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They Said: International Occupational Therapy Perspectives on the Role of Technology in Practice

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Technology is, essentially, ubiquitous in our daily lives. For many of our clients, it sustains or improves their quality of life. Merriam-Webster defines technology as "the practical application of knowledge especially in a particular area" (Merriam-Webster, 2019), such as a product or device. Occupational therapists apply knowledge to improve the lives of our clients, be they individuals, groups, or populations (American Occupational Therapy Association, 2019). We explore the theme of the application of technology in this article, but with a twist. Tapping into technology, I met with Professor Suzanne Martin, my co-guest editor, via a Skype call to brainstorm ideas for this Opinion in the Profession article. We wondered if occupational therapists in Northern Ireland view and use technology differently from therapists in the United States. We convened a group of three occupational therapy students from Western Michigan University who are nearing the end of their programs and three occupational therapists who are graduates from Ulster University and are using technology in their respective practice areas in different ways. This continuum of experience and diversity of practice added an extra layer of richness to the discussion about the application of technology in our work as occupational therapists.

I posed four questions to the group via the chat format on WhatsApp. WhatsApp is free and offers immediate interface, which made the distance between Southwest Michigan and Northern Ireland seem small. It was as if the group was gathered in a coffee shop, having a conversation. Here is what Kelly Allen; Lauren Koch; and Caitlin Koob, occupational therapy students at Western Michigan University; and Elma McEvoy, a clinical specialist occupational therapist in Northern Ireland working in rehabilitation of the older patient; Dolores McFadden, an advanced clinical practitioner occupational therapist working in both inpatient and community neurological rehabilitation in Northern Ireland; and Janey Milligan, a consultant hand therapist occupational therapist working in the Northern Irish regional plastic surgery hand/upper limb unit, shared with each other.

Question: What are Barriers to Teaching Clients to Use Technology, and Why Do You Think These Barriers Exist?

Know your tech. Caitlin shared:

It is important that the therapist knows the technology really well before teaching it to a client and troubleshooting and solving problems as they arise. Technology used as an intervention is often new to the client, so teaching them to use it takes a significant amount of time to learn how to operate and use it effectively.

For Janey, the main barrier for hand therapy patients is:

The enthusiasm and confidence of the therapist. Our patients (all ages) have completed surveys over the past few years and keep voicing a high interest and willingness to use telerehabilitation modalities and find rehab apps helpful for reminders and guides. The main barrier is staff fearful of making a mistake with a digital Jamar dynamometer, an ELINK rapid exchange test, a touch screen dexterity treatment tool, or simply digital dictation systems.

Like Janey, Dolores agreed that a lack of staff confidence and knowledge of quickly advancing technology may deter them from introducing the rehabilitation potential of electronic assistive technology (EAT) in her unit.

Technology is (can be) expensive! Elma suggested that cost is a big consideration. This includes the "cost of provision of equipment; who provides, maintains, and replaces or updates as necessary; private funding, health, or social services." For Janey's practice, "cost implications have not

been huge because the assessment/treatment modalities are not for single patient use." At Dolores' unit, they are:

> Introducing a pilot to evaluate an EAT clinic but are mindful of budgets and resources and the push to reduce reliance on health service provision of aids and equipment such that knowledge of mainstream commercially available non-expensive devices is essential so patients with use of EAT as a rehab goal can trial and also be signposted to appropriate agencies/vendors.

A further barrier that Dolores identified is having current databases of local vendors who provide set-up maintenance and follow up. Caitlin added, "it can also be hard to gain access to different types of technology of use to the client, including problems with availability or funding through insurance."

Clinician and client barriers. Caitlin reflected that, from a student perspective, it was interesting to hear the barriers on the clinical side of this issue, as she largely focused on the barriers of the client. She said,

> Today I was in an assistive technology department and it is evident that to be effective, the clinician must be motivated to implement these intervention strategies. Cognitive level and cost were the two main barriers I experienced, but I believe the therapist's duty to be aware of low-tech or affordable options to accommodate to the needs of the patient to improve his or her quality of life. For instance, one adaptation used today helped a man with a spinal cord injury re-engage on social media, which has its own flaws but was extremely meaningful for the man, who has been in the hospital away from friends and family for months. It is no easy feat for clinicians to stay up to date, but advocacy on behalf of the client and a willingness to remain flexible as adaptations arise appear to be crucial for the outcomes of the client.

Staying current. Elma and Caitlin agreed that the therapist may also lack understanding of what technology is available and its use and applications. Elma suggested that "technology is developing very swiftly and it is hard to keep knowledge up to date. Lack of resources, including staffing levels, can hinder. There are also new technological adaptations being introduced all of the time, so it is hard to be proficient and familiar with all of them!" Caitlin added, "I think a lot of the barriers exist due to the complexity of technology and how much there is still to learn." Elma shared that "many patients do not use technology regularly and may be nervous of new tech and not seeing the relevance to them."

Accessing the Internet. For Dolores, "accessing adequate WiFi connection has become a major barrier, and despite numerous meetings with the ICT department, breaking through the firewall of security has been a nightmare. This has led to the need for funding applications to charitable organizations to help fund separate WiFi access to allow patients to trial devices."

Teach me or teach myself. Janey explained:

> There is also a fear of technology "taking longer" than traditional treatment but local findings are that the treatment time is actually quicker or the same. Our patients travel long distances to attend and have repeatedly been querying if Skype type treatments were possible. We are in the process of piloting this and have been fortunate that our managers are digitally/technologically aware and are keen to support. I'm aware of grumbles from a few OTs regarding their lack of experience with Skype and will be developing this treatment option initially only with specialist senior staff who are familiar and confidently wanting to engage in the process. I'm optimistic that it will be less daunting for the others once it's established.

Lauren inserted:

Confidence and familiarity with technology may influence teaching style or quality. Many therapists have experienced practice with and without the use of technology and have a different approach to teaching than one trained with technology incorporated into practice. As a student, I am more familiar with technology-based communication devices rather than a physical PECS (picture exchange communication system), which I know many occupational therapists who entered practice before me used. Technology has been incorporated into my education and approached as a tool and modality. For instance, a required class in our program is Therapeutic Use of Technology. Personal experience and education with technology, or lack thereof, may be a barrier to teaching clients technology.

Dolores responded to Lauren by saying that she qualified as a therapist in 1991 😱😱 and would be keen to hear more about the module on Therapeutic Use of Technology. She said:

I think you are right in appreciating our different level of education and what is "second nature" to younger clinicians. I can say that my own practice has greatly altered over last 5 years, such as using computer-based cognitive activities as opposed to traditional paper and pen tasks, in keeping with my patients' pre-morbid skills, but I am definitely self-taught!!!

Elma qualified in 1984 and her school did not even have a computer for the "A" level course (high school exams done at age 17 or 18). She added, "we had to travel to another school who had one which filled a whole room, but I have always been interested in technology. But again, I am self-taught."

Keep it simple and client-focused. Elma offered that, as therapists, we need to keep any technology as "simple, practical, and task-focused as possible to be of benefit to both client and therapist. It is a vast arena and can be daunting but easier to manage if parameters are focused." Kelly added,

Having completed an Assistive Technology course last summer, we were exposed to a great deal of low- and high-tech devices from pencil grips to voice to text and head-operated computer hardware and software. Some of the products were straight-forward while the instructions provided by the manufacturers for other products were seriously confusing. Overall, many of us felt overwhelmed and intimidated at first glance. I can only imagine that working from a case-by-case perspective in a similar client population over time would serve to educate the OT about the most successful, useful, user-friendly, and cost-effective products and increase the confidence and successful instruction of useful, client-centered, occupation-based technology to facilitate meeting client goals effectively and efficiently.

Lauren inserted, "introducing technology depends on practice area and setting, as the clients have different needs."

Question: What is the Greatest Area of Need for Technology for Clients, and Why do You Think it is so Important?

Communication and connectivity. Dolores indicated:

With neuro rehab inpatients, their needs are around connectivity with family and friends. For example, a recent patient who was a single parent to two boys was extremely anxious about her sons' well-being whilst she was in hospital. She was keen for Skype connection so that she could be 'present' for meal times, bed times, and to help with homework. For another patient, the ability to 'attend' a family event was her tech goal. For other patients, use of virtual reality is

essential to allow for planning for community tasks. It is also important to allow for risk management and insight building.

For Janey's patient group:

> The most pressing technology need is for communication/access to help with concerns. For example, if a patient phoned us concerned if they have a wound infection or ruptured tendon, tele-rehabilitation is a much better assessment modality than no-image traditional phone calls. It allows us to triage and direct care more efficiently. Communication via advanced technology improves patient insight, education, and compliance, and helps empower confidence in their personal role in their rehabilitation program. It enables timely access to specialist advice and reduces the need for unnecessary emergency hand therapy appointments and immediate care for urgent clinical cases.

Lauren chimed in:

> I would like to echo the importance of connectivity and communication through technology. I feel that the need for communication is seen in all areas of practice. Access and availability of communication is perhaps the strongest reason for use of technology. It allows for connection, which is a strong motivator and desire for many people. The functionality of technology is also important in maintaining health-related behaviors, as Elma mentioned, including safety, goals, reminders, and functioning.

Kelly proposed:

> Communication is the greatest area of need for clients that can be facilitated by technology. I say this because I am currently reading the book *Ido in Autismland*, a memoir written by a boy with severe ASD and is nonverbal. He spent the first seven years of his life without being provided with any communication devices despite enduring years of ABA, OT, and speech therapy. His mother discovered his ability to write with hand over hand support and he was finally able to communicate. Eventually, he was provided with a keyboard and began writing about his experience and the "living hell" of being an intelligent boy without any way to communicate effectively with anyone in his life. His eloquent writings are shockingly powerful and provide clear evidence as to the profound need for therapists to work to provide the proper technology to allow the client to communicate their thoughts, needs, and desires. This makes sense, for in order to provide client-centered care, it is imperative that the client can communicate [his or her] needs and desires.

Elma told Kelly that the book sounded really interesting, and Kelly agreed by saying "it certainly is, Elma. I'm learning so much through his story." Dolores thanked her for the book recommendation, as it "certainly sounds powerful. The greatest learning comes from hearing our patients, so absolutely a medium to communicate is the greatest requirement."

> **Safety (and communication and connection).** For Elma's older adult patient group:
> The technology of greatest need is for safety, such as falls prevention, helpline or aid call to summon help in an emergency, and environmental and activity monitoring for those with dementia. Simple and practical communication systems are also required to keep in touch with friends and family via phone, social media, and Skype. As technology becomes imbedded into more everyday tasks, this group can be at a disadvantage and needs to be able to access services by suitable technology or manual means. GP appointments, repeat prescriptions, logging attendance at hospital appointments and such all now involve technology. Instruction manuals

are no longer provided with household items and need to be downloaded, giving difficulty to the older client, especially if there is a background of decreased dexterity, cognitive issues, eyesight, or hearing difficulties.

Caitlin's experiences are similar to Elma's:

Exposure with technology has been with those who have disabilities or have suffered from a brain or spinal cord injury. These technology adaptations have allowed individuals who are nonverbal to use their voice and communicate through affordable, low-tech options and higher-tech options, such as eye-tracking devices that speak for them. Being able to communicate allows them to find social connection on several platforms, including social media and Skype calls with those at home or distant family/loved ones. These relationships are central to a person's purpose and meaning in their lives, so it is crucial to find avenues for them to maintain these bonds.

What is the Role of Occupational Therapy in Designing Technology to Help Clients Live Safely in their Homes?

There is a place at the table for occupational therapy. Lauren shared:

OT has a unique role where we can understand the functionality and actual use of certain tools and technologies that may impact an individual's safety in the home. We may design or collaborate on technology that decreases risk, increases efficiency, or promotes independence. OTs have been applying technological advancements and designing technology for decades by creating adapted devices and tools that minimize risk or impact of use. Within this, a portion of our knowledge may be used for both the creation and education of others involved in the design process.

Caitlin said that OTs:

Offer a unique perspective to foster creativity to design technology that allows individuals to age in place and remain independent for as long as possible by melding the art of design with the science of technology and health to promote optimal functioning in everyday life. OTs might find opportunities or areas of need for technology through working with someone in their homes that might otherwise get overlooked. Our scope of practice permeates each aspect of life, through the areas of occupation, to identify an individual's strengths, weaknesses, and possible risks. We can share this information through collaborating with someone who might be more apt to develop the technology and then the OT can implement its use in the home.

Kelly indicated that the focus of occupational therapy is:

The unique needs of each individual while recognizing patterns, needs, and trends that can be seen only by paying attention to the holistic elements of our scope of practice. We have a lot to offer designers and technology manufacturers for the home in terms of consultation and suggesting ideas and solutions for improvements based on a view of the consumer's various roles, routines, and rituals, and how various pathologies can impact these aspects of life. We are expert creative problem-solvers able to analyze barriers and create a path to success through modifications and adaptations, making us valuable in creating innovative products with the user in mind. We can also provide insight into specific failures of existing technology that drives consumers to discontinue their use over the course of multiple treatment sessions.

Lauren added:

> A key point Kelly made was the role that we have in the innovation of new products. OTs are some of the most innovative professionals I know. If something doesn't work or exist in the way that is needed, OTs are the ones to adapt or change it in order to make it work. This brings to mind the influence and innovations Dr. Fred Sammons has contributed to OT in the US and worldwide. As OTs we have both the knowledge and insight to design technology (or work to adapt it as needed).

Elma agreed with the rest of the group. She shared:

> We are client-centered; concentrating on their goals and needs so are ideally placed to design technology to meet those needs, in directing the tech professionals to develop practical solutions. We need to do more of it but limited staffing, increasing caseloads, and time, can be barriers. Some OTs may also lack the confidence or tech knowledge to put ideas into practice.

We must promote our value and worth. Janey brought up a significant point when she agreed with the group that the role of OT is essential in the design process:

> We are not great at advertising/voicing our unique skills. Even small improvements or simple technologies need to become published articles in journals in and beyond the world of OT. Also, undergraduate and post-graduate collaborative working with software engineers, civil engineers, and/or industrial designers would help inspire and boost confidence. I'm impressed by emerging practice education in environmental modifications and I think these opportunities to explore beyond traditional professional boundaries build the knowledge and confidence of the students, aiding inquisitiveness and lateral thinking in clinical practice. It would be great to see our professional journals focusing occasionally on the design and modification roles of OTs regarding all types of technologies in the home environment as well as in work, school, or recreational settings.

Caitlin summed it up perfectly: "This is one area where the strength of interdisciplinary practice is clearly evident!" Note from the author: I could not agree more!

In One Sentence, What is One Bit of Advice You Can Share with Occupational Therapists when Introducing Technology to Clients?

> Janey told the group, "Switch it off at the wall, count to 5, and then switch back on

again" or "embrace the help technology can potentially offer, and start with simple steps using existing equipment, like mobile phones." Lauren appreciated both pieces of Janey's advice saying, "I think it highlights the need for both patience and openness when it comes to technology. My personal advice is to use (and embrace) the benefits that technology offers, but don't get so caught up in the newest technology that you ignore the meaning (or lack thereof) to the client and the therapeutic

outcomes." To which Janey replied:

Dolores offered:

> If a client's goal can be achieved by technology, do not be afraid to introduce the concept. You do not need to have all the answers, but you should have the knowledge of local vendors and supports who can assist. Remember, using technology is a team sport!! Each member brings their unique skills.

She also added that it is important to keep in mind that "technology can aid in re-establishing a sense of self for many clients who have lost function following disease or trauma; maintain a holistic perspective on introducing technology."

As a student, Caitlin feels that she is in a position to:

> Accept this advice rather than give it! However, with this discussion, the literature that I have read, and my limited experiences, I would suggest that therapists keep an open mind to learning about new technology and actively seek these opportunities. While it can be overwhelming, I believe technology is only going to become increasingly prevalent and has the potential to significantly raise the patient's quality of life, whether it is through social engagement or increased independence.

Elma stayed with the "keep it simple and practical" theme. She said, "Focus on the needs of the client and how the technology can help them." And Kelly had the last word by sharing, "while I have yet to gather clinical experience, I agree with Elma. A logical approach would be to start with the most basic technology to address the most urgent need, while maintaining patience during initial training and implementation of the device."

Take Home Messages

Throughout the discussion, it was apparent that, despite living, training, and working in various practice areas in two different countries, there is much on which the group agreed. There was consensus, rather than difference, that barriers to technology include rapid advances that are hard to keep up with, fear of teaching it, and client fears of using it. Simplicity is key to technology applications, and despite all concerns or reservations, it is imperative to stay current.

Technological advances that support communication and connection is the greatest need for our clients. This means being able to connect with family and friends, to communicate with a loved one, and to be safe in one's home. In this regard, the group was in solidarity. The group also agreed that we have a role at the table in designing products to help our clients remain safe and function to their maximum capacity. What we need to do better is to promote our value and worth. The best advice was to keep it simple, use technology from a teaching-based approach, and, above all, know your technology.

Thank you, Kelly, Lauren, Caitlin, Elma, Dolores, and Janey for sharing your thoughts about technology and occupational therapy. Without Internet technology, the interview and discussion process would have been long and, perhaps, arduous. Indeed, it seems the world is a small place and that technology helps to make our occupational therapy community feel that much closer to making our clients' lives better.

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