and faculty for critical appraisal.

About the Education SIS

The Education Special Interest Section (EDSIS) members share a common interest in the field of occupational therapy education and include program directors, fieldwork educators, academic fieldwork coordinators, and faculty. The EDSIS has a Fieldwork Subsection for fieldwork educators and academic fieldwork coordinators, and a Faculty Subsection. The EDSIS strives to share current evidence-based teaching and learning tools and strategies in order to facilitate best practices in occupational therapy and occupational therapy assistant education.

- Meet the EDSIS committee members at www.aota.org/EDSIS.
- Join the OT Connections discussion at
http://otconnections.aota.org/sis_forums/f/12.aspx.

Students have a ready-made portfolio at the end of the program for their personal/professional use. The EKU PP-OTD faculty developed a rubric to evaluate the portfolio. Criteria evaluation includes use of artifacts, self-assessment narrative, use of multimedia, navigation, layout and readability, quality of writing and page editing. Students are provided with detailed feedback in each of the leadership seminars for continued growth and ongoing socialization as leaders in the field of occupational therapy. Each student includes a first-person account of the e-portfolio process to reflect their professional socialization as a future leader.

Student Reflections on the e-Portfolio Process

I (second author Jennifer Hight) participated in the e-Portfolio process while enrolled in the EKU PP-OTD program. Creating the e-Portfolio allowed me to reflect on my professional growth as an occupational therapist and review my career accomplishments. Creating and posting artifacts assisted me in identifying tangible strategies for meeting future goals. For example, developing the following leadership vision statement, which was a prominent part of the e-Portfolio, provided me with an opportunity to consider the elements required to be a future leader:

I envision myself as a highly respected and accessible occupational therapy practitioner, demonstrating a high level of professionalism through wisdom, integrity, evidence-based practice, and continued professional development to best serve clients in diverse settings for meaningful, effective, client-centered interventions, while promoting occupational therapy through advocacy, awareness, and collaboration.

With that vision statement in mind, the e-Portfolio became a roadmap, with the outcomes of the program representing the mile markers. I added assignments from courses and products from capstone experiences as artifacts to the e-Portfolio to demonstrate how I met program outcomes. I revised my e-Portfolio throughout the PP-OTD program, using program outcomes to guide my leadership development. For instance, by elaborating on goals through a mission statement, and exploring the current needs of the community in relation to occupational therapy, I developed a needs assessment with input from local health care workers, health care organizations, and private practices. This process afforded me an opportunity to become more involved in the community through participating in a local advisory board promoting health and wellness, which was a practical application of the leadership seminars. I enhanced my understanding of health care delivery systems through completing a required 16-week leadership experience with a local rehabilitation director of a hospital to learn more about service provision and potential resources available to meet the occupational therapy needs of the community. The experiences and information gathered through these leadership opportunities culminated in creation of a community-based program for underserved preschoolers promoting physical activity and development of gross motor skills for my doctoral capstone project. Planning, creating, and implementing project goals, and evaluating outcomes and ongoing reflections, challenged me to introspectively evaluate my learning. All these encounters became components of the e-Portfolio, addressing the leadership program outcome, representing the richness of my experiences as an evolving leader.

Implications for Occupational Therapy Education Programs

Before implementing an e-Portfolio, occupational therapy educational program faculty need to explore their reasoning for e-Portfolio use

within their curricula. Multiple reasons exist for creating portfolios (e.g., developmental, transitional, professional purposes), which may vary by educational level (Crist et al., 1998; Hinojosa & Howe, 2016; Powell & Greenberg, 2009). The transitional e-Portfolio used in the EKU PP-OTD program provided students who were already occupational therapists with the ability to reflect on their new leadership role, reinforcing the EKU program outcome of students serving as leaders of change at local, state, and national levels using tools such as program development research, client education, and evidence-based practice. A traditional e-Portfolio that showcases student work and includes a reflective component may be most appropriate for entry-level students who are just beginning to explore leadership opportunities. Entry-level programs at both the occupational therapy and occupational therapy assistant levels can begin professional socialization through engaging students in the constructivist e-Portfolio process. Building an authentic self-evaluation serves as an ongoing professional development component throughout the curriculum, reinforcing students' learning goals. Clinical competence is another aspect that can be evaluated through the e-Portfolio. Multimedia components can be used to document basic and advanced skill development of entry-level and post-professional students, thus facilitating active learning (Garrett et al., 2013).

Conclusion

Because curricula across occupational therapy education are individually shaped, an e-Portfolio requirement should be tailored to the unique needs of each program. At EKU, the PP-OTD e-Portfolio directly links to program outcomes, allowing it to be used as both a transitional portfolio and as a measure of authentic assessment. Through the use of multimedia, EKU PP-OTD students have enhanced their learning and leadership development as they become change agents in occupational therapy.

References

- Crist, P., Wilcox, B. L., & McCarron, K. (1998). Transitional portfolios: Orchestrating our professional competence. *American Journal of Occupational Therapy*, 52, 729–736. <http://dx.doi.org/10.5014/ajot.52.9.729>
- Green, J., Wyllie, A., & Jackson, D. (2013). Electronic portfolios in nursing education: A review of the literature. *Nurse Education in Practice*, 14, 4–8.
- Garrett, B. M., MacPhee, M., & Jackson, C. (2013). Evaluation of an eportfolio for the assessment of clinical competence in a baccalaureate nursing program. *Nurse Education Today*, 33, 1207–1213.
- Hinojosa, J., & Howe, T. (2016). EPortfolio: The scholarly capstone for the practice doctoral degree in occupational therapy. *Open Journal of Occupational Therapy*, 4(3). <http://dx.doi.org/10.15453/2168-6408.1203>
- Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice Hall.
- Kramer, P., & Stern, K. (1994). Portfolio assessment in occupational therapy. In M. E. Knight & D. Gallaro (Eds.), *Portfolio assessment: Application of portfolio analysis* (pp. 121–134). Lanham, MD: University Press of America.

Welcome From the EDSIS Chairperson

Lenin C. Grajo, PhD, EdM, OTR

I am delighted to introduce you to such an outstanding roster of educators who will serve as the Education Special Interest Section (EDSIS) Standing Committee for the next 3 years:

- Chairperson: Lenin Grajo, PhD, EdM, OTR, Columbia University
- *Quarterly Editor*: Christine Myers, PhD, OTR/L, University of Florida
- Education and Research Coordinator: Bridgett Piernik-Yoder, PhD, OTR, University of Texas–San Antonio Health Sciences Center
- Forums Coordinator: Julia Henderson-Kalb, MS, OTR/L, Saint Louis University
- Faculty Subsection Coordinator: Giuli Krug, PhD, OTR, University of Missouri
- Fieldwork Educator Subsection Coordinator: Rebecca Simon, MS, OTR/L, New England Institute of Technology

The EDSIS Standing Committee is excited about new efforts and initiatives so that we are able to provide more opportunities for discussion and sharing of best, effective, and evidence-based practices related to occupational therapy education. We are also bringing forward initiatives to offer mentoring programs for new educators who may be transitioning from clinical practice, adjunct positions, and fieldwork instructor positions. More to come soon!

Connect with us and subscribe to the Education forum in the members section of OT Connections to receive updates and conversations related to occupational therapy education!

Please let us know how we can better serve you! Please do not hesitate to reach me at lg2890@cumc.columbia.edu.

Powell, S., & Greenberg, N. (2009, March). ePortfolio: A tool to support best practice in occupational therapy education. *Education Special Interest Section Quarterly*, 19(1), 2–4.

Weebly. (n.d.). Weebly website builder. Retrieved from <https://www.weebly.com/>

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Jennifer Hight, OTD, OTR/L, is an assistant professor for the Department of Occupational Science and Occupational Therapy at Eastern Kentucky University.



Incorporate Evidence Into Curricula Through Newly Formatted EBP Webpages

Helping students access and use evidence just became easier with newly formatted Evidence-Based Practice webpages on AOTA's website, which includes brief and digestible summaries of systematic reviews on topics that span a variety of practice areas. Check it out and share with students at www.aota.org/Practice/Researchers.aspx. You can also learn about how these resources can be seamlessly incorporated into curricula at www.aota.org/Education-Careers/Educators/Evidence.aspx.

Goal Attainment Scaling: The Technological Journey From Idea to Application

AM

Ann Chapleau, DHS, OTRL

The rapidly growing field of technology has played a crucial role in transforming how health care is delivered, monitored, and reported (Topol, 2012). As the use of mobile devices for clinical practice continues to grow, so do the number of software applications (apps). In fact, in 2015 there were more than 165,000 health-related apps on the market (Terry, 2015). Moreover, a recent survey revealed that although only 16% of health care providers use apps in their clinical practice, 46% plan to do so within the next 5 years to improve the quality of their care (Conn, 2015). This creates opportunities for practitioners to use digital innovations to develop new outcome measurement tools and improve existing ones.

Occupational therapy literature has cited an increasing focus on the need for outcome measurement (Coster, 2013). This is consistent with federal initiatives such as Pay for Performance (American Medical Association, 2016), which provide financial incentives to ensure greater accountability by health care organizations. However, some occupational therapy practitioners are still not consistently incorporating measurement into clinical practice because of lack of knowledge in how to select and use outcome measures, lack of time and administrative support, and a belief that outcome measures lack clinical relevance (Colquhoun, Letts, Law, MacDermid, & Edwards, 2010; Cook, McCluskey, & Bowman, 2007). To address this disconnect between health care mandates and actual clinical practice, outcome measurement processes need to be relevant, user friendly, and efficient.

This article outlines my own process of adopting technology to reduce the logistical challenges I have experienced in using goal attainment scaling (GAS) as an outcome measure. I will describe using GAS in both clinical and academic settings, and a new mobile app that I developed through an interprofessional collaboration with computer science colleagues.

Goal Attainment Scaling Overview

GAS is not a measure of functional performance, but rather a measure of change over time in level of goal attainment for both individual and program goals in any setting. GAS was developed by Kiresuk and Sherman (1968) to evaluate the efficacy of the then newly formed community mental health centers. It has been increasingly used since then, in pediatric settings (Mailloux et al., 2007; Ruble, McGrew, & Toland, 2012), adult rehabilitation (Bouwens, van Heugten, & Verhey, 2009; Hurn, Kneebone, & Cropley, 2006), education (Roach & Elliott, 2005), and at least one homeless shelter setting (Chapleau, Seroczynski, Meyers, Lamb, & Buchino, 2012).

The process of GAS begins with an interview with the client or caregivers and may include specific functional assessments that can assist in determining goal areas. Once the therapist has a comprehensive understanding of the client's needs and preferences, the goal scales can be constructed. Rather than creating goals that are either met or unmet, with the client either succeeding or failing, the therapist and client envision a full range of possible outcomes for each goal, using a 5-point scale of +2 to -2, or "much better than expected" to "much less than expected," with 0 as the expected outcome (see Table 1). The level of goal attainment for each goal can be

Table 1. Clinical Goal Scale

Continuum of Goal Attainment Levels	Record one specific goal behavior that matches each level
Much less than expected outcome (-2)	Requires maximum assistance to dress upper body (baseline)
Less than expected outcome (-1)	Requires moderate assistance to dress upper body
Expected outcome (0)	Requires minimum assistance to dress upper body
More than expected outcome (+1)	Requires set-up to dress upper body
Much more than expected outcome (+2)	Independent in dressing upper body

re-evaluated later, both during and post-intervention, to determine any change in the degree of goal attainment.

GAS for Student Learning

When I began teaching full time, I became interested in assessing student learning. While developing a student clinical experience for a residential hospice setting, I taught students how to use GAS to develop project goals to structure their semester-long experience. Through reflective journaling, students reported that GAS was helpful in keeping them focused on their project goals, when the multiple and changing needs of a community-based setting could be overwhelming and distracting (Chapleau, 2008).

I later became interested in measuring change in student learning during Level I fieldwork. Typical, competency-based fieldwork evaluations are useful in determining what skills each student can demonstrate at midterm and at the end of the clinical experience, but they do not measure change over time in student skill acquisition. Moreover, these evaluations do not encourage or reflect student engagement in identifying personally meaningful professional development goals. We began implementing GAS as an outcome measure in our occupational therapy Level I fieldwork sites in 2013, developing training materials for students and clinical faculty (see Table 2 for an example of a scaled student goal). Quantitative and qualitative findings supported using GAS for assessing student learning as well as providing academic program evaluation data, with GAS scores for professional development goals significantly improved over time (Chapleau & Harrison, 2015). In 2014, we successfully implemented a 1-year interprofessional study using GAS as an outcome measure for fieldwork with occupational therapy, nursing, music therapy, and speech pathology and audiology students (Chapleau, Harrison, Hillenbrand, Roth, & Searing, 2015). Students reported that they

Table 2. Academic Goal Scale

Continuum of Goal Attainment Levels	Record one specific goal behavior that matches each level
Much less than expected outcome (-2)	No research conducted into the scholarly literature related to autism (baseline)
Less than expected outcome (-1)	Will read two articles by end of semester
Expected outcome (0)	Will read five articles by end of semester
More than expected outcome (+1)	Will read five articles by midterm
Much more than expected outcome (+2)	Will read five articles by midterm and will use findings to present a case study to peers by week 7

appreciated a new way of envisioning goals and being asked to personally reflect on goals that were individualized to their needs. They also reported, however, that it was often difficult to find the time to complete the additional paperwork required for GAS.

While GAS was found to be a useful outcome measure in all of these studies, there were limitations that needed to be addressed. First, adequate training in the GAS process is critical, to ensure goals are measurable, objective, and properly scaled. Second, the additional time needed to complete and review the forms by students and clinical supervisors was a challenge. Third, the logistics of distributing and collecting the GAS paper forms for manual data collection, entry, and analysis was challenging.

To resolve these concerns, I partnered with a computer science professor to develop a mobile and web-based app for GAS. Over the course of a year and a half, with funding from the Sammons Center for Innovation and Research in Occupation Based Technology and an internal faculty technology grant, we have created, refined, and implemented the app in all of our Level I fieldwork sites and several classroom-based courses.

We designed the app with a hierarchical structure with three types of users: goal setter (e.g., therapist), supervisor, and administrator, each with specific functions and access to data. The app can be used for clinical, student, and professional development goals as well as departmental or organization program goals. The app allows the therapist, or goal setter, to upload goal statements for each scaled goal through a mobile device or computer. Through the app, the goal setter can easily view goal scales to update progress. Supervisors and administrators are also able to view updated goal scales.

The app's analytics feature allows the goal setter, supervisor, or administrator to view customizable charts and tables illustrating the mean, or average level of goal attainment for all clients on a given caseload, or within a given department, or of the entire organization. No longer will supervisors review data that is 2 or 3 months old, when it is often too late to affect meaningful change. *T*-scores, which reflect change over time in level of goal attainment, can also be generated for research purposes.

Users can learn how to properly scale goals, which is critical to the validity of this outcome measure, through a training video and "how to" app demonstration videos. With support from our occupational therapy faculty, we have created a curricular thread, teaching GAS in both semesters before Level I fieldwork placement. During Level I clinic orientation, we provide onsite training for each clinic to reinforce prior classroom learning, and embed links to the training videos in the course management system. As students learn to use the app, we rely on their feedback to further improve functionality for our anticipated commercial release in 2017.

Conclusion

My work has opened up a new way of thinking about technology, and in reaching out to other researchers and practitioners who use GAS, I continue to learn more about this method. Perhaps most importantly, I have broadened my understanding of interprofessional collaboration. By working together and learning from each other, we can continue to develop technological products that can improve health care quality and accountability.

References

- American Medical Association. (2016). Pay for performance. Retrieved from <http://bit.ly/2djIQOb>
- Bouwens, S. F. M., van Heugten, C. M., & Verhey, F. R. J. (2009). The practical use of goal attainment scaling for people with acquired brain injury who receive cognitive rehabilitation. *Clinical Rehabilitation*, 23, 310–320.
- Chapleau, A. (2008, April). *Promoting occupational engagement for homeless hospice clients through service learning*. Poster presented at the American Occupational Therapy Association Conference & Expo, Long Beach, California.
- Chapleau, A., & Harrison, J. (2015). Fieldwork I program evaluation of student learning using goal attainment scaling. *American Journal of Occupational Therapy*, 69(Suppl. 2). 6912185060p1–6912185060p8. <http://dx.doi.org/10.5014/ajot.2015.018325>
- Chapleau, A., Harrison, J., Hillenbrand, K., Roth, E., & Searing, K. (April, 2015). *Goal attainment scaling: An interprofessional assessment of student learning*. Poster presented at the Assessment in Action Conference, Kalamazoo, Michigan.
- Chapleau, A., Seroczynski, A. D., Meyers, S., Lamb, K., & Buchino, S. (2012). The effectiveness of a consultation model in community mental health. *Occupational Therapy in Mental Health*, 28, 379–395. <http://dx.doi.org/10.1080/0164212X.2012.708609>
- Colquhoun, H., Letts, L., Law, M., MacDermid, J., & Edwards, M. (2010). Feasibility of the Canadian Occupational Performance Measure for routine use. *British Journal of Occupational Therapy*, 73, 48–54.
- Conn, J. (2015, November). Easy on those apps: Mobile medical apps gain support, but many lack clinical evidence. *Modern Healthcare*. Retrieved from <http://www.modernhealthcare.com/article/20151128/MAGAZINE/311289981>
- Cook, C., McCluskey, A., & Bowman, J. (2007). Occupational therapists report increased use of outcome measures after participation in an education programme. *British Journal of Occupational Therapy*, 70, 487–492.
- Coster, W. J. (2013). Making the best match: Selecting outcome measures for clinical trials and outcome studies. *American Journal of Occupational Therapy*, 67, 162–170. <http://dx.doi.org/10.5014/ajot.2013.006015>
- Hurn, J., Kneebone, I., & Cropley, M. (2006). Goal setting as an outcome measure: A systematic review. *Clinical Rehabilitation*, 20, 756–772.
- Kiresuk, T. J., & Sherman, R. E. (1968). Goal attainment scaling: A general method for evaluating comprehensive community mental health programs. *Community Health Journal*, 4, 443–453.
- Mailloux, Z., May-Benson, T. A., Summers, C. A., Miller, L. J., Brett-Green, B., Burke, J. P., ... Schoen, S. A. (2007). Goal attainment scaling as a measure of meaningful outcomes for children with sensory integration disorders. *American Journal of Occupational Therapy*, 61, 254–259. <http://dx.doi.org/10.5014/ajot.61.2.254>
- Roach, A. T., & Elliott, S. N. (2005). Goal attainment scaling: An efficient and effective approach to monitoring student progress. *Teaching Exceptional Children*, 37(4), 8–17.
- Ruble, L., McGrew, J., & Toland, M. (2012). Goal attainment scaling as an outcome measure in randomized controlled trials of psychosocial interventions in autism. *Journal of Autism and Developmental Disorders*, 42, 1974–1983.
- Terry, K. (September, 2015). Number of health apps soars, but use does not always follow. *Medscape*. Retrieved from www.medscape.com/viewarticle/851226
- Topol, E. (2012). *The creative destruction of medicine: How the digital revolution will create better health care*. New York: Basic Books.
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