Technological Guidelines: The Relationship between our Expanding Knowledge and our Philosophical Assumptions

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Technology is the study, development, and application of devices, machines, and techniques. Occupational therapy (OT) practice uses a variety of technological products, from devices that are classified as low-tech to those that are high-tech, on a daily basis. According to the American Occupational Therapy Association (2004), "occupational therapy practitioners' understanding of their clients' daily occupational needs, abilities, and contexts make them ideal collaborators in the design, development, and clinical application of new or customized technological devices" (p. 678).

During the World War II era, occupational therapists began to use prosthetics, orthotics, and other low-tech devices to improve daily living (Jan, 2006). While OT practitioners still employ some of the basic devices of our early days, the complexity of the technological devices used by the profession has changed rapidly. The technology that we use today would have been beyond our scope of comprehension when occupational therapists first began to incorporate technological devices into practice. With the advancements of the last decade, we now have access to complex technology, such as Intelligent Transportation Systems (Arbesman & Pellerito, 2008), robotic devices (Rosenstein, Ridgel, Thota, Samame, & Alberts, 2008), and electronic aids to daily living that control home automation technologies (Lange & Smith, 2002).

Among the complex technological devices available to us, the one that has become the most ubiquitously embedded in our society is the computer. Computers have had an unforeseen impact on every aspect of our daily lives. Within a few decades and without warning, our society has been transformed by the advances in computer technology. Even the computer experts were unable to predict the impact computers would have on our culture. Some of the interesting quotes from these experts during the development phase of the personal computer include the following:

- Thomas Watson, IBM president, said in the early days of computers that, "I think there is a world-wide market for maybe five computers" (Strohmeyer, 2008).
- Ken Olsen, the founder of DEC, while speaking to the World Future Society in Boston, said, "There is no reason anyone would want a computer in their home" (Strohmeyer, 2008).
- In 1997, Michael Dell said about Microsoft, that if he were the head of it. "I'd shut it down and give the money back to the shareholders" (Singh, 1997).

In the past 50 years, large computer consoles with complicated access codes and languages have been transformed into devices that we hold in our hands and communicate with through voice recognition technology. Our access to unlimited information has literally been placed at our fingertips.

These technological advances have also had a transformative effect on our practice. The ability to equip clients who have physical or cognitive limitations with technology has created greater opportunities to increase independence. One example is the use of smart phones. Less than a decade ago, as part of cognitive rehabilitation techniques in OT, we taught clients to write down

information in planners and then trained the clients to refer to those planners continually throughout their day. These clients can now talk to their phones to get calendars set up for them, and can have the phone send them reminders automatically.

In the profession of OT, we have technological guidelines that assist therapists with the development, fabrication, or use of technological products (Mosey, 1996). The pace of technological advances has exceeded the pace of our publication of guidelines for their use. The profession needs to share information on how to use the latest technology in practice and to test the effectiveness of these technological guidelines. Therefore, in the *Open Journal of Occupational Therapy* (*OJOT*), we are interested in publishing scholarly technological guidelines to assist the profession with this important aspect of practice. Not only do we find it important to publish technological guidelines so that we, as therapists, know how to develop, fabricate, or use technological products, but also so that we are made more aware of the limitations and negative impact such products can have on our clients.

Dangers Inherent in Technology

The OT profession cannot embrace technological advances without considering the potential impact on the clients for whom we provide these adaptations. When I was a graduate student at New York University, I enrolled in a philosophy class that focused on technology. As an occupational therapist, my thoughts on technology had all been positive ones about the use of technology to increase a person's ability to function. It was not until I attended this class that I heard

many views about the negative aspects of technology. Among the views we studied was Alvin Toffler's. Many of the predictions Toffler (1970) touted, such as genetically modified blue, purple, or orange people; human brains transferred onto robotic bodies; and brains that were kept alive and transplanted into other bodies, have not come to fruition. His ideas about the psychological impact of technological advances, however, should give us pause. Toffler states:

The speed-up of diffusion, the self-reinforcing character of technological advance,
by which each forward step facilitates not one but many additional further steps, the intimate link-up between technology and social arrangements—all these create a form of psychological pollution, a seemingly unstoppable acceleration of the pace of life. (p. 429)

He goes on to warn of "technological overchoice" and the "inundation of innovation," from which we face a "rampage through society" (p. 433, 438). According to Toffler, we must take the time to learn about the potential consequences of our technological advances and be prepared to block new technologies that negatively impact our society.

One aspect of technological advancement that we need to consider carefully is the impact of technology on the isolation of the individual. Shortly after completing the aforementioned philosophy class, I was on vacation in my home state and found myself sitting at a picnic table on the family farm talking to my grandfather, who had purchased the farm in the 1920s. It occurred to me

that my grandfather, who was born in 1900, had seen many technological advances in his lifetime. So, with great enthusiasm, I asked him what it was like to live during the time when they invented radios, television, cars, etc. To my disappointment, he explained that it really was not very dramatic. He said that he would hear about the latest gadget, such as a car, and then someone in town would get one, and then before he knew it, he, too, was buying one. He sat looking at the cars driving by the farm and after a long pause he said that he used to know everyone who went by the farm. They were in a horse-drawn buggy and would stop by to talk to him on their way to town. Now, he explained, he did not know the people driving by and could not even see who was driving the cars. Technological advances have increased our speed and created an independence from one another, but they have also increased our isolation. Technology seeps into our lives and impacts us in ways for which we are not prepared and sometimes in ways in which we are unaware.

The Balancing Act

As Ihde (1990) explains, our daily activities become so entwined with technology that we become numb to the impact of technology. As occupational therapists, we consistently seek to help people become more independent. Intertwined with being able to function independently, however, is the implication that another human is not needed for assistance and that the person can perform the task in isolation. For occupational therapists, the use of technology must be a balancing act. We must strive to provide dignity to individuals who seek

independence without isolating them from a society that provides them with companionship.

As Postman (1992) suggests for our society, we too, as a profession, must understand our technology and the impact of that technology on our clients so that when we admit a new technology into our practice, we do so with our eyes wide open. We know that many technological devices create communication and independence, but they may also bring the added consequence of isolation. We cannot become "blind to the ideological meaning" of our technological devices (Postman, 1992, p. 94). We cannot "accept efficiency as the pre-eminent goal of human relations" (Postman, 1992, p.184). As Toffler so eloquently explained in an interview:

> Society needs people who take care of the elderly and who know how to be compassionate and honest. Society needs people who work in hospitals. Society needs all kinds of skills that are not just cognitive; they're emotional, they're affectional. You can't run the society on data and computers alone. (1998)

Integration with OT Philosophical Assumptions

According to Mosey (1996), philosophical assumptions of a profession are "the basic beliefs it holds about the nature of the individual, the environment, the relationship between the individual and the environment, and the purpose and goals of the profession relative to meeting the needs of the individual and society" (p. 56). These philosophical assumptions are incorporated into treatment as "overarching, guiding principles." A close examination of the OT philosophical assumptions reveals our focus on the individual and

purposeful interactions with the human and nonhuman environment, but there is not a focus on independence. Instead, there is a focus on "promoting functional interdependence." Integrated within our philosophical assumptions are the ideas that an individual can only be understood as part of the context of his or her environment and that there should be a therapeutic focus on social roles. The profession of OT should not separate our technological knowledge from our philosophical assumptions, but should look for ways to integrate our technological guidelines with our philosophy.

The HAAT Model

The Human Activity Assistive Technology (HAAT) model offers one potential guide in this process (Cook & Miller Polgar, 2008). The HAAT model, which is most widely used in Western Europe, offers four core concepts that should be considered when developing and assessing the effectiveness or impact of technological devices. Assistive technology, human, activity, and context are the four core concepts that comprise the assistive technology system. The success of this system is defined by a human being able to perform a functional activity using an assistive device within a given context (Giesbrecht, 2013).

While this model has received some criticism regarding the use of terms that more closely match with the World Health Organization than with terms used by the profession of OT, the basic concepts set forth by this model can help serve as one potential guide toward a more holistic view of our use of technology. In this model, "the impact of social, cultural and institutional factors is embedded and the relevance of the activity to the individual is paramount" (Giesbrecht, 2013, p. 231). The profession of OT needs to publish technological guidelines that fit with a model such as this one, not only to better understand how to incorporate these devices into our practice, but also so that we might better understand the lived experiences of our clients. We need to understand the meaning of the incorporation of these technological devices into the daily lives of our clients so that we will ultimately maintain the humanity of our practice. Technological guidelines that use this or other models to assist occupational therapists in their daily practice would be a welcome addition to *OJOT*.

In this Issue

In this issue of *OJOT*, we are highlighting technology. We are pleased to feature the work of Brianna Vitale as our cover art. Brianna is a 12-year-old girl who uses technology to create art. For this cover, she used the WaterColorBot, which is a device that paints pictures on paper following along with the client as she draws on a computer. For more details about this artist, please read the Occupation and the Artist feature article.

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