

INTEGRATING TECHNOLOGY INTO MODERN THERAPIES

A Clinician's Guide to Developments
and Interventions



Edited by Jessica Stone



Integrating Technology into Modern Therapies

Integrating Technology into Modern Therapies provides clinicians with an innovative, research-based foundation for incorporating technology into clinical practice. It offers an overview of current technological developments in therapy, such as the use of therapeutic texting, virtual reality programs, tablet apps, and online games. Chapters examine therapeutic applications of technology for those who have experienced trauma and a variety of conditions including autism spectrum disorder, ADHD, and speech concerns. The book also offers suggestions for how technology can be used in hospitals, as well as with migrant, refugee, and homeless populations. Combining theory and research with a wealth of case studies and practical resources, this book will be relevant to all mental health, speech and language, and child life specialists.

Jessica Stone, PhD, is a licensed clinical psychologist in Fruita, Colorado. She has been researching, speaking, writing about, and developing projects associated with the appropriate, responsible, therapeutic use of technological and digital tools in therapy since 2011. She is the co-creator of the Virtual Sandtray App.

“Integrating Technology into Modern Therapies is a ground-breaking and cutting-edge book that addresses the exploding digital age that is significantly impacting psychotherapy. This volume brings together an impressive array of authors writing on such topics as support for the technology-minded therapist, the use of video games, virtual reality, texting, videoconferencing, and the use of technology for medical procedures, speech treatment, and supervision. It is a must-have book as therapists embrace the digital age and use of technology in their treatment approaches.”

—Athena A. Drewes, *PsyD, RPT-S, founder and past president emeritus of the New York Association for Play Therapy, consulting director of APA-Accredited Doctoral Internship, Astor Services for Children and Families*

“A comprehensive, state-of-the-art review of the benefits, challenges, and concerns around incorporating technology into clinical practice. Among the tools discussed are smartphones, computers, apps, virtual reality, and teleconferencing. This timely book is a must-read for novice and advanced therapists trying to determine which technological advances are empirically supported and best meet the needs of their individual clients.”

—Charles E. Schaefer, *PhD, RPT-S, cofounder and director emeritus of the Association for Play Therapy*

“Although many therapists want to ignore or condemn its pervasive influence on people, technology is here to stay. It is time to begin exploring strategies for intentionally integrating technology into our therapy sessions. If you want to step into this forward-thinking frame of mind, this book is for you. The contributors’ comprehensive coverage of the use of technology with a wide variety of clients—including case studies, practical suggestions for an assortment of applications, and an orientation for reluctant technology users—will open your eyes to technology’s endless possibilities.”

—Terry Kottman, *PhD, RPT-S, founder of The Encouragement Zone*

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Contributors

Rachel Altvater, PsyD, Gil Institute for Trauma Recovery and Education,
Fairfax, Virginia

Leslie Baker, MA, Therapy2Thrive™ Ruby Hill Marriage & Family
Counseling Center, Inc., Pleasanton, CA

Anthony M. Bean, PhD, Private Practice, Fort Worth, Texas

Sherwood Burns-Nader, PhD, University of Alabama, Tuscaloosa, Alabama

Melissa Carris, PhD, Carris Psychological Services, P.C., Grand Junction, Colorado

Elisabeth Etopio, PhD, University at Buffalo, Buffalo, New York

Theresa Fraser, MA, PhD Candidate; Changing Steps, Pictou, Nova Scotia

Paris Goodyear-Brown, MA, Founder and Clinical Director, Nurture House,
Franklin, TN

Eric Gott, MS, Nurture House, Franklin, TN

Robert Jason Grant, EdD, AutPlay Therapy Clinic, Springfield, Missouri

Kevin Hull, PhD, Hull and Associates PA, Lakeland, Florida

x Contributors

Andrea Hurt, Private Practice, Doncaster, South Yorkshire.UK.

Heidi Gerard Kaduson, PhD, The Play Therapy Training Institute, Inc.,
Monroe Township, NJ

Henry Kronengold, PhD, Private Practice, NY, NY; City University of NY,
Columbia University

Richard Lamb, PhD, University at Buffalo, Buffalo, New York

Julie Nash, PhD, Riverside Psychological Associates, LLC, Centerbrook, CT

Judi Parson, PhD, Deakin University, Geelong, Victoria, Australia

Kate Renshaw, BA, PhD Candidate; Deakin University, Geelong, Victoria.
Australia

Melanie Stinnett, MA, TheraCare Outpatient Services, LLC, Springfield,
Missouri

Jessica Stone, PhD, Virtual Sandtray[®], LLC; Private Practice, Fruita, Colorado

Daniel S. Sweeney, PhD, George Fox University, Portland, Oregon

Foreword

Daniel S. Sweeney, PhD

Like most in the practicing mental health profession, I was trained that the foundational element in the therapeutic alliance, and the associated therapy progression, was the personal connective relationship between the therapist and client. Obstacles to this fundamental dynamic should be steadfastly avoided.

Time and time again, we are reminded of the potential evils of technology associated with relationships. Often, when humans interact with technology, they are either intentionally or unintentionally avoiding interaction with each other. Why, then, would we ever consider the use of technology in the context of psychotherapy? Why would we consider such a “tool” in the psychotherapeutic process?

I have been an expressive therapist [sandtray therapy, play therapy, drama therapy, storytelling, etc.] for some 30 years. These approaches and interventions are very hands-on, and face-to-face. It has long seemed to me that any element that could interrupt these relational building activities—such as technological tools, perhaps?—should be steadfastly avoided. After all, when technology is introduced, the relational dynamic changes, correct? Some would argue that the relationship change is then between the person and the technology, rather than the person and the other person.

However, perhaps I had been long looking at this the wrong way. Most mental health professionals operate out of some theoretical framework [or at least they should!]. All psychotherapeutic theories include a variety of technical interventions. While we may disagree with some, agree with some, or vehemently disagree with others, we acknowledge that these interventions are recognized in the mental health field. Additionally, there are a variety of ways to employ these interventions. Could it be that there are technological

tools that can be utilized or weaved into these various theoretical interventions and techniques?

If therapy is based on relationship, and the basic relational tool is empathy—which is entering into the client’s world—is it possible that technology can practically facilitate and perhaps enhance this “entering” process? Psychotherapists use a variety of tools to facilitate the *entering* process—why shouldn’t technology be one of these tools? Since technology has long been [and will continue to be] a pervasive part of the world we live in, should it really be avoided in the mental health process? The simple answer is: of course not!

Dr. Stone and her contributors do not spend much time giving an apology for the use of technology in the therapeutic process. Rather, they simply unfold the pragmatic employment of various technologically based interventions, while integrating practical rationale for their integration.

Many discussions of technology in therapy focus on providing counseling over the phone or via the Internet. This certainly applies, and is indeed covered in this book. However, there is significant potential to use technology within face-to-face counseling as well.

Hull (2015) proposes multiple benefits for the use of technology in the therapeutic process, including: 1) Making the therapy room more inviting, and the process of therapy less threatening; 2) Providing a foundation for bonding between therapists and clients; 3) Building opportunities for the use of imagination and creativity; 4) Offering opportunities for therapeutic metaphors and life applications; and 5) Allowing for a greater understanding of the client’s strengths and weaknesses, along with a platform upon which these can be improved (pp. 616–617).

I would assert that the use of technology should be cross-theoretical, not atheoretical. It is my contention that when using technology in the therapeutic process, that its utilization should always be theoretically based. Sweeney (2011) asserted that theory is always important, but theory without technique is basically philosophy. At the same time techniques may be quite valuable, but techniques without theory are reckless, and can potentially be damaging. Sweeney (2011) further asserted:

All therapists are encouraged to ponder some questions regarding employing techniques: (a) Is the technique developmentally appropriate? [which presupposes that developmental capabilities are a key therapeutic consideration]; (b) What theory underlies the technique? [which presupposes that techniques should be theory-based]; and (c) What is the therapeutic intent in employing a given technique? [which

presupposes that having specific therapeutic intent is clinically and ethically important].

(p. 236)

This would certainly apply to any use of technology in therapy. Readers of this book are encouraged to thoroughly examine how any techniques discussed in these pages fit with the developmentally appropriate, theory based, and therapeutically intentional work that you are already doing.

I believe that an important preliminary consideration involves ethical and legal issues. Some of the chapters appropriately discuss ethical issues as related to the use of technology in therapy. If the reader is looking for further resources, I would suggest consulting Dart, Whipple, Pasqua, & Furlow (2016) and Campbell, Millán, & Martin (2018).

Additionally, while there are multiple ethical factors that could be discussed, I would like to foremost comment on the issue of competence. We know as mental health professionals that it is unethical to practice outside of the scope of our expertise; we also know that this all too often occurs. It is an important reminder: if we lack the training and the supervised experience—even the professional and personal confidence—we should not use any technological intervention. Technology can be intimidating but can be an effective tool in the therapeutic toolbox.

I invite readers to enjoy this important addition to the mental health literature. The chapter topics are relevant, informative, and filled with sound counsel. Dr. Stone and her contributors provide a practical and understandable introduction to the use of technology in therapy.

References

- Campbell, L., Millán, F., & Martin, J. (Eds.). (2018). *A telepsychology casebook: Using technology ethically and effectively in your professional practice*. Washington, DC: American Psychological Association.
- Dart, E., Whipple, H., Pasqua, J., & Furlow, C. (2016). Legal, regulatory, and ethical issues in telehealth technology. In J. Luiselli & A. Fischer (Eds.), *Computer-assisted and web-based innovations in psychology, special education, and health* (pp. 339–363). Waltham, MA: Academic Press.
- Hull, K. (2015). Technology in the playroom. In K. O'Connor, C. Schaefer & L. Braverman (Eds.), *Handbook of play therapy* (2nd ed., pp. 613–627). New York, NY: Wiley.
- Sweeney, D. (2011). Group play therapy. In C. E. Schaefer (Ed.), *Foundations of play therapy* (2nd ed., pp. 227–252). New York, NY: Wiley.

Introduction

Responsible Integration of That Which Is Here to Stay

A quick scan of most environments today will inform us of the enormity of the integration of technology into our lives. People are on their phones and tablets at the store, while waiting in various lines, at the doctor's office, and in many other situations. We are communicating with others, reading, getting caught up on emails or gossip, researching something, playing games, taking photos, or any number of other tasks on our devices.

Historically, human beings have been very cautious, and at times alarmist, regarding new approaches to many things. Plato discussed the Egyptian tale of Theuth, in his 370 bc work entitled *Phaedrus*, in terms of concern about the written word being insufficient and dangerous to the wisdom and tradition of oration. Books, the printing press, radio, and television have also been targets of alarmist views. Each were to lead to the destruction of society, sending us into a fiery, downward spiral of doom. It is important to acknowledge that each advancement had effects on society. Adjustments were made; there were pros and cons to each, however, society marched forward in many positive ways.

During the 1950s, Elvis, with his provocative hip gyrations and music style, were sure to corrupt society's youth. His 1956 performance of "Hound Dog" on the Milton Berle Show had people warning, "Beware of Elvis Presley" and numerous insults about his lack of talent being masked by his inappropriate movements, thus working to discredit him (History, n.d., para. 2). In 2005, CNN published an article decrying "Workers distracted by phone calls, e-mails and text messages suffer a greater loss of IQ than a person smoking marijuana" (para. 1), which was interestingly enough,

backed up by comments by an Hewlett-Packard worker. Hewlett-Packard is a company who has an enormous investment in printed works, so the intent is suspicious (Nowak, 2011; CNN, 2005). We must attend to the concerns raised with advancements, analyze their origins, heed the importance of balance, and preserve components of history, while analyzing and embracing change and that which is different.

Research articles, and anecdotal blogs alike, often debate the effects of the current use of technology on our society. There are concerns expressed by professionals, parents, and lay people (Durkin & Barber, 2002). Some advances are life-changing, even life-saving. Some are draining. Many are in between. So much of these conversations really boil down to values, familiarity, and knowledge. Debates about the pros and cons should focus more on how to responsibly integrate these advances rather than discuss whether or not they should exist. It is clear that technology is here to stay for the foreseeable future. How do we appropriately incorporate it into our lives overall and into our professional directions? How, as practitioners, do we maintain our tenets of understanding, growth, and change while incorporating these facets of the language our clients speak and the overall benefits to our understandings and ways of meeting people's needs?

Integrating Technology into Modern Therapies aims to assist multidisciplinary practitioners from various fields in navigating this modern ground. How can we think critically about technological and digital tools and find responsible, appropriate, therapeutic ways to improve our work and our connections with our clients and/or patients? The following chapters will guide you on a journey beginning with addressing questions and doubts many of us have had regarding technology in various therapies. New, innovative, and exciting uses of technology with a variety of populations, environments, and disciplines will be discussed and highlighted with case studies. Each author of each chapter was carefully and specifically chosen for their knowledge, experience, and attention to therapeutic value in a variety of settings, and with various populations. You can feel confident in the quality of education you are receiving and the subsequent decisions you will make regarding the incorporation of technological tools in the practice of your chosen field.

The first section will provide an overview of the use of technology in psychotherapy. For practitioners who are questioning the therapeutic value of using technology in general and in psychotherapy, this is a great place for you to understand much of the process and therapeutic foundation, research on specific interventions and overarching concepts, ethical considerations, and the variety of modalities available today. The authors in this section are

amazing and bring forth current and powerful information so you can make educated decisions about how you will move forward.

The second section focuses on some exciting and innovative therapeutic uses of technology. From competence-based supervision and mentoring, to therapeutic texting, to the use of virtual reality (VR) and self-identification in video games, you will be introduced to some of the most impressive forward-thinking practitioners and their work. Key points will be highlighted in case studies throughout.

Mental health practitioners will be thrilled to read about the appropriate use of technological tools with specific populations. In this edition of *Integrating*, three poignant populations are highlighted: Trauma, Autism Spectrum Disorder (ASD), Attention Deficit Hyperactivity Disorder (ADHD) and the Gifted population. The section is rounded out with a focus on Mindfulness, which is something we all can use daily. These authors are professionals who have successfully identified therapeutic value in the use of technological tools with these important client populations.

Practitioners from many disciplines will benefit from learning about how technology is being integrated with great success into various fields. One could argue that cross-over between disciplines is *not only possible but imperative* for improved client/patient care. Written by seasoned professionals, this section discusses the use of technological tools within speech therapy, within the hospital setting and medical environments, and with underserved populations.

As you read, you will encounter a rapidly growing collection of research on these topics, case studies to illustrate important points, ethical considerations, and various tools the authors have found useful so far. Instead of serving as a steadfast guide, *Integrating* aims to provide practitioners with the information necessary to decide for themselves how these tools can be utilized in therapeutic, appropriate, and powerful ways. Technology and digital tools are important aspects of our future and these are your first steps.

We all sincerely hope you enjoy our book.

References

- CNN. (2005). *E-mails 'hurt IQ more than pot'*. Retrieved from www.edition.cnn.com/2005/WORLD/europe/04/22/text.iq/
- Durkin, K., & Barber, B. (2002). Not so doomed: Computer game play and positive adolescent development. *Journal of Applied Developmental Psychology*, 23(4), 373–392. doi:10.1016/s0193-3973(02)00124-7

History, (n.d.). *This day in history*. Retrieved from www.history.com/this-day-in-history/elvis-rocks-the-milton-berle-show

Nowak, P. (2011). *Boo! A brief history of technology scares*. Retrieved from www.macleans.ca/society/technology/boo-a-brief-history-of-technology-scares/

Plato (370 bc). *Phaedrus*. Retrieved from www.gutenberg.org/files/1636/1636-h/1636-h.htm



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Part 1

Overview of the Use of Technology in Psychotherapy



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The Screen Door

Thinking about Technology in Psychotherapy

Henry Kronengold

Sarah and I chatted as she walked with me into the office for our first session. As I prepared to give her a quick tour, I saw her eyes focus on a pair of familiar objects resting on my desk. Making a beeline for my laptop and phone she asked eagerly,

“What games do you have? Can I play with that?”

I admit to great ambivalence as I write about technology and therapy. As a child psychologist, I also admit to even greater disappointment when I see a child or teenager glued to his or her phone, obsessed with the latest video or online game or constantly texting, taking selfies, and chatting on whatever app is in vogue. At those moments, I look at the toys in my office and I wonder, what happened to the excitement of playing with castles, puppets, or building blocks? What about the days when kids would open my toy closet and search for an action figure or rummage through arts supplies? Those toys offered a creative and expressive venue that was most of all a shared experience. What am I supposed to do with a computer game that certainly entertains but can also appear solipsistic? At least to me.

I remember when I first tried to use online games some years ago. It was in the old days of an early kid’s social media site called *Club Penguin*. A few kids came in to show me the site and asked if they could play. I agreed and was curious about how our work would evolve with this new game. I spent several sessions watching kids play with adorable animated penguins as the children occasionally smiled but mostly ignored me. I felt as if I was running an arcade rather than a therapy office and I shut the *Club Penguin* experiment down.

I am drawn to a therapeutic space that is shared and co-created and have struggled with how to integrate technology. I've often set limits or tried to explain how I think it's hard to play or talk together when there's a device involved. On the other hand, I also feel that I've been avoiding the actual challenge of these new technologies. It's deceptively easy to hark back to imagined good old days, but I can similarly recall the dim view that a previous generation had of my own childhood pursuits, such as television, modern music, and yes, early electronic games.

A quote by Roland Barthes, comes to mind:

Current toys are made of a graceless material, the product of chemistry, not of nature. Many are now molded from complicated mixtures; the plastic material of which they are made has an appearance at once gross and hygienic, it destroys all the pleasure, the sweetness, the humanity of touch.

(Barthes, 1972, p. 54)

While I'm not going to quibble with the loveliness of handmade wooden toys, it is worth mentioning that Lego, Playmobil, and any number of plastic molded action figures have been prominent in wonderful moments of play. Barthes' quote suggests that we have an instinctive tendency to romanticize the past and see innovation as technically impressive but existentially inferior.

I work from the assumption that therapy is predicated on my willingness to jump into another person's world. With that comes a need to consider my own perspective and in this case, the realization that *my* relationship to the digital world is primarily functional. I frequently check news and information online, enjoy easy shopping, and even the occasional online quiz. I use technology but it's not a fundamental part of who I am, though I suspect people seeing me on my phone as I walk down the street would disagree. However, technology is central to how many people engage with the world. It's how they interact socially. It shapes how they think. I can easily wax romantic about my Lego and puppets, but what about someone who builds virtual worlds in Minecraft or inhabits favorite characters in a computer or online game? To an entire generation, digital life is about as foreign as a subway is to a native New Yorker.

Which brings us to what I think are the core issues of technology in therapy. Therapy takes place between two people. The therapeutic encounter allows for a degree of healing, an important forum to work out difficulties, and to develop new ways of relating. Competing theoretical orientations disagree on the role of supportive, cognitive, unconscious, and behavioral factors in the therapeutic process but all hold dear the primacy of the therapeutic

alliance and relationship. If therapy is dependent on an engaging and nurturing therapeutic relationship, then where does technology come into the equation? Can it be integrated or even enhance therapy? Or is it detrimental to fundamental interpersonal and imaginative experiences that are so critical to therapeutic progress?

Case Studies

Naomi

Naomi barely spoke in our first sessions. The 14-year-old was being home-schooled after dropping out of 9th grade due to depression and anxiety. Medication helped her get out of bed but she showed little interest in anything else. A behavioral approach hadn't worked as Naomi refused to participate in sessions, ignored the homework assignments designed to help manage her emotions, and struggled against the constant negative thoughts that echoed in her mind. In our first sessions, I tried to speak to her about any number of topics but Naomi sat silently and occasionally would venture a 'yes', 'no', 'fine', or just a shrug. Her best friend appeared to be her phone, which she'd look at frequently during sessions.

"Can I ask what you're doing on that thing?" I asked. There was no response. "It's ok. I'm not going to lecture you about it or anything. It's your phone. Just wondering." I paused for a moment before adding, "It looks interesting."

Silence again. I paused for another moment. For a second I thought about getting up and looking but decided that would be too intrusive. I had to be patient, so I sat quietly.

"It's not a phone," Naomi said, her eyes fixed on the screen.

"Oh, what is it?" I wondered.

"Nintendo," Naomi explained.

"Really," I said with genuine interest. I hadn't seen one of those in the office in ages. "Old school," I nodded appreciatively. "Respect. What game are you playing?"

"It's not a game. It's a show. Have you heard of Soul Eater?" Naomi asked.

"No, what is it?"

So, Naomi started explaining the intricacies of a Japanese anime show she had been watching obsessively over the past week. I couldn't follow all the details exactly. I knew it was complicated, somewhat morbid but, most of all, of great interest to Naomi. She had shared it with her older cousin who lived

nearby, and now she was telling me about it as I asked questions and tried to follow the plot.

"Here," Naomi motioned, "I'll show you."

Naomi stepped out her chair, walked over, and showed me the anime show she had been watching. I watched with great interest, curious about the content but mostly interested in finding a way into her world. What if I had told her no devices were allowed in my office?

Nick

Nick, a 7-year-old devotee of all things electronic was eager to show me his favorite app.

"Henry, I have to show you this. Here!" he enthused. I reached to get my phone back from Nick who was waving my phone precariously in the air. "Do you have an iPad?" Nick wondered.

I figured maybe this would be interesting. Perhaps Nick had something important to show me. I took an iPad out and Nick showed me a drawing activity. It certainly looked as if it could be creative. How would it be different than if the two of us took out colored pencils and markers? I sat with Nick, who began to play with the iPad as I followed along. He worked diligently but ignored me, changing the colors I had added and disregarding my comments. After about 10 minutes I felt a familiar feeling of disconnection, as Nick tapped away and could have easily stayed in the same position for hours.

As I think about Naomi, reaching out to me through her parallel reality, and Nick, shutting me out as he melted into his device, I recall a decade earlier when I worked with the Grand Theft Auto-obsessed James and Michael, two 16-year-old gamers who struggled to balance their virtual and everyday worlds. I was never comfortable with the game's violence or the extent to which both boys played it for hours at a time. James stayed up all hours, playing and trash talking with people he talked to online. He would barely sleep, did poorly in school, became less social, more moody, and withdrew from much of his life in favor of his gaming. Even in our sessions he kept glancing at his watch, fidgeting as he thought about his next game much like an addict imagining his next fix.

Michael

The socially isolated and anxious Michael also spent too much of his time gaming and it similarly interfered with his schoolwork. But Michael, who

was socially isolated before getting into the game world found a new and ironically safer venue where he could encounter others. He played the game but he also started to join online discussion groups where he met other players. He brought up online situations for us to discuss in our sessions as he thought about how to engage and dealt with his own feelings from a safer distance. Certainly, this pursuit needs to be monitored properly as we know that forums and chat worlds can be minefields. But, in Michael's case, the online realm became a place to try out his social skills and to develop connections with others. It is easy and all too alluring to judge these connections, particularly for a therapist who may feel more comfortable having face-to-face conversations and relationships. It is also crucial to appreciate just how difficult and lonely middle school can be, and in Michael's case, his gaming not a retreat but rather a shift to a different world where he could start to reach out to others and began to grow in confidence. For Michael, his virtual encounters grew to the point where he began to make forays into the local game store to play with and meet other kids with his shared interests.

So, there's this puzzle: What do we do when the use of technology seems deeply meaningful and therapeutic for some, and just as deeply defensive and isolating for others? Are they actually different? Is there meaning in both?

Others

Then again, I wonder how different Naomi, Nick, James and Michael are from any of the children who have come with a particular interest, such as reading certain books or listening to music. Austin walked everywhere with his copy of *Harry Potter and the Sorcerer's Stone* covering his face, the classic work serving as a shield to guard against intrusion from the outside world. Zoe's headphones echoed with electronic dance music, as I struggled to get to know her amidst all the background noise. On the other hand, Ella brought in the same book but talked to me about the characters, played out scenes with me, and used the books and our sessions as an imaginative springboard for her life. Sam introduced me to his favorite rap songs, trying out the lyrics and hopelessly teaching me their meanings.

Therapeutic Work and Where We Go from Here

In other words, maybe technology raises many of the same challenges that we've always encountered. Our goal is to take whatever an individual brings into therapy and work with it in a way that is emotionally meaningful and

therapeutic. So, our challenge is—how do we integrate technology in the same way that we may try to integrate anything that is relevant in a person's life, knowing that the same interest can be used as a means to isolate, engage, or create?

While considering the similarities of technology to other areas of interest, we can still ask: What unique issues does technology raise that we need to confront in thinking about our therapeutic stance? It is not a simple question of whether technology is good or bad. Rather, there are serious questions that technology brings to a therapy room. Attachment theory and research stem from the premise that emotional warmth and sustenance are pivotal to a relationship. If we do indeed use technology, then:

How does it shape the nature of our interactions in therapy?

How do we manage exchanges that can feel so impersonal?

How do we use new mediums to open possibilities to grow and share in therapy?

The nature of the relationship is a crucial one and raises the question of how does the nature of the therapeutic relationship shift and how do we keep it therapeutically relevant for children who are digital natives?

Play-based therapeutic approaches rely heavily on imagination and the development of an internal space from which a child is able to play and relate to others. There is a more passive, and also immediate, nature to digital technology, which often entertains, constantly stimulates, and allows for immediate responses. How do we safeguard the place of imagination and play? How do we integrate apps, games, and other technological innovations while we stay true to our desire to help a child's sense of agency, reflectiveness, and curiosity? Technology, with all its visual pizzazz, can also heighten our focus on the external, whereas our work in therapy centers on nurturing an interior emotional world. Perhaps the virtual and visual nature of technology allows for a creative and expressive medium? But if it does, how does the role and the nature of fantasy change with technological innovations in play?

The basis of this volume is a wondering about how we can integrate technological innovations in our therapeutic work. How do we honor different developmental stages? Is technology more useful with certain populations? I have seen technology open avenues for individuals who may have struggled with relatedness and flexibility; at the same time, the repetitive and isolative nature of technology may reinforce those same challenges. Technology may offer a safe venue for a child who is stuck or an easy defense for a child who wants to disengage. Do we use or avoid the immediately gratifying nature of

technology to work with impulsive children? Are certain forms of technology better suited for therapeutic use? Are certain types of games or apps particularly useful in the therapeutic space? Can there be a therapeutic benefit to the natural distance of technology, particularly for a child who struggles with intimacy either because of developmental needs or a traumatic past? What about our use of technology to reach children in new and different settings? Can we use the very medium that we often see as isolating, to help us to connect to people who may have been previously out of reach, perhaps because they live far away or are in a distinct location such as a hospital, or an under-served school?

We don't need to have all the answers at this early stage as we consider the place of technology in therapy. Rather, it is important for us to consider how our work will evolve, and how it will stay the same, as our technology becomes more embedded in our lives. In the same way that we may shift our work based on new theories, models, and research findings, we also seek to integrate important changes in the lives of children and adolescents. It is in that spirit that we consider the benefits, pitfalls, and most importantly the various methods, approaches, and questions that can help guide us as we consider how to integrate technology in our work.

Reference

Barthes, R. (1972). *Mythologies*. New York, NY: Hill and Wang.

Research-Informed Technological Transitions in Psychotherapy

2

Rachel Altvater

Technology has become an integral part of our daily lives. Ordinary transactions and interactions, such as ordering a meal, reading the newspaper, and conversing with others, have transitioned over the years to rely heavily on technology. Thus, technology has become a consistent medium that individuals utilize to fulfill simple and complex tasks. Technology has also become increasingly important in supporting individuals' health across the globe. The internet provides a vast amount of access to a broad range of health-related information and professionals (Pål & Yardley, 2009).

Research in recent years has rapidly expanded to keep up with the burst of technological advancements inside and outside the psychotherapy room. This chapter introduces the academic research and foundation as a basis for why and how it is appropriate to incorporate technology into psychotherapy. It also provides an overview of how the sociocultural evolution of technology permeates the modern psychotherapeutic process through exploration of various technological interventions that are being implemented and considered to augment or supersede traditional psychotherapeutic means, the benefits of these interventions, and how technology is abetting the therapeutic relationship. Ethical and diversity considerations and other implications are also reviewed.

Technological Interventions

When technology first pervaded psychotherapy, minimal research was conducted to explore the efficacy of supplementing psychotherapy with technological support. Instead, there was a historic tendency to examine

the therapeutic benefits of replicating or replacing in-person therapy with technological interventions. Therefore, the effectiveness of either/or has been primarily explored (Richards & Simpson, 2015). Richards and Simpson (2015) explain:

This has created an all-or-nothing divide in the research outcome literature whereby these two therapeutic strategies have been scarcely integrated in support of one another, and the practice of online therapy remains contested. As a result, traditional [practitioners'] attitudes towards providing therapy online typically remain ambivalent.

(p. 58)

However, supplementing therapy with technological support, including text messaging and email, is quite common in practice (Richards & Simpson, 2015). More research is beginning to investigate the efficacy of incorporating technological interventions in psychotherapy treatment.

Telepsychology

Telehealth is commonly integrated across various health practitioner disciplines in providing patient care via technological platforms. Telepsychology, also denoted as telemental health, is the psychological care component under the umbrella of telehealth services. Telepsychology is defined as:

The provision of psychological services using telecommunication technologies. Telecommunications [are] the preparation, transmission, communication, or related processing of information by electrical, electromagnetic, electromechanical, electro-optical, or electronic means. Telecommunication technologies include but are not limited to telephone, mobile devices, interactive videoconferencing, e-mail, chat, text, and internet.

(Campbell, Millán, & Martin, 2017, p. 169)

Telepsychology is an emergent service method that is gaining an aggregate amount of empirical support.

A comprehensive meta-analysis of approximately 70 studies, conducted by Hilty et al. (2013), reviewed a decade of telemental health literature from July 2003 to March 2013. The researchers were interested in examining the effectiveness of these services through an exploration of the literature regarding reliability and validity of diagnosis provided, feasibility, acceptability, and

sustainability of specific populations, models and settings of services, access to care, and cost of services. The authors concluded that telemental health services are “unquestionably effective in most regards” (p. 451), although they believe additional research is needed. Practitioners are able to effectively provide diagnosis and assessment across various age and ethnic populations, disorders, and settings with these services. The researchers also indicate that telemental health services are “comparable to in-person care and complement other services in primary care” (p. 451).

Langarizadeh et al. (2017) also led a meta-analysis of telemental health literature. They utilized 25 high quality studies from 2000 to 2017. They concluded that their review strongly supports the use of telemental health care, as it improves client satisfaction, is cost effective, and “can lead to efficient and adaptable solutions to the care of patients with mental illnesses, with promising outcomes” (p. 244).

Mobile Health (“mHealth”)

mHealth is the use of mobile devices in health care. Mobile devices include smartphones, tablets, personal digital assistants (PDAs), and wearable devices (Lindhiem, Bennett, Rosen, & Silk, 2015; Lui, Marcus, & Barry, 2017). Lindhiem et al. (2015) conducted a meta-analysis of 25 studies exploring the use of mHealth on psychotherapeutic and other behavioral outcomes. They examined clinical trials with at least two groups to estimate post-treatment mean differences. These studies involved exploration of PDAs (n = 6), texting interventions (n = 12), and smartphone applications (n = 7) for adults (n = 21) and children and adolescents (n = 4). The presenting concerns examined included addictions (n = 7), medical/physical conditions (n = 11), and various psychological conditions, including depression, anxiety, and posttraumatic stress disorder (n = 7). They found that the use of mHealth as a supplement or substitute for treatment enhanced outcomes for experimental subjects more than for control subjects who did not receive treatment incorporating these interventions (Lindhiem et al., 2015). Lindhiem et al. (2015) explain:

Mobile technology could become a common resource for augmenting current clinical practices and overcoming common barriers to treatment. The continued development of mobile health interventions will allow for a more careful examination of moderators and a more thorough understanding of how mobile technology can improve mental health treatment.

(p. 9)

TELEPHONES

Practitioners have utilized telephones to provide psychotherapy sessions (Kazdin & Blasé, 2011), reminders for appointments and medication, support in practicing skills (Lindhiem et al., 2015), and for communication via text message (Kazdin & Blasé, 2011). Kazdin and Blasé (2011) found that scheduled weekly telephone calls aided in lower costs and rates of attrition than traditional in person treatment. Presently, personal cellular devices have replaced some traditional telephone “land lines.” Smartphones continue to increase in popularity and usability (Pew Research Center, 2018) and provide increased psychotherapeutic options through their ability to connect to the internet and run applications.

INTERNET

The internet offers the ability to reach a large portion of the population in a cost effective and easily maintainable manner (Kazdin & Blasé, 2011). Increased interactivity with internet-delivered interventions in psychotherapy appears to be more effective and “seems to improve the emotional quality of an intervention” (Pål & Yardley, 2009, p. 616). It is suggested that an engaging interface would be necessary to improve motivation and healthy behavior (Pål & Yardley, 2009).

There is a plethora of websites that offer direct and supplementary mental health support. Websites, such as *Breakthrough*, *TalkSpace*, and *Crisis Text Line*, provide text-based psychotherapy services. Individuals are paired with licensed mental health professionals, or paraprofessionals in some cases, on demand. Services are flexible and easy to access (Imel, Caperton, Tanana, & Atkins, 2017). Online mental health support groups and *subreddits* have tens to hundreds of thousands of members (Imel et al., 2017).

APPLICATIONS “APPS”

Apps are software programs that are accessed on mobile and tablet devices with internet capabilities that readily provide a broad depth of information, activities, and other abilities to individuals (Herndon, 2014; Lui et al., 2017). They offer various interventions for physical and mental well-being (Herndon, 2014; Kazdin & Blasé, 2011). Apps deliver and aid in a vast range of abilities, including tracking food intake, obtaining an exercise routine (Herndon, 2014), engaging in relaxation activities, and tracking mood and behavior. Herndon (2014) explained that there are growing opportunities for practitioners to utilize apps as a supplement to treatment and support for clients, as more apps are being designed specifically to use in conjunction with psychotherapy.

Lui et al. (2017) conducted a meta-analysis of 21 studies that focused on evaluating the efficacy of utilizing apps as a psychotherapeutic intervention for a wide range of psychopathology, including anxiety, depressive and mood disorders, posttraumatic stress, schizophrenia, and substance use disorders. Almost all the studies reviewed expressed the benefit of apps as an intervention for reduction of presenting concern symptomatology. Although, general conclusions could not be drawn as there was insufficient empirical support for specific mobile apps within different target populations. The researchers recommended further investigation. “Nonetheless, results regarding the effectiveness of mobile apps for mental health issues are promising. Although empirical evidence is preliminary, most apps were extensions of empirically supported treatments to a mobile platform” (Lui et al., 2017, p. 10). Thus, it appears that the shift in delivery of the intervention does not impact the effectiveness of that intervention.

COMPUTERS

Researchers have investigated the efficacy of computers in psychotherapy. In reviewing the literature regarding the benefits of computer and gaming technology on psychotherapy outcomes, Evans (2012) found that computer technology was efficacious because it increased visual and sensory stimulation and aided in psychotherapeutic motivation and retention. Computer game interventions also facilitated socialization and connection, problem-solving skills, academic performance, exploration and release of emotions, relaxation, and self-esteem and awareness. The engaging and interactive nature of computer interventions makes them highly desirable, enjoyable, and quite beneficial in psychotherapy.

VIDEOCONFERENCING

Videoconferencing is the method in which distance communication occurs via a computer or other mobile device. It offers increased and improved access to practitioners with specialized expertise (Backhaus et al., 2012). Practitioners can provide psychotherapy through various Health Insurance Portability and Accountability Act (HIPPA) compliant videoconferencing platforms (e.g., Doxy.me, VSee, thera-LINK, and wecounsel) to clients in the comfort of their own homes, offices, or other convenient locations. Individuals are able to schedule videoconferencing sessions during times in their day when otherwise they would not be able to attend an appointment due to travel time, conflicting appointments, or other daily demands and obligations. Videoconferencing simplifies the process and makes attending sessions much more expedient.

Backhaus et al. (2012) conducted a meta-analysis of 65 articles to assess numerous factors surrounding videoconferencing in the literature, including feasibility, satisfaction, and clinical outcomes. They concluded that videoconferencing is a feasible method to deliver psychotherapy, the care provided was often beneficial, and comparisons between video conferencing and traditional in person care reported similar satisfaction. Dissatisfaction was primarily due to technological issues, not the services provided. The research consistently supports psychotherapeutic videoconferencing as a viable alternative to in-person treatment (Backhaus et al., 2012; Hilty et al., 2013). It offers the same therapeutic service, just over a more convenient platform.

VIDEO GAMES

Video games are widely accepted and maintain interest and engagement, which make them useful tools in psychotherapy (Goh, Ang, & Tan, 2008; Kazdin & Blasé, 2011). It is suggested that they supplement, not replace, in person psychotherapy. As Goh et al. (2008) explain:

The state-of-the-art in game intelligence cannot equal the skills, knowledge, experience and intuition of well-trained mental health professionals, nor can games understand the context behind an individual's difficulties, attitudes and feelings . . . By including the mental health professional as part of gameplay, he/she will be better able to monitor the child or adolescent and take remediation steps when necessary.

(p. 2229)

The two types of video games offered for therapeutic purposes are electronic games for psychotherapy (EGP) and electronic games for entertainment (EGE). EGPs are games specifically developed for use in psychotherapy. EGEs are commercial games developed for leisure but implemented in a salutary manner in psychotherapy (Horne-Moyer, Moyer, Messer, & Messer, 2014). In reviewing the literature, Horne-Moyer et al. (2014) concluded that EGPs, EGEs, and other computer-assisted therapies are comparable to traditional methods for various presenting concerns and methods of psychotherapy. They recommend incorporating technology in a professional and engaging way and selecting games based on the appeal and potential for facilitating therapeutic goals.

VIRTUAL REALITY "VR"

VR is "a technological interface that allows users to experience computer-generated environments within a controlled setting" (Maples-Keller, Bunnell,

Kim, & Rothbaum, 2017, p. 103). VR provides a sense of presence inside the environment and the ability to manipulate the environment in ways to teach individuals how to manage their difficulties (Valmaggia, Latif, Kempton, & Rus-Calafell, 2016). VR is increasingly used and consistently supported as a viable tool in psychotherapeutic treatment, especially exposure-based treatments for anxiety disorders (Maples-Keller et al., 2017). A meta-analysis of 24 controlled studies between 2012 and 2015 analyzed the effectiveness of VR compared to conventional interventions. VR interventions were deemed more efficacious for various anxiety concerns, including agoraphobia with or without panic disorder, fears of flying, spiders, and public speaking, and management of posttraumatic and psychological stress (Valmaggia, Latif, Kempton, & Rus-Calafell, 2016).

Benefits of Incorporating Technology in Psychotherapy

Telepsychology provides substantial additions to psychotherapy, and practitioners are increasingly incorporating technology in their practice. Telepsychology provides increased access to services to those who experience barriers, including but not limited to geographic location, financial hardships, transportation, and psychiatric or medical conditions (Backhaus et al., 2012; Campbell et al., 2017; Harris & Birnbaum, 2014; Langarizadeh et al., 2017; Lui et al., 2017; Richards & Simpson, 2015). Telepsychology also offers flexibility with time and place of therapy, client self-disclosure (Richards & Simpson, 2015), and anonymity and comfort (Harris & Birnbaum, 2014; Lui et al., 2017). Teletherapy reduces practitioner contact to a third of traditional therapy, which lowers cost and time (Barrett & Gershkovich, 2014). The ability to communicate intermittently, also known as asynchronous communication, allows for more time and convenience to respond and deeper reflection and responses to material (Harris & Birnbaum, 2014).

Technology as Means to Enhance the Therapeutic Relationship

IMPACT OF TECHNOLOGY ON RELATIONSHIPS

Online social networks enhance individuals' social lifestyles. While short or brief communications may appear superficial, studies show that the intention is generally to connect and maintain existing relationships. Additionally, these online connections seem to augment, not replace,

real-life interactions (Zilberstein, 2015). As Zilberstein (2015) explains, “although digital communication does favor brief, frequent contacts, it does not destroy the value put on social associations or discourage people’s willingness to communicate deeply in-person” (p. 152). The shift to online communications and connections has altered traditional interpersonal methods; however, it does not appear to have an adverse effect on maintaining relationships. If anything, technology enhances these relationships due to increased access to preserve and cultivate relationships.

IMPACT OF TECHNOLOGY ON THE THERAPEUTIC RELATIONSHIP

Telepsychology might assist or encumber the attachment of the therapeutic relationship depending on the practitioner and client (Marmarosh, 2015). Preliminary evidence proposes that telepsychology may enhance the therapeutic relationship. Various articles support the notion that conducting therapy via technologically based modalities increases client disclosure (Richards & Simpson, 2015). While there is widespread concern that technology detracts from the relationship, there is limited empirical evidence, since this is frequently overlooked in technologically advanced research (Richards & Simpson, 2015). Due to this concern and the lack of evidence, “therapists tend to underestimate the ‘warmth and depth’ of the therapist-patient bond that is established via computer-based modalities” (Richards & Simpson, 2015, p. 61). Considering that technology is now a conventional mode of connection and conversing in individual’s personal, daily interactions, it is assumed that the connection between practitioner and client through technological platforms or with technological interventions would follow the trend, thus becoming more comfortable and customary.

Internet-based psychotherapy may provide a safe enough distance when establishing a relationship. Individuals who experience social difficulties are able to open up more easily via computer-mediated communication (Baker & Oswald, 2010; Pål & Yardley, 2009). It is also suggested that they could experience higher-quality relationships using this method (Baker & Oswald, 2010). According to Richards and Simpson (2015), “this has been attributed to the asynchronicity, invisibility, and perceived anonymity that are characteristic of the online environment” (p. 61). Individuals often present themselves more authentically behind the safety and comfortability of the screen. Internet-based psychotherapy offers a less threatening medium than in-person interactions for some, especially when exploring and processing deep-rooted concerns.

Backhaus et al.’s (2012) meta-analysis examined findings regarding the effects on the therapeutic relationship when utilizing videoconferencing.

16 out of the 47 empirical articles in the meta-analysis analyzed the therapeutic relationship. 14 out of the 16 articles reviewed concluded that there was a strong therapeutic alliance when using videoconferencing, similar to traditional in person psychotherapy (Backhaus et al., 2012). While research is limited at this present time, it is promising that a solid therapeutic relationship can be produced and sustained through telepsychology mediums.

Ethical Considerations

State and national licensing boards and credentialing agencies have adopted guidelines, standards, and/or ethics surrounding the use of technological interventions in psychotherapy. The requirements or recommendations outlined for practitioners varies greatly and is ever-changing. It is imperative for all practitioners to consistently remain abreast of their licensing and credentialing boards' telepsychology information to provide ethically sound treatment with the most up-to-date information.

The Joint Task Force for the Development of Telepsychology Guidelines for Psychologists (2013) determined that there was a need to establish ethical considerations and guidelines for telepsychology due to the influx of technological interventions that practitioners began implementing in their practice. They developed eight guidelines that practitioners are urged to abide by when introducing technology in psychotherapy. The guidelines are:

- Competence of the practitioner;
- Standards of care in the delivery of telepsychology services;
- Informed consent;
- Confidentiality of data and information;
- Security and transmission of data and information;
- Disposal of data information and technologies;
- Testing and assessment;
- Interjurisdictional practice.

For a more detailed explanation of these guidelines, review the Joint Task Force for the Development of Telepsychology Guidelines for Psychologists (2013) article.

Diversity Considerations

Practitioners must consider how culture and diversity factors impact telepsychology practice. There was concern that the 'digital divide' would impact

individuals from a low socioeconomic background, but this problem was proposed to lessen as the internet becomes increasingly necessary (Pål & Yardley, 2009). It would behoove practitioners to always consider the varying demographic factors and how this may impact or alter treatment when utilizing telepsychology interventions. Establishing a sense of how technology influences the client populations that we serve and how this would in turn influence psychotherapy sessions is imperative in being a culturally competent practitioner in a technological world.

According to Pew Research Center (2018), there is a rise in smartphone dependency, as more Americans use smartphones as their primary method of online access at home. The researchers conducted a survey in January 2018 to determine the present trends in smartphone use. They found that 95% of Americans own a cellphone, with 77% owning smartphones. In 2011, only 35% of individuals owned a smartphone. Access is increasing across all demographic groups. Table 2.1 provides an overview of smartphone ownership across varying demographic groups.

Table 2.1 Smartphone ownership by demographic group

Gender	Men – 80% Women – 75%
Age	18–29 – 94% 30–49 – 89% 50–64 – 73% 65 and older – 46%
Ethnicity	White – 77% Black – 75% Hispanic – 77%
Education	Less than a high school diploma – 57% High school graduate – 69% Some college – 80% College graduate – 91%
Yearly Income	Less than \$30,000 – 67% \$30,000–\$49,999 – 82% \$50,000–\$74,999 – 83% \$75,000 and more – 93%
Geographic Region	Urban – 83% Suburban – 78% Rural – 65%

(Pew Research Center, 2018)

Socio-economic status (SES), geographic location, and religious affiliation might impact an individual's accessibility, familiarity, and comfort with technology. In some rural and underserved areas, individuals have limited internet access (Altvater, Singer, & Gil, 2017). However, for those with access, computer-assisted or internet-based treatment models can provide greater access to distant mental health care practitioners. Without technological connection to these providers, services might otherwise not be received (Barrett & Gershkovich, 2014). Additionally, some religious groups are not exposed to technology due to their beliefs, values, and practices. It is essential for telepsychology practitioners to consider religion in determining the appropriateness of incorporating technological means in psychotherapy (Altvater et al., 2017).

Implications

Technology has made considerable significant positive impacts on psychotherapy treatment. However, there are also implications that must be considered and addressed. Technology can be costly, and is rapidly changing (Barrett & Gershkovich, 2014). Additionally, according to Harris & Birnbaum (2014), there could be issues of anonymity, delayed communication, being available and responding timely during a client emergency, misunderstanding and misinterpreting information due to the absence of non-verbal cues, technological issues with computer and/or connection problems, and online security and limits to informed consent concerns. Research is expanding but it is still in its infancy. More research is needed to address these concerns and draw generalized conclusions about telepsychology interventions.

Conclusion

Technology has evolved into a daily necessity (Harwood et al., 2011). Harwood et al. (2011) noted, "technology has become so ubiquitous in everyday life that our reliance on this equipment is a necessity for functioning" (p. 448). As a result, technology has emerged in the psychotherapy room (Harwood, 2011). The mental health field is moving towards this incorporation to improve the delivery of services by making them more efficient and effective (Harwood, 2011).

Technology is not in direct competition with real practitioners. The goal of telepsychology is to enhance or mimic the traditional psychotherapeutic process to address mental health concerns and reduce clients' symptomatology (Kazdin & Blasé, 2011). As Zilberstein (2015) explained:

Our relationship to technology and its impact upon us will continue to evolve. Hopefully, as this occurs, our theories will keep pace. Ideas, theories, technologies, and the way we use them as well as the way we practice psychotherapy will inevitably influence and transform each other, requiring us to alter those theories, ideas, and practices to reflect these new circumstances. Such changes are not lamentable or a sign of decline. Rather, they represent the natural progression of science, culture, and ideas.

(p. 157)

It is projected with the present trends in psychotherapy and the social climate that computer technology would be one of the top most increased interventions in the coming years (Norcross, Pfund, & Prochaska, 2013).

Incorporation of telepsychology is the future of psychotherapy treatment. While there is apprehension with its implementation, especially amongst seasoned practitioners, it is the wave of the future. Embracing change can be perplexing but it can also be invigorating. Continue exploring how the technological realm can maximize your therapeutic connections and practice. Technology will only continue to expand and permeate psychotherapy treatment.

References

- Altwater, R. A., Singer, R. R., & Gil, E. (2017). Part 1: Modern trends in the playroom – preferences and interactions with tradition and innovation. *International Journal of Play Therapy*, 26(4), 239–249. www.doi.org/10.1037/pla0000058.
- Backhaus, A., Agha, Z., Maglione, M. L., Repp, A., Ross, B., Zuest, D., Rice-Thorp, N. M., Lohr, J., & Thorp, S. R. (2012). Videoconferencing psychotherapy: A systematic review. *Psychological Services*, 9(2), 111–131. www.doi.org/10.1037/a0027924.
- Baker, L. R., & Oswald, D. L. (2010). Shyness and online social networking services. *Journal of Social and Personal Relationships*, 27, 873–889. www.doi.org/10.1177/0265407510375261.
- Barrett, M. S., & Gershkovich, M. (2014). Computers and psychotherapy: Are we out of a job? *Psychotherapy*, 51(2), 220–223. www.doi.org/10.1037/a0032408.
- Campbell, L. F., Millán, F. A., & Martin, J. N. (2017). *A telepsychology casebook: Using technology ethically and effectively in your professional practice*. Washington, DC: American Psychological Association.
- Evans, S. (2012). Using computer technology in expressive arts therapy practice: A proposal for increased use. *Journal of Creativity in Mental Health*, 7(1), 49–63. www.doi.org/10.1080/15401383.2012.660127.
- Goh, D. H., Ang, R. P., & Tan, H. C. (2008). Strategies for designing effective psychotherapeutic gaming interventions for children and adolescents. *Computers in Human Behavior*, 24, 2217–2235. www.doi.org/10.1016/j.chb.2007.10.007.

- Harris, B., & Birnbaum, R. (2014). Ethical and legal implications on the use of technology in counselling. *Clinical Social Work Journal*, 43(2), 133–141. www.doi.org/10.1007/s10615-014-0515-0.
- Harwood, T. M., Pratt, D., Beutler, L. E., Bongar, B. M., Lenore, S., & Forrester, B. T. (2011). Technology, telehealth, treatment enhancement, and selection. *Professional Psychology: Research and Practice*, 42, 448–454. www.dx.doi.org/10.1037/a0026214.
- Herndon, P. L. (2014). The new world of apps. *Good Practice: Tools and Information for Professional Psychologists*, 8–11.
- Hilty, D. M., Ferrer, D. C., Burke Parish, M., Johnston, B., Callahan, E. J., & Yellowlees, P. M. (2013). The effectiveness of telemental health: A 2013 review. *Telemedicine and e-Health*, 19(6), 444–454. www.dx.doi.org/10.1089/tmj.2013.0075.
- Horne-Moyer, H. L., Moyer, B. H., Messer, D. C., & Messer, E. S. (2014). The use of electronic games in therapy: A review with clinical implications. *Current Psychiatry Reports*, 16(520), 1–9. www.dx.doi.org/10.1007/s11920-014-0520-6.
- Imel, Z. E., Caperton, D. D., Tanana, M., & Atkins, D. C. (2017). Technology-enhanced human interaction in psychotherapy. *Journal of Counseling Psychology*, 64(4), 385–393. www.dx.doi.org/10.1037/cou0000213.
- Joint Task Force for the Development of Telepsychology Guidelines. (2013). Guidelines for the practice of telepsychology. *American Psychologist*, 68(9), 791–800. www.dx.doi.org/10.1037/a0035001.
- Kazdin, A. E., & Blasé, S. L. (2011). Rebooting psychotherapy research and practice to reduce the burden of mental illness. *Perspectives on Psychological Science*, 6(1), 21–37. www.dx.doi.org/10.1177/1745691610393527.
- Langarizadeh, M., Tabatabaei, M. S., Tavakol, K., Naghipour, M., Rostami, A., & Moghbeli, F. (2017). Telemental health care, an effective alternative to conventional mental care: A systematic review. *Acta Informatica Medica*, 25(4), 240–246. www.dx.doi.org/10.5455/aim.2017.25.240-246.
- Lindhiem, O., Bennett, C. B., Rosen, D., & Silk, J. (2015). Mobile technology boosts the effectiveness of psychotherapy and behavioral interventions: A meta-analysis. *Behavior Modification*, 39(6), 785–804. www.dx.doi.org/10.1177/0145445515595198.
- Lui, J. H. L., Marcus, D. A., & Barry, C. T. (2017). Evidence-based apps? A review of mental health mobile applications in a psychotherapy context. *Professional Psychology: Research and Practice*, 48(3), 199–210. www.dx.doi.org/10.1037/pro0000122.
- Maples-Keller, J. L., Bunnell, B. E., Kim, S. J., & Rothbaum, B. O. (2017). The use of virtual reality technology in the treatment of anxiety and other psychiatric disorders. *Harvard Review Psychiatry*, 25(3), 103–113. www.dx.doi.org/10.1097/HRP.0000000000000138.
- Marmarosh, C. L. (2015). Emphasizing the complexity of the relationship: The next decade of attachment-based psychotherapy research. *Psychotherapy*, 52(1), 12–18. www.dx.doi.org/10.1037/a0036504.
- Norcross, J. C., Pfund, R. A., & Prochaska, J. O. (2013). Psychotherapy in 2022: A Delphi poll on its future. *Professional Psychology: Research and Practice*, 44, 363–370. www.dx.doi.org/10.1037/a0034633.
- Pål K., & Yardley, L. (2009). Current issues and new directions in psychology and health: What is the future of digital interventions for health behaviour change? *Psychology and Health*, 24(6), 615–618. www.doi.org/10.1080/08870440903068581.
- Pew Research Center. (2018). *Mobile fact sheet*. Retrieved from www.pewinternet.org/fact-sheet/mobile/.

- Richards, P., & Simpson, S. (2015). Beyond the therapeutic hour: An exploratory pilot study of using technology to enhance alliance and engagement within face-to-face psychotherapy. *British Journal of Guidance & Counselling*, 43(1), 57–93. www.dx.doi.org/10.1080/03069885.2014.936824.
- Valmaggia, L. R., Latif, L., Kempton, M. J., & Rus-Calafell, M. (2016). Virtual reality in the psychological treatment for mental health problems: A systematic review of recent evidence. *Psychiatry Research*, 236, 189–195. www.dx.doi.org/10.1016/j.psychres.2016.01.015.
- Zilberstein, K. (2015). Technology, relationships and culture: Clinical and theoretical implications. *Clinical Social Work Journal*, 43, 151–158. www.dx.doi.org/10.1007/s10615-013-0461-2.

Replacing Hesitancy and Doubt with Competence and Skill

The Technologically-Minded Therapist

Kevin Hull

Introduction

The physicist Freeman Dyson stated, “Technology is a gift of God. After the gift of life it is perhaps the greatest of God’s gifts. It is the mother of civilization, of arts and sciences” (Brynjolfsson & McAfee, 2014, p. 1). Technology has introduced many changes in modern culture. Smart phones, computers, and other technological devices have become a common phenomenon in modern culture, and these devices have found their way into the psychotherapy office. For practitioners who are not familiar with technology, incorporating technological devices, games, and processes into the psychotherapy process can seem daunting. While the use of technology in therapy has proven quite useful (Horne-Moyer, Moyer, Messer, & Messer, 2014; Hull, 2015), the myriad of games and devices can be overwhelming for a practitioner new to the technological landscape. Many practitioners who feel hesitant towards incorporating technology into psychotherapy have not been exposed to the amount of emotional, social, and cognitive growth that video/computer/tablet games can provide. For example, to the casual observer, a game like Minecraft may seem simply as a pixelated, digital landscape of colors, trees, animals, and a few characters the player moves around. However, to the trained eye, one can find themes of overcoming challenges, building a sense of self and identity, creating organized patterns of thinking that lead to strategy and planning, and working with others to survive (Hull, 2015).

The goal of this chapter is to specifically address the common factors that create a sense of hesitancy and doubt in practitioners related to using technology in a therapeutic manner, and to instill a sense of awareness and confidence in those practitioners through increased competence and skill. This chapter will discuss these hesitations and present a process towards confidence and expansion of skills in using technology in psychotherapy. Common misconceptions will be discussed in addition to presenting research as to the effectiveness of the use of technology in psychotherapy. Finally, practical uses of technology will be presented so that a new mindset may be adopted.

Factors That Cause Hesitancy and Doubt

Practitioners are often hesitant to use technology in psychotherapy for many reasons. Many simply are not aware of the benefits and have not been exposed to literature or training that demonstrates how technology can be used. Some practitioners think technology cannot be therapeutic and are skeptical of how it could be used in psychotherapy. Still others are fearful of using something new and the idea of incorporating technology into psychotherapy creates resistance. This section will discuss these factors and examine the causes of hesitation and doubt.

Lack of Exposure, Training, and Experience

The most common reason for practitioner hesitancy when it comes to using technology in psychotherapy is simply a lack of exposure, training, and experience. The use of technology in psychotherapy is relatively new, and many practitioners have not been trained in using technology in psychotherapy or been exposed to the benefits. Often, practitioners simply do not think about it as a viable form of psychotherapy and that the potential pitfalls outweigh the potential positives. Ceranoglu (2010) identifies potential pitfalls as concerns about violence and video games, parental objection to the use of electronic games, as well as electronic games creating interference to “make comments, ask questions, or even talk” (p. 234). There is a process to accepting new approaches and techniques in psychotherapy involving large amounts of information and research that is developed over a period of years which is then introduced to the field and finally is accepted by individual practitioners. Exposure to new forms of psychotherapy philosophy and practice take time and, due to the recent and expansive role that technology has had in general in culture and society, it has taken time to find technology’s role in the psychotherapy process.

Practitioner Resistance to Adopting a New Therapeutic Philosophy and Techniques

Practitioners, who are human after all, often have a hard time adopting new ways of thinking due to theoretical philosophy and techniques associated with the theoretical paradigm. Seasoned practitioners can be particularly resistant to learning new ways of conceptualizing problems and techniques, mainly due to rigid ways of thinking that are grounded in personal preferences, theoretical underpinnings, and worldviews that become entrenched during training and the formative, early years of practice (Abney & Maddux, 2004). Being open-minded to new ways of treating disorders and adopting a new world view is challenging, but practitioners must be willing to shift their worldview and adopt new techniques particularly when these techniques are supported by research and are applicable to modern times.

Technology Can Be Intimidating!

Technology can be intimidating, particularly to those who have not been exposed to smart phones, tablets, or the wonders of a console game system. Like an unknown world to someone who is not familiar with technology, the idea of swiping, tapping, or clicking through a game or activity may seem frustrating much less therapeutic. Many practitioners may fear the ethical and legal ramifications that using technology may bring and simply do not want to be bothered (Wilkinson & Reinhardt, 2015). Some practitioners may have a hard time believing that a tablet or video game could have therapeutic benefits, or see much more use beyond building a therapeutic alliance. Some practitioners may fear that the technological gear or games may replace the therapeutic elements and simply be “fun” but not necessarily applicable to dealing with emotional or cognitive challenges (Ceranoglu, 2010).

Effectiveness and Uses of Technology in Psychotherapy

As mentioned in the previous section, part of adopting a new worldview begins with awareness. Due to the fact that many practitioners are unaware of the benefits of technology in psychotherapy, publications such as this one are necessary to spread the word of knowledge and application. With that in mind, this section will discuss the effectiveness and uses of technology in psychotherapy so that awareness and confidence may be built in the mind of the practitioner.

Technology is effective in psychotherapy (Granic, Lobel, & Engels, 2014; Hull, 2009, 2015; Snow, Winburn, Crumrine, Jackson, & Killian, 2012). As technology began to flourish in the late 1980s and 1990s, so did the introduction of technology into the realm of psychotherapy. Gardner (1991) demonstrated the use of technology in helping children in the areas of impulse and emotional control, cognitive recall, and separation and social anxiety. Other studies in the 1990s found that technology helped change anti-social behavior (Resnick & Sherer, 1994) and provided a vehicle for the expression of emotions in abused and neglected children (Kokish, 1994). Many studies have shown the effectiveness of technology in creating a therapeutic bond and instilling a sense of interest and safety in the psychotherapy process (Aymard, 2002; Clark & Schoech, 1994; Gardner, 1991; Hull, 2009), particularly with adolescents who often display resistance due to finding psychotherapy threatening (Hull, 2015).

Another area in which technology is effective in psychotherapy is in the expression of thoughts and emotions, which tends to be difficult for children and adolescents, and even some adults. Technology provides a familiar medium for young people (Hull, 2015) and creates comfortability and a sense of safety. Bertolini and Nissim (2002) found that technology in the form of video games helped the expression of thoughts and feelings, and coping skills of the child increased while anxiety was reduced. The authors noted that the children's "emotional experience – a genuinely joyful and meaningful one" (Bertolini & Nissim, 2002, p. 323) propelled the children's cognitive and emotional growth. Dahlquist (2006) discovered the use of video/computer games helped improved the mood and emotional control of children undergoing chemotherapy, and increased patient's pain tolerance. In addition to creating a sense of familiarity while promoting a sense of safety and enhancing the therapeutic relationship, technology led to reduced emotional disturbances in children (Hull, 2009) through the application of themes and metaphors that led to increased self-worth and overcoming sadness.

Electronic games have been developed specifically to address problems of development. These "serious" games are geared to use the draw of technological familiar devices and games to address specific issues in clients. For example, Tanaka, Wolf, Klaiman, Koenig, Cockburn, Herlihy, and Schultz (2010) discuss a computer program called "Let's Face It!" which contains seven different computer games that were helpful in improving face recognition in children in autism. Specific benefits of this program were that it was cost free and could be tailored to the developmental needs of the child and could be used in a variety of settings. Virtual Reality (VR) has been used to help clients suffering from Post-Traumatic Stress Disorder (PTSD) by putting clients in stressful situations that are realistic yet occur in the safety of the

therapy office (Motraghi, Seim, Meyer, & Morissette (2014). Virtual reality exposure therapy (VRET) was found to be as helpful as traditional therapies for PTSD, and while the authors state that more research is necessary to further investigate therapeutic factors, some of the main benefits of VRET were “to aid patients who have trouble visualizing trauma stimuli or who have strong avoidant tendencies” (Mortraghi et al., 2014, p. 206).

Technology has brought many new devices and elements into the psychotherapy process. Email, social media (Facebook, Instagram, etc.), tablets and smartphones are a constant part of everyday life in the technology landscape, and practitioners find that these devices and apps are a significant part of people’s lives and emotional attachments. Inviting young people to share music/video playlists and media pages can be a way to strengthen the therapeutic relationship and investigate elements such as self-worth, self-image, and ideas about relationships (Riviere, 2008). In addition, email is a way that many practitioners and clients connect while outside of sessions and can provide encouragement and support as well as a way to monitor homework and progress. While practitioners must use caution and implement the same boundaries and ethical decision making as with any therapeutic medium (Wilkinson & Reinhardt, 2015), technology offers innovative ways for practitioners to practice good client care and measure growth and create greater insight for the client. Horne-Moyer (2014) discusses the use of technology to demonstrate relaxation techniques and online journals that can be useful in applications of tracking emotions and thoughts related to lessening anxiety and depression. For example, specific electronic “serious” games, described as games that are entertaining but used for “therapeutic purposes” (p. 522) have been developed as an adjunct to Cognitive-Behavioral Therapy (CBT) and have been found to be useful in lessening depressed mood symptoms.

Devices such as tablets and smart phones have become an extension of the human body for most people living in our modern age. These devices offer the practitioner several tools that can be used with clients and provide a means that is efficient, portable, and creates content that can be saved, stored, or printed. The tablet is of particular value to practitioners, with many games and apps that have been adapted for therapeutic use. Specifically, the use of a tablet proved invaluable in helping a boy talk about his sexual abuse and aided in his future treatment (Show, Windburn, Crumrine, Jackson, & Killian, 2012), while apps like YouTube can help a client who struggles with communication overcome barriers and find a pathway for self-expression (Hull, 2017). Stone (2016) has developed an app for the iPad that is a “virtual sandbox” and has adapted the elements of traditional sandplay and made it something that the young person can use in digital form. This form is suited for clients who find sand unpleasant, and many different types of miniatures,

colors, and forms of liquids can instantly be used. Creations can be saved and categorized to be worked on at a later time.

Therapeutic Elements

It is obvious that technology is effective in psychotherapy, but what therapeutic elements make technology effective? Many who are unaware of technology's place in psychotherapy need to understand the therapeutic elements which make it effective. This section will discuss specific therapeutic elements that make technology effective in psychotherapy.

The Therapeutic Bond

The first therapeutic element that makes the use of technology effective is how it can be used to establish a therapeutic bond. Much of the research on the use of technology mentions this as a benefit of using technology (Aymard, 2002; Beroloini & Nissim, 2002; Granic et al., 2014; Hull, 2009) due to helping clients feel comfortable and engaged. One particular group that is helped are young people who often find the process of psychotherapy confusing and can be resistant to the process. Technology creates pathways of connection to increase communication, and provides a common ground on which techniques for changing behaviors, thoughts, and feelings can be built. Therapeutic games and apps can often be used by practitioner and client together, which enhances the therapeutic alliance and creates forward momentum and trust necessary for psychological and emotional growth (Ceranoglu, 2010).

Themes and Metaphors

Metaphors provide "life applications" (Hull, 2015, p. 616) to help the practitioner relate what is happening in the psychotherapy process to real world experiences so that clients can better cope with and overcome the challenges that are faced daily. Themes are the common elements that are recognizable and create a sense of familiarity in connection with what is going on in everyday life. One of the metaphors and themes found in technology is overcoming challenges, a characteristic found in nearly every video/computer/tablet game. For example, a client that is struggling with the pressure of high school may be surprised to find that the very challenges he faces in his favorite video game are similar to his real life challenges – the unknown, the unexpected, and the pressure to perform are all found in both arenas although

in different forms. The themes to overcome these challenges in game play such as developing attributes, relying on others for help, and using logic, reasoning, and caution in place of reactivity can be applied to the young person's real-world scenario through the practitioner and client identifying what needs to be developed or changed to make the real-world challenge navigable. Because the young person in this case is passionate about his game, he is more likely to approach this situation with a positive mindset because the game provides a familiar theme with which he is comfortable. Other metaphors found in the use of technology that are applicable to real-life situations are "overcoming challenges, relying on friends for help, dealing with failure, conquering enemies, and gathering attributes to allow a player to 'level up'" (Hull, 2015, p. 619).

Imagination and Creativity

Technology offers practitioners many resources for the use of imagination and creativity (Hull, 2015). Psychotherapy is not easy, particularly with younger clients and those with neurodevelopmental disabilities and challenges. Technology allows for the use of pictures, images, and video to be part of the teaching aspect of psychotherapy. Storytelling, a rich part of our ancestral history (Andersen-Giberson, 2016) is made possible through games and apps, as well as through devices such as tablets, smart phones, computers, and gaming consoles. Many games have rich narratives through which individuals identify and find metaphors to make meaning of their personal lives. Also, the characters in games often have vivid back stories that game players often identify with, and can be useful for identity formation and exploration. The addition of the imagination and creativity element can also be used with technology's ability in creating music and art, along with the capacity to save it and add to it later. For clients that relate to the world through art and music, technology can be an innovative way to bring this to the process. Tablets and computers offer many apps and programs that allow for drawing and creating characters and pictures that can be edited and saved. Music programs allow a user to create music in the form of beats and tones that can be saved and edited.

Exploring Cognitive Factors

A key element in psychotherapy is assessing what a client is thinking; perceptions about the client's life and the world around them. Technology in the form of video/computer/tablet games, YouTube videos, and electronic

versions of manga in the form of anime (Japanese animation) can reveal a great deal about the cognitive nature of a client. Hull (2009) discusses how game play reveals cognitive elements such as dealing with failure, relying on others for help, and how the player views himself in relation to performance. Horne-Moyer et al. (2014) states that electronic games were as helpful as biofeedback in areas such as improving impulse control and improving one's self-concept, in addition to "improved learning and memory, executive functions, and problems solving skills and creativity" (p. 3). The authors also noted that the games helped increase motivation. Ceranoglu (2010) noted that video games allowed the observation of cognitive skills such as "memory, visuospatial, motor and planning skills, academic skills and frustration tolerance" (p. 145). Similarly, the use of YouTube videos and clips from shows such as anime or other favorite media allow the psychotherapist to assess perceptions of the client regarding world view and problem solving skills, while identifying patterns of thinking regarding what is being seen. For many clients with social deficits, online media outlets like YouTube are like a window to the outside world and can be used to assess thoughts regarding the future, and be helpful in identity formation (Hull, 2017).

Exploring Emotional Factors

Technology offers the practitioner with innovative ways to address emotional problems. Younger clients and those with neurodevelopmental delays can be significantly affected by negative emotions (Hull, 2015) and struggle with expressing emotions and interpreting the emotions of others. Video/computer/tablet games are helpful in addressing emotional problems (Hull, 2009) through reducing emotional disturbances by helping the client put feelings into words and through the psychotherapist applying themes that reduced sadness. Horne-Moyer et al. (2014) found electronic games were helpful in the regulation of negative emotions like anger and sadness, and helped improve client's overall mood. Perhaps the greatest benefit electronic games provide when it comes to emotional issues is that the game provides a sense of safety for clients and a comfortable platform making sharing emotional content easier. Ceranoglu (2010) states that when psychotherapist and client play together, a sense of "going where the child is" (p. 144) provides a sense of reassurance and emotional stability. Negative emotions that arise during game play such as anger, frustration, or embarrassment can be identified and addressed, and positive emotions such as joy and excitement can be expanded upon to help increase self-worth and identity. The theme of failure, which often plagues young people and those struggling with self-worth, can be confronted in

game play situations with the psychotherapist present. Techniques such as Cognitive-Behavioral Therapy (CBT), Schema Therapy, or Narrative Therapy can be introduced at this point to address negative thinking patterns.

Frustration Tolerance and Impulse Control

Technology, particularly video/computer/tablet games, allows practitioners to work on specific issues like frustration tolerance and impulse control. Young people in general struggle with impulse control and frustration tolerance due to the developmental changes during brain development, while some, particularly those with neurodevelopmental challenges, experience significant impairments in these areas. Hull (2015) discusses the use of electronic games to help improve frustration tolerance in both individual and group psychotherapy through experiencing failure. Repeated game play allowed the client to practice techniques to lessen frustration and employ better thinking strategies to overcome negative thinking patterns. One specific game designed to work on impulse control is PlayMancer (Fernández-Aranda, Jiménez-Murcia, Santamaría, Gunnard, Soto, Kalapanidas, & Penelo, 2012), a serious game that “uses biofeedback for helping patients to learn relaxation skills, acquire better self-control strategies and develop new emotional regulation strategies” (p. 364). PlayMancer was found to be helpful in changing attitudes and emotions through providing feedback and teaching clients to self-monitor emotional states in real time (Fernandez-Aranda et al., 2012).

Developing Skills to Reduce Hesitancy and Doubt

Adopting a new psychotherapy approach or technique takes time and begins with shifting perspective and acquiring skills. This section will discuss what a technology-minded psychotherapist looks like and skills necessary to incorporate technology into psychotherapeutic work.

A Technology Mindset

What does a technologically-minded psychotherapist look like and what characterizes a psychotherapist who employs technology with clients? First, there is a mindset of being open-minded and seeking new information (Hull, 2015). As presented earlier, there is a great deal of research

supporting the inclusion of technology into psychotherapy, and the uses are many. Technology in the form of electronic games can be used to help clients deal with emotional and cognitive problems, and increase frustration tolerance and impulse control. Devices such as smart phones and tablets provide the ability to use apps that help track and monitor thoughts and emotions, as well as bringing traditional tools like the sandtray into the virtual realm (Stone, 2016) and even “serious” games that utilize VRET for help with PTSD (Mortraghi et al., 2014). A commitment to thinking in new ways and intentionally seeking out new techniques that involve technology helps psychotherapists stay abreast of helping clients who live and function in the modern age. Part of this mindset also involves allowing clients to “teach” the psychotherapist various elements about technology that were not previously known (Hull, 2015).

A second characteristic of the technologically-minded psychotherapist is incorporating imagination into the psychotherapy process. For those working with special needs clients and client with neurodevelopmental challenges and delays in particular, traditional forms of psychotherapy may be limited. Technology offers the psychotherapist a path to connect with the client and use familiar elements to help clients build a sense of self-worth and shift perspective, and help the client relate to themselves and their challenges in a new way (Hull, 2015). Using technology helps psychotherapists step into their client’s shoes, particularly when the technology is a specified interest of the client. The backstory of a game or character, or the theme of an anime show or movie may be the very element that can help a client create a sense of identity or reframe a challenge that previously made the individual feel defeated. Keeping a sense of imagination allows the rich benefits of technology to flow throughout the psychotherapy process.

A Technology Skill Set

What specific skills does a technology-minded psychotherapist possess? The first skill necessary is integration. Integration involves integrating theory and therapeutic elements and practice with principles of technology, which, when combined create a powerful approach to help clients overcome challenges and grow. Technology is a malleable element that can flow into any theoretical approach and be useful as a therapeutic element. For example, any theoretical orientation such as psychoanalytic, Gestalt, and CBT can be a backdrop behind the thrust that technology provides. Narrative approaches, play therapy, emotionally focused, and cognitive techniques can all be integrated through the theme of technology regardless of whether it is in the

form of an electronic game, a YouTube video, or a computer/tablet app. Integrating technology into a psychotherapist's approach requires a small amount of intentional effort through seeing how the elements of technology can be woven into one's theory and techniques.

A second skill for the psychotherapist wishing to use technology is to develop a sense of boundaries and clear communication about how technology will be used (Hull, 2015). Similar to the explanation of any technique or theoretical approach to a client, it is necessary during the informed consent process to educate the client about how technology will be used and the expectations that accompany the use of technology. For example, when using electronic games and devices with young people, the psychotherapist can be directive and use what Schaefer (2001) describes as a "prescriptive" play therapy approach (p. 61) and a specific intervention is employed. The psychotherapist maintains a sense of control while at the same time creating a working alliance with the client, thus a sense of safety and forward progression is created. This is particularly important for psychotherapists questioning the use of technology to remember, as many worry that using technology may cause more problems than it is worth.

A final skill for the psychotherapist wishing to incorporate technology into practice is to be committed to keeping up with the current research regarding technology and the ever increasing presence of technology in the psychotherapy world. New information regarding the use of technology emerges constantly, and gaps that were previously identified by groundbreaking literature are now being filled by current studies. Also, practitioners should be familiar with the various devices such as computers/tablets/video game consoles, as well as games and apps that are both "serious" and for entertainment purposes but also have therapeutic value. Because technology requires devices, knowledge of both, and the various types that are available, helps the practitioner choose what is best for their particular therapeutic approach and best meets the client's needs.

Conclusion

Technology is a powerful tool in psychotherapy. Not only is technology in psychotherapy effective, but it offers the practitioner a variety of ways to address the needs of clients in an exciting and meaningful way. Technology allows for the formation of the therapeutic alliance and for specific issues to be addressed, such as emotional and cognitive problems, to issues related to trauma and increasing a client's coping skills. Apps, games, and devices all offer therapeutic elements that enhance a practitioners' repertoire of skills and techniques, while

the practitioner's role of teacher and guide and creating a partnership with the client is preserved. For practitioners wishing to incorporate technology into practice, a mindset of imagination and intentional integration of theory with technology results in reducing hesitancy and doubt, and maximizes the power of technology in psychotherapy.

References

- Abney, P., & Maddux, C. (2004). Counseling and technology: Some thoughts about the controversy. *Journal of Technology in Human Services*, 22(3), 1–24.
- Andersen-Giberson, D. (2016). What's in a game? Narrative therapy approaches with people who have relationships with gaming and online communities. *The International Journal of Narrative Therapy and Community Work*, 2, 65–75. Retrieved from www.dulwich-centre.com.au.
- Aymard, L. L. (2002). "Funny face": Shareware for child counselling and play therapy. *Journal of Technology in Human Services*, 20(1–2), 11–29.
- Bertolini, R., & Nissim, S. (2002). Video games and children's imagination. *Journal of Child Psychotherapy*, 28(3), 305–325.
- Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. New York, NY: W.W. Norton & Company.
- Ceranoglu, T. A. (2010). Video games in psychotherapy. *Review of General Psychology*, 14(2), 141–146. www.dx.doi.org.ezproxy.liberty.edu/10.1037/a0019439.
- Ceranoglu, T. A. (2010). Star wars in psychotherapy: Video games in the office. *Academic Psychiatry*, 34(3), 233–6. Retrieved from www.ezproxy.liberty.edu/login?url=https://search-proquest-com.ezproxy.liberty.edu/docview/196517866?accountid=12085.
- Clarke, B., & Schoech, D. (1994). A computer-assisted therapeutic game for adolescents: Initial development and comments. *Computers In Human Services*, 11(1–2), 121–140.
- Dahlquist, L. (2006). www.cbsnews.com/stories/2005/12/28/eveningnews/main1168346.shtml?CMP=OTCRSSFeed&source=RSS&attr=CBSEveningNews_1168346.
- Fernández-Aranda, F., Jiménez-Murcia, S., Santamaría, J. J., Gunnard, K., Soto, A., Kalapanidas, E., & Penelo, E. (2012). Video games as a complementary therapy tool in mental disorders: PlayMancer, a European multicentre study. *Journal of Mental Health*, 21(4), 364–374. doi:10.3109/09638237.2012.664302.
- Gardner, J. E. (1991). Can the Mario Bros. Help? Nintendo games as an adjunct in psychotherapy with children. *Psychotherapy: Theory, Research, Practice, Training*, 28(4), 667–670.
- Granic, I., Lobel, A., & Engels, R. C. M. E. (2014). The benefits of playing video games. *American Psychologist*, 69(1), 66–78. doi:10.1037/a0034857.
- Horne-Moyer, H. L., Moyer, B. H., Messer, D. C., & Messer, E. S. (2014). The use of electronic games in therapy: A review with clinical implications. *Current Psychiatry Reports*, 16(12), 520–529. www.doi.org/10.1007/s11920-014-0520-6.
- Hull, K. (2009). Computer/video games as a play therapy tool in reducing emotional disturbances in children. *Dissertation Abstracts International*, 70.
- Hull, K. (2015). Technology in the playroom. In K. J. O'Connor, C. Schaefer & L. D. Braverman (Eds.), *Handbook of play therapy*. (2nd Ed.). New Jersey: John Wiley and Sons.
- Kokish, R. (1994). Experiences using a PC in play therapy with children. *Computers in Human Services*, 11(1–2), 141–150.

- Motraghi, T. E., Seim, R. W., Meyer, E. C., & Morissette, S. B. (2014). Virtual reality exposure therapy for the treatment of posttraumatic stress disorder: A methodological review using CONSORT guidelines. *Journal of Clinical Psychology, 70*(3), 197–208. doi:10.1002/jclp.22051.
- Resnick, H., & Sherer, M. (1994). Computer games in the human services. *Computers in Human Services, 11*(1–2), 17–29.
- Riviere, S. (2008). The therapeutic use of popular electronic media with today's teenagers. In L. Rubin (Ed.), *Popular culture in counseling, psychotherapy, and play-based interventions* (pp. 343–364). New York, NY: Springer.
- Schaefer, C. E. (2001). Prescriptive play therapy. *International Journal of Play Therapy, 10*(2), 57–73. doi:10.1037/h0089480.
- Snow, M. S., Winburn, A., Crumrine, L., Jackson, E., & Killian, T. (2012). The iPad playroom: A therapeutic technique. *Play Therapy – Play Therapy September 2012*. Retrieved from www.mlpublishonline.com/display_article.php?id=1141251.
- Stone, J. (2016). *The virtual Sandtray app*.[®] Retrieved from www.sandtrayplay.com/Press/VirtualSandtrayArticle01.pdf.
- Tanaka, J. W., Wolf, J. M., Klaiman, C., Koenig, K., Cockburn, J., Herlihy, L., Brown, C., Stahl, S., Kaiser, M., & Schultz, R. T. (2010). Using computerized games to teach face recognition skills to children with autism spectrum disorder: The Let's Face It! program. *Journal Of Child Psychology and Psychiatry, and Allied Disciplines, 51*(8), 944–952. doi:10.1111/j.1469-7610.2010.02258.x.
- Taylor, C. (2014). Serious play with computer games: A sometimes useful approach for connecting with young people who choose to wait and see. *The International Journal of Narrative Therapy and Community Work, 3*, 59–66. Retrieved from www.dulwichcentre.com.au.
- Van Ameringen, M., Turna, J., Khalesi, Z., Pullia, K., & Patterson, B. (2017). There's an app for that! The current state of mobile applications (apps) for DSM-5 obsessive-compulsive disorder, posttraumatic stress disorder, anxiety and mood disorders. *Depression and Anxiety, 2017*(34), 526–539. Retrieved from www.doi-org.ezproxy.liberty.edu/10.1002/da.22657.

Therapy in the Digital Age

Leslie Baker

Introduction

Technology is an integral part of creating and sustaining a psychotherapy business today. From marketing applications to managing psychotherapeutic services, the impact is significant. Technology has disrupted, evolved, and become a core tool for clinicians. Applications include website marketing, social media marketing, electronic record keeping, therapeutic interventions and digital asset management. In other words, the digital age has changed the way we interact with our clients—from marketing our services, to choosing a therapist, to how services are delivered. Clients may choose traditional face-to-face therapy in local offices or online Internet-based services. Beyond the “how” of service delivery, clinicians are also offering new and advanced interventions to treat client’s mental health issues by providing innovative treatments via technology.

The industry has seen new developments in psychotherapeutic tools for decades. Recently, these tools have entered the market for clinicians to use in their practices. This trend is driven by technology accessibility, cost effectiveness, and a growing acceptance by clinicians. These tools include technology applications and computer-mediated psychotherapy (CMP) on tablets and laptops as well as virtual reality applications.

One area to focus on is the growth in computer-mediated psychotherapy. CMP, including computers as an integral part of the psychotherapeutic process, includes multiple combinations of hardware such as desktops, laptops, smartphones, tablets, VR headsets, and multiple software programs and applications. These programs allow clients access to services over the internet, in

clinical settings, or as we will discuss, in a hybrid mix of traditional and online therapy. According to Miclea et al., “Computer-mediated or computer aided psychotherapy, should be reserved only for those computer applications that have an explicit psychotherapeutic purpose, that implement the principles and methods of bona fide psychotherapy and that involve the recipient in psychotherapeutic activities” (p. 186).

This chapter introduces the CMP concept as a modality that is as effective as in-person treatment. It will look at a few emerging tools to consider as well as issues to watch, specifically around ethics. It will also look at the importance of educating and training the therapist community to develop a deeper understanding of CMP and emerging virtual reality therapies. Finally, it will look at adding CMP and virtual reality tools to today’s, as well as future, psychotherapy practices.

An Effective Tool to Support the Latest Generation

The psychotherapeutic practice builds a healing element, or sacred space, for the client known as the “therapeutic alliance.” According to Ardito and Rabellino (2011) “the therapeutic alliance consists of three essential elements: agreement on the goals of the treatment, agreement on the tasks, and the development of a personal bond made up of reciprocal positive feelings” (para. 9). Clients reported positive therapeutic alliance and change following sessions when they felt their therapist was present with them (Geller et al., 2010). Together, the client and clinician interact around the stories presented; that interaction becomes the therapy. However, since the digital age found its way into psychotherapy, this long recognized traditional relationship has been evolving. As CMP has emerged as a critical device in the clinical tool box, it is important to note that many clinicians *have been slow* to embrace the idea or to see the potential of CMP as an essential third element in the therapeutic alliance.

One concern often discussed throughout our industry is that CMP could be a barrier to developing that most sacred therapeutic alliance. However, some research shows this not to be the case. Research “results seem to show that technologies such as Augmented Reality, [a real physical environment altered by computer generated information such as sight, sound or sensation] do not represent a danger to negatively influence the therapeutic alliance” (Wrzesien et al., 2013, p. 4). Even the use of Avatars, a digital representation of the self, provide a bridge between the clinician and the client in games. Virtual environments programs are “facilitating the development of a virtual therapeutic alliance; reducing communication barriers; promoting

treatment-seeking through anonymity; promoting expression and exploration of client identity; and enabling therapists to control and manipulate treatment stimuli” (Rehm et al., 2016, para. 1).

In addition, research indicates that a hybrid form, CMP with clinician interaction, provided the most successful outcomes. Hybrid applications include in-person sessions blended with telephone, email and texting. In addition, researchers noted that CMPs were found to be as effective as face-to-face therapy or medication (Miclea, 2010). Hybrid CMP applications, which include a clinician administering the program while in session or after an individual’s CMP-only session, are more effective than CMPs alone (Thase, M. 2016). Clients suffering from depression who participated in CMPs alone, with no clinician participation, experienced significantly higher dropout rates (Karyotaki et al., 2015). Researchers concluded that the benefits of some access to CCBT can address barriers that traditional therapies may present, such as lack of access to trained therapists especially in rural areas, prohibitive costs of services and both inconvenience and time involved in attending sessions (Thase, 2016). This research indicates that, when applying CMP to our practices, clinicians must understand their client population and consider using hybrid CMP method to enhance program compliance and decrease dropout rates.

As the digital technology age continues to expand, clinicians need to be cognizant that future clients—the “Digitals,” “iGens” or “Centennials”—were born with technology in their hands. To them, the use of technology is more an extension of their being versus simply a tool. This generation embraces technology as a way of life. Access to psychotherapeutic services will be an equalizer; the new client is a self-seeker of their own health and wellbeing. They seek meaning and change from those who are delivering services that they, themselves, can initiate and engage on their terms. The therapeutic alliance is alive and well and embracing CMP.

Meeting on Their Turf

Despite concerns about CMP, clinicians are exploring technology as a tool in their clinical practices. A recent study by Dr. Rachel Altvater found that clinicians, despite varying degrees of comfort, are experimenting with, and using, CMP technology in their practices. Many are intrigued with CMP and cautiously testing its use as a primary tool. Psychotherapeutic computer applications such as the *Virtual Sandtray*, *PE Coach* and *T2 Mood Tracker* are utilized in session with clinicians and as support applications for clients out of session as homework.

Virtual Sandtray is an example of an in-session computer tool that allows therapists to use an iPad to provide a sandtray therapy experience to clients in addition to or in place of traditional sandtray. This application allows clinicians to reach clients in the office as well as in a multitude of environments in which traditional sandtray therapy is not viable. These may include a sterile hospital environment or places where portability is crucial such as areas of crisis, i.e. in hurricanes or flood areas. This unique application allows clinicians to provide the benefits of sandtray therapy in restrictive areas while maintaining the psychotherapeutic bond. It also allows clinicians to process trauma with a tool that has proven to be successful, particularly with trauma (Tornero & Capella, 2017; O'Connor & Schaefer, 1994).

PE Coach works with prolonged exposure therapy for those who have been diagnosed with Post Traumatic Stress Disorder (PTSD). Prolonged Exposure is an evidenced-based treatment protocol. *PE Coach* assists the clinician and client in working through their specific treatment protocols, exposing the client to situations or stimuli that, due to their trauma, they have been avoiding. The National Center for PTSD and the US Department of Veterans Affairs support Prolonged Exposure Therapy for their members and advertise *PE Coach* along with many applications on their website.

One of the least interactive tools, highlighted on Psyberguide.org, (2018) a nonprofit website that provides evaluations on mental health technologies for consumers such as *T2 Mood Tracker*, allow for better choice of mental health technologies. *T2 Mood Tracker* aids clients in tracking their moods and general well-being. Clinicians provide their client with directions on how to use the application and a brief explanation of the importance of tracking their moods and symptoms. Developed by the military, *T2 Mood Tracker* is simple to implement. This application is used by many clinicians to help their clients track their daily moods and can graph anxiety, depression, general well-being, head-injury symptoms, PTSD symptoms, and stress over time. Medication can be tracked in the 'note section.' *T2 Mood Tracker* serves as a conduit for reporting key information back to healthcare providers.

These applications, from in-therapy-only, to coordinated use with the clinician to at-home use, are examples of how computers have become the "third" in the psychotherapeutic relationship integrating technology, clients and clinicians seamlessly just as therapists have incorporated multiple modalities into the process of psychotherapy without disruption to the therapeutic alliance. In addition, clients in the U.S. are finding their way toward more formal types of CMP via insurance companies. For example, Minnesota Health Plans HealthPartners (2018), offers their members an online, web-based treatment for depression and anxiety. HealthPartners licensed this program, developed 16 years ago in London, to provide a cognitive behavioral computer-mediated

solution to its members. “*Beating the Blues*” is one of many CMP offerings available from its web-based sources. In 2009, the United Kingdom’s National Institute for Health and Care Excellence recommended computerized cognitive behavior therapy (CCBT):

For patients with persistent subthreshold depressive symptoms or mild to moderate depression and a chronic physical health problem, and for patients with subthreshold depressive symptoms that complicate care of the chronic health problem. Includes an explanation of the CCBT model, encourage tasks between sessions and use thought challenging and active monitoring of behavior thought patterns and outcomes. Be supported by a trained practitioner, who typically provides limited facilitation of the program and reviews progress and outcomes. Typically takes place over 9 to 12 weeks, including follow-up.

(para. 28–35)

Other companies like Magellan have partnered with CCBT Limited to offer computer cognitive behavioral therapy via the internet in CCBT’s programs *Moodcalmer*™, *Fearfighter*™ and *OCfighter*™. While sites offer research to support the efficacy of their products, it is encouraged that clinicians review updated independent research to confirm the efficacy of each product to determine the validity and reliability of the outcomes.

Another CMP area to watch, virtual reality, is fast becoming more cost effective and accessible. In addition, VR adds a new tool to the clinician’s CMP toolbox beyond applications on phones and the Internet. Virtual reality provides both non-immersive (delivered without occluding the outside world on a flat screen monitor) and immersive options (delivered while occluding the outside world using head mounted displays) of computer-mediated psychotherapy. Until recently, virtual reality tools have been accessible only in a lab. However, with current technological advances in virtual technologies, lowered cost and greater accessibility, VR is “ready for prime time” according to Dr. Albert “Skip” Rizzo at the University of Southern California Institute for Creative Technologies and Dr. Sebastian Thomas Koenig at Katana Simulations Pty Ltd, Adelaide, Australia (2017). Programs such as *BraveMind*™, and other virtual exposure therapy treatments are helping clients cope with PTSD symptoms via exposure therapy through the use of immersive virtual environments.

Dr. Richard Lamb from the University at Buffalo in a 2018 article, *Using Virtual Reality in Play Therapy*, states that “VR is thought to have considerable potential for applications, and several researchers have probed its therapeutic

effects on cognitive retraining, feedback interest, emotion regulation and other abilities” (p. 24). Virtual reality allows clinicians to work alongside their clients, hybrid style, while the clients participate in the immersive environment and can exert control over these virtual worlds. In exposure therapies, the client, with their therapist, can process their emotions and feelings as well as regulate mood as they are confronted by environmental triggers. It aids them in gaining mastery and control over the trauma bonds that bind them when not in the therapeutic-controlled virtual world. When combining virtual reality with play therapy, the concepts are similar. Young clients, either through VR or games that incorporate VR elements, move through the environments and gain mastery and control over their world. Dr. Bruce Perry stated, “The technologies that benefit young children the greatest are those that are interactive and allow the child to develop their curiosity, problem solving and independent thinking skills” (para. 7). “Children can control the pace and activity and make things happen on computers. They can also repeat an activity again and again if they choose” (para. 9). This interactivity allows for the ability to generalize these behaviors in the outside world beyond VR or gaming.

Evolving Clinical Practices: A look at Ethics and Training

In the 1960s, researchers began looking to create a computer that could behave as a therapist. Newer CMP tools, some of which have been available for decades, have emerged from this evolution. CMP is offered by and integrated into some health insurance company offerings. The future continues to expand as computer games, applications, and virtual reality move out of the research labs into clinical settings with increasing accessibility, better affordability and portability. The questions regarding efficacy, ethics, and clinician training in the digital age are important to address as the answers will ultimately help clinicians to create behavior change for the mental health of clients.

In 2018, a study by Dr. Altvater and her colleagues stated, “results suggest a general lack of familiarity with standards and ethics and adequate training in this area . . . most participants expressed prospective comfort with technological interventions if they received adequate training opportunities” (p. 46). Computer-based workshops at professional psychotherapy conferences are growing from zero offerings or minimal participants in attendance to multiple offerings and full sessions on topics related to computers. However, most of topics are still based on how to cope with computer issues in families and

technology as a problem versus computer-mediated psychotherapy. Although concerns regarding computer use in families and by youth are important, it is time to address technology as a therapeutic intervention and computer-mediated programs as tools for clinicians.

More clinicians are coming forward to present topics related to CMPs in therapy, addressing concerns of how to integrate CMPs into therapeutic practices, and using CMP as the third in the therapeutic alliance. The American Counseling Association Conference, April 2008, in Atlanta featured five seminars focused on technology and social media. Two seminars specifically focused on how to utilize CMP as an intervention in a psychotherapy practice. The American Psychological Association sponsored the most comprehensive conference titled: *Technology, Mind & Society 2018* covering topics ranging from mental health wellness, suicide prevention, cognitive development, psychosis, and more. In contrast, another psychotherapeutic conference's 2018 agenda reflects only one tech-related topic in a three-day conference; that topic is related to dangers of pornography but includes no tools for CMP that therapists can utilize in their practices.

In addition, the industry must consider safety and ethics in the computer self-help movement. For example, CCBT Limited, aside from being the first company to deliver computerized products based on Cognitive Behavioral Therapy, is now offering CMP products directly to clients without the support of clinicians. Clients can access services directly via their iPads, laptops, tablets, phones, and other devices directly from the manufacturer for symptoms from depression, anxiety, insomnia, and substance use. Safety and ethics concerns include whether clients are properly diagnosing their conditions, seeking proper levels of care for those conditions, or if indeed, their self-diagnosis is correct.

The generation of treatment self-seekers has some benefits in term of self-advocacy and access to services for more people, but it also must be balanced against the concerns for self-diagnosis and self-treatment. At what point is it crucial for professional clinical assessment, diagnosis and treatment planning along with professional guidance? According to Dr. Rizzo and Dr. Koenig (2017), those who approach self-diagnosis and self-treatment with VR run the risk of making errors in self-diagnosis and self-treatment and gaining "no clinical benefit or worse, aggravate[ing] the existing condition with an ineffective or inappropriate VR approach that actually does more harm" (p. 24)

The industry must take the lead in updating ethical codes in its respective professions to address the issues presented when using CMPs. The code of ethics for each professional organization—from American Psychological Association (APA) to the American Association for Marriage and Family Therapists (AAMFT) and the American Counseling Association (ACA)—address the

importance of client confidentiality and the clinician's duty to uphold the therapeutic alliance, this most sacred bond.

While the APA explicitly outlines guidelines for ethical practices, there are no specific codes directly pointing out practices for technology use. Codes, such as 2.01 Competence, 3.04 Avoiding Harm, 3.10 Informed Consent, 4.01 Maintaining Confidentiality, and 4.02 Discussing the Limits of Confidentiality, all cover areas that raise concerns that can be impacted when using technology in psychotherapy. Both the AAMFT and the ACA have specific provisions in their ethical codes that focus on the issues of technology use in psychotherapy. The AAMFT Section VI code explores offering teletherapy, offering supervision and using electronic means to deliver services. The ACA Section H describes ethical guidelines covering technology in counseling and includes a section on social media. Recommendations have been made by the APA ethical codes specific to virtual reality by Rizzo and Koenig (2017) in sections "2.01 Boundaries of Competence" and "2.04 Bases for Scientific and Professional Judgments":

Recommendations: "Clinicians need to have specialized training, and possibly in the future, some level of certification in the safe and ethical use of VR for therapy. VR applications that are developed for clinical assessment and treatment must be based on a theoretical framework and documented with some level of research before they can be endorsed as evidence-based and marketed as such."

(p. 24)

There are many ethical issues to address in the use of CMP in clinical practice. Confidentiality, a crucial concern, is amplified when computers are involved. Providers of any clinical services must be aware of the critical nature of maintaining and sustaining confidentiality in treatment and beyond, from holding the sanctity of the therapy, maintaining the confidentiality of records, and the maintaining digital assets that may result from a therapeutic interaction. Another important ethical concern is informed consent. Clients must know the type of treatment they are receiving as well as the risks and potential benefits of CMPs. Clinicians' ethical codes must be expanded to address these concerns.

The future of computer-mediated psychotherapy is bright. Adding CMP to a clinician's tool box offers many opportunities for enhanced therapies for our current generations. The use of technology, though, becomes critical to incorporate into a clinician's practice as future generations become a significant percentage of therapy clients. To meet that growing need, the industry must continue to:

- initiate and include studies on the efficacy of CMP tools
- develop more specific ethics in our codes, and
- offer more opportunities for training and development so clinicians can be skilled sources for these services.

We have an obligation to our future clients to understand and embrace their world. It is our job to become educated in using technologies that offer more effective treatments that clients will seek use. While research suggested a lack of familiarity and training, many clinicians are becoming less resistant. Interest is growing in the psychotherapy field to gain more training, expertise and experience in using CMPs. Also, new research shows a hybrid of CMP and clinician intervention is a more effective means for delivering these tools to the public.

We are not looking to make a computer into a therapist. We are looking to integrate computer technology into the clinicians' skill set and tool box to better address clients' treatment requirements. *People still seek connection.* Clients and clinicians alike continue to value that therapeutic alliance—that healing place where we can come together to do the work. CMP is an added tool—as a third—in this alliance. As we integrate more of our younger generation—iGens—into our practices, they are looking for these innovations.

As a generation of leaders, researchers and creators of these digital tools, like CMP and VR, it's our responsibility to usher in the future in a mindful way. We must provide training and help to develop appropriate guidelines and codes of ethics. It is up to us to bridge that gap between “what used to be” and “what can be” for young clinicians, and for new and future clients.

A few considerations follow.

- Professional organizations could set up committees that include technology leaders. By expanding our pool of experts, we can develop codes of ethics that address our practices and the use of technologies today, while anticipating those codes needed for near-future innovations. Once adopted, the professional organizations would then distribute these and provide training to its memberships.
- Conference organizers could devote sections of each event to seminars and workshops dedicated to implementing technology, VR and CMP tools. Or organize technology specific events using “Virtual Medicine” as an example or develop conferences that focus on CMP. As a suggestion, consider “Computer-Mediated Psychotherapy: The Dawn of the Expanded Therapeutic Alliance.”
- The profession, through organizations, universities and other partnerships, could allocate funding for more research in this area as well as develop future CMP-oriented degree programs and certification trainings aimed at psychologists, MFTs and other licensed clinicians.

As noted in the introduction, technology is critical to sustaining a vibrant psychotherapy practice today. It has disrupted, evolved and quickly become a core tool to running the business side of a practice. With the continued advent of technologies like CMP and VR, it has also taken a foothold in delivering targeted, effective treatment to clients. CMP and VR are simply tools but powerful in the hands of a knowledgeable clinician. As the profession continues to evaluate and expand their uses, we all need to focus on developing those policies, procedures, ethics, and training that will deliver “best practices” into a clinician’s hands, allowing the clinician to deliver on the promise of the therapeutic alliance.

References

- Altwater, R.A., Singer, R.R., & Gil, E. (2017). Part 1: Modern trends in the playroom—preferences and interactions with tradition and innovation. *International Journal of Play Therapy*, 26(4): 239–249. Retrieved from www.doi.org/10.1037/pla0000058.
- Altwater, R.A., Singer, R.R., & Gil, E. (2018). Part 2: A qualitative examination of play therapy and technology training and ethics. *International Journal of Play Therapy*, 27(1): 46–55. Abstract retrieved from www.doi.org/10.1037/pla0000057.
- American Counseling Association. (2018). *Education Sessions*. Retrieved from www.counseling.org/docs/default-source/2018-conference/education-sessions-by-track-and-id69c631f16116603abcacff0000bee5e7.pdf?sfvrsn=c2d0512c_2.
- Ardito, R.B., & Rabellino, D. (2011). Therapeutic alliance and outcome of psychotherapy: Historical excursus, measurements, and prospects for research. *Frontiers in Psychology*, 2: 270. Retrieved from www.ncbi.nlm.nih.gov/pmc/articles/PMC3198542.
- Geller, S.M., Greenberg, L.S., & Watson, J.C. (2010) Therapist and client perceptions of therapeutic presence: The development of a measure. *Journal of Psychotherapy Research*, 20(5): 599–610. www.doi.org/10.1080/10503307.2010.495957.
- Karyotaki, E., Kleiboer, A., Smit, F., & Turner, D.T. (2015, April 17), Predictors of treatment dropout in self-guided web-based interventions for depression: An ‘individual patient data’ meta-analysis. *Psychological Medicine*, 45(13): 2717–2726. Retrieved from www.doi.org/10.1017/S0033291715000665.
- Lamb, R., Ettopio, E., & Lamb, R. (2018). Using virtual reality in play therapy. *Play Therapy*, 13(1): 22–25.
- Miclea, M., Miclea, Ș., Ciuca, A., & Budău, O. (2010). Computer-mediated psychotherapy: Present and prospects. A developer perspective. *Cognition, Brain, Behavior: An Interdisciplinary Journal*, 14(3): 185–208.
- Minnesota Health Plans. (2018). HealthPartners offers online program for mild depression, anxiety. Retrieved from www.mnhealthplans.org/healthpartners-offers-online-program-for-mild-depression-anxiety.
- Moore, K.B., & Perry, B.D. (2008). *Using technology in the early childhood classroom*. Retrieved March 30, 2018, from www.scholastic.com/teachers/articles/teaching-content/using-technology-early-childhood-classroom/
- National Center for PTSD. (2018). *Mobile applications*. Retrieved from www.ptsd.va.gov/public/materials/apps/index.asp.

- National Institute for Health and Care Excellence, United Kingdom. (2009). Depression in adults with a chronic physical health problem: recognition and management. Retrieved from www.nice.org.uk/guidance/CG91/chapter/1-Guidance#care-of-all-people-with-depression.
- O'Connor K., & Schaefer C. (1994). *Handbook of play therapy: Advances and innovations*. Toronto, ON: John Wiley & Sons.
- Psyberguide. (2018). *Looking for a mental health app?* Retrieved from www.psyberguide.org/.
- Rehm, I.C., Foenander, E. Wallace, K., Abbott, J.M., Kyrios, M., & Thomas, N. (2016), What role can avatars play in e-mental health interventions? Exploring new models of client-therapist interaction. *Frontiers in Psychiatry*, 7: 186. Abstract retrieved from www.ncbi.nlm.nih.gov/pubmed/27917128.
- Rizzo, A., & Koenig, S.T. (2017). Is clinical virtual reality ready for primetime? *Neuropsychology*, 31. Retrieved from www.researchgate.net/publication/319165844_Is_Clinical_Virtual_Reality_Ready_for_Prime-time.
- Rizzo, A., & Shilling, R. (2017). Clinical virtual reality tools to advance the prevention, assessment, and treatment of PTSD, *European Journal of Psychotraumatology*, 8(Suppl.5). Retrieved from www.doi.org/10.1080/20008198.2017.1414560.
- T2 Mood Tracker. (2018). Retrieved from www.psyberguide.org/apps/t2-mood-tracker/
- Thase, M. (2016). Is computer-assisted cognitive therapy a viable solution for cognitive therapy's dissemination problems? A brief review and some data. Anxiety & Depression Association of America. Retrieved from www.adaa.org/learn-from-us/from-the-experts/blog-posts/professional/computer-assisted-cognitive-therapy-viable.
- Tornero, M.D. L.A., & Capella, C. (2017). Change during psychotherapy through Sand Play Tray in children that have been sexually abused. *Frontiers in Psychology*, 8: 617. Retrieved from www.doi.org/10.3389/fpsyg.2017.00617.
- U.S. Department of Veterans Affairs. (2018). *Prolonged exposure for PTSD*. Retrieved from www.ptsd.va.gov/public/treatment/therapy-med/prolonged-exposuretherapy.asp.
- Wrzesien, M., Bretón-López, J., Botella, C., Burkhardt, J.M., Alcañiz, M., Pérez-Ara, M.Á., & Del Amo, A.R. (2013). How technology influences the therapeutic process: Evaluation of the patient-therapist relationship in augmented reality exposure therapy and in vivo exposure therapy, *Behavioral and Cognitive Psychotherapy*, 41(4): 505–509. Retrieved from www.ncbi.nlm.nih.gov/pubmed/23410820.



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Part 2

Therapeutic Uses of Technology



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The Accessibility of Quality Supervision

Competency-Based Mentoring Using Technology

Theresa Fraser

Introduction

Human service supervisors have multiple responsibilities. They support the professional functioning and development of one or more practitioners and review the delivery of services that are provided for the child, youth, adult and/or family who is seeking care. Supervising and mentoring can also involve supporting the supervisee in their professional development (Brockbank & McGill, 2012) according to the competencies that their field requires (Falender & Shafranske, 2017). Supervisors assist supervisees in developing an understanding of ethical requirements and praxis (Landon & Schultz, 2017) as well as the impact of culture and social location on service delivery (Eklund, Aros-O'Malley, & Murrieta, 2014). Supervisors also take on the role of “gatekeeper” to the profession (Bernard & Goodyear, 2009).

The supervisory process is a commitment for all parties as it is time intensive and multilayered. There is a need for alternatives to the traditional face to face meeting when supervisees are not able to:

- find local supervisors and/or
- find supervisors with specific expertise and/or
- find supervisors who can meet with them at mutually convenient times.

In these situations, technology can provide a vehicle for connection across the miles and even time zones. Supervisorial technological support includes video

conference tools such as telephones and web-based cameras (Wolf, 2011), software programs including cloud-based file sharing software, clinical outcome tracking software (Rousmaniere, Abbass, & Frederickson, 2014), PowerPoint, Google docs, and platforms such as online learning management systems or encrypted video meeting spaces. As online counselor education programs have increased, so have online supervision opportunities (Carlisle, Hays, Pribesh, & Wood, 2017).

Technology Considerations

Informed Consent

In order to evaluate competencies, some associations or regulatory colleges expect supervisors to directly observe the supervisees clinical work either through a one-way mirror, videotape, or co-counseling. For example, this is the expectation for Canadian Play Therapists (CAPT, 2018). If the supervisee has a supervisory relationship with a supervisor who cannot meet with them face to face, the supervisor needs to utilize technology to observe clinical work. After securing informed consent, technology programs can provide the supervisee with the opportunity to share video of service provision as well as artifacts (such as client drawings or reports) within the learning management systems.

Practitioners need to ensure, when using technology for supervision, that their consent forms indicate this. They may need to specifically state how they will share videos or photos of client work in supervision. Supervisors should mediate this by ensuring group supervision forms include information about copyright and/or confidentiality, etc. Participants should be reminded of confidentiality and best practices at the beginning of each web-based process.

Finding a Discipline Specific Supervisor

Finding a discipline specific supervisor is often a requirement of regulatory bodies as well as some educational institutions with internship experiential learning opportunities. Additionally, some university programs require potential supervisors to submit their Curriculum Vitae (CVs) as well as engage in discipline specific supervisor training. This ensures that even if a supervisor has a different primary discipline that they understand the expectations and requirements of supervision. Therefore, the student or new graduate may benefit from the additional wisdom and support of a

discipline specific mentor. This can be a challenge if the student or certifying professional lives in an isolated or small community where there are no other aligned professionals. It is also important that supervisors do not practice in isolation and technology can support supervisors in creating virtual supervisory communities (Thériault & Gazzola, 2018).

CASE EXAMPLE

Vedant was a Social Work student who was very excited to start an internship at a community mental health rehabilitation program. His university required that his internship was to be supervised by an individual with a Master's degree in Social Work. Sadly, the human service professionals who worked at the center did not have a Social Work degree. Rather, the center successfully hired community worker college graduates. Vedant ended up having to find another placement setting even though he was hopeful to work in an agency where the clients hire, fire, and create activities and engage in activism.

Discipline specific supervision or mentorship can now be arranged with the support of technological resources such as web-based conferencing. With this technology-based communication tool, a student or professional can virtually meet with a supervisor/mentor and share examples of work and evidence of learning using the web-based course shell. This third-eye perspective can assist a supervisor in providing feedback based on observation instead of having to rely on the clinician's perception or memory of clinical interactions.

CASE EXAMPLE

Saira was a play therapist seeking certification in Canada. According to Canadian standards, she needed to obtain supervision, which included the ability to view her work live or pre-recorded, and then be watched later in supervision (www.cacpt.com/standards/). Using an online web program (which was encrypted to also honor confidentiality guidelines), she was able to show her recorded sessions while also engaging in a conversation with the supervisor. She could control the start and finish of the recorded sessions and therefore show segments of the session where she required supervisor input and wisdom. This process enabled her to use her supervision time effectively. On other occasions, she would share documents in her web room so that her play therapy supervisor could provide her with in-the-moment mentorship and consultation about her court preparation documents. Her supervisor was also

interested in observing the space where Saira worked, so she was able to take the supervisor on a virtual tour of the healing therapy space.

Observation of shared client interactions (both for supervisee and supervisor) can provide crucial information about competency development. Phone call distance supervision may be acceptable in other instances, but competency-based supervision requires the supervisor to encourage the supervisee to provide evidence and examples of learning via intentional self-reflection (Falender & Shafranske, 2017). Competencies include foundational knowledge, skills, and clinician demonstrated values of performance to meet the needs of client populations (Falender & Shafranske, 2007; Shafranske, 2016). The supervisee can share a recorded clip, example or photo of client artwork, printed report, flyer for a program, pictures or videos of healing tools and spaces, while also talking about each.

Web-based tools can also provide the opportunity for those who may be hearing impaired (or hard of hearing) to view the person they are meeting. This visual input provides the opportunity for the hard of hearing individual to lip read. Additionally, web-based tools can provide a chat function in a meeting room so questions and comments can be shared while looking at each other. This may be especially valuable for participants who process information more quickly when presented in a visual form.

Supervisors Who Utilize a Competency-Based Approach

Human service professionals (Child and Youth Care Practitioners, Counselors, Psychologists, Play Therapists, Social Workers, etc.) have requirements to qualify as certified supervisors. These often include human service education (knowledge) as well as additional supervisor training and experience (skills), and awareness of overarching issues and ethical codes (social context) (Falender, Cornish, Goodyear, Hatcher, Kaslow, Leventhal, Shafranske, Sigmon, Stoltenberg, & Grus, 2004). A supervisor who utilizes a competency-based approach may have experience providing evidence of their own competency attainment, such as the usage of artifacts in order to gain supervisor status.

Competency-Based Supervision

There are many supervision models which have been utilized by human service professionals such as: cognitive behavioral based supervision, psychodynamic

supervision, narrative supervision, social role models of supervision, developmental models of supervision, and competency-based supervision (Gonsalves & Calvert, 2014). The competency-based supervision movement continues to guide professional psychology (Celano, Smith, & Kaslow, 2010) as well as other human service disciplines. Competency-based supervision looks at the practitioner's use of sub-skills with clients and colleagues. For example, practicing active listening is a sub-skill of practicing empathy (Lloyd, Boer, & Voelpel, 2017). Competency-based supervision is a new model that has pedagogical origins in education and training (Gonsalves & Calvert, 2014). Gonsalves and Calvert indicate that competency-based supervision is like backwards curriculum design. In other words, supervisors engage supervisees in a process wherein they are always creating a context illustrating where the practitioner should end up regarding professional behaviors. All steps are preparing for that ultimate outcome. Some human service Child and Youth Care Practitioner students identify S.M.A.R.T. goals: **S**pecific, **M**easurable, **A**ttainable, **R**ealistic and **T**ime limited (Doran, Miller, & Cunningham, 1981). This process assists the professional with specifically identifying components and goals. This is the process that is used to identify their professional development journey.

Goals need to be:

- Specific, such as: "I will phone group members after the intake session to discuss group location and times". The practitioner can measure such a goal by documenting which group members were contacted and when;
- The goal is attainable because the practitioner has the skills to make the calls and the tools in which to do so. The only challenge will be if the group participants do not have access to a phone;
- The goal is a realistic goal because there is time to make the phone calls;
- The goal is time limited in that the calls need to be made before the group begins.

CASE EXAMPLE

Josiah was a third-year Child and Youth Care Student (CYC) and his placement was in a homeless shelter for teens over the age of 16. He verbalized to his supervisor that he was fearful of conflict with a resident. He didn't want to be perceived as the "heavy" but wanted to be respected by the youth. He told his supervisor that he hoped to have the skills to manage a conflict situation if one arose. He was also fearful that if he didn't manage the interaction well, that he would be embarrassed in front of his supervisor, the other students, and all the residents. His supervisor

helped Josiah identify resources he could utilize to manage the potential conflict such as taking the time to listen to the resident's perspective. The supervisor reminded Josiah that he is never working alone, so he can also ask for support from colleagues and his supervisor. The supervisor provided Josiah with online resources for non-violent crisis intervention training. He also had Josiah check in with other staff using a technology-based group communication room.

A competency-based supervision framework consists of the supervisor having:

- knowledge (understanding of supervision models and research, ethics, and legal issues)
- relational skills (for example the ability to provide feedback effectively)
- values (the investment to create a respectful and supportive supervisory relationship) (Gonsalves & Milne, 2010).

The supervisor then assists the supervisees in identifying training opportunities required to develop the competencies to build the supervisee's toolbox. Competency-based supervision provides both supervisor and supervisee with a structure which includes specific domains and sub-skills that help establish a clear charted plan for training development (Gonsalves & Calvert, 2014). One example of this is the competency domains established by the National Child and Youth Care Certification Board in Canada (www.cycb.org/). Each domain of practice: professionalism, cultural and human diversity, applied human development, relationship and communication, and developmental practice methods are broken down into elements of performance. These elements are scaffolded so that a certifying professional knows what to demonstrate for certification, lifelong professional development, and assurance of an efficacy-based practice (given this professional discipline works with vulnerable children, youth, and families). The British Association for Play Therapy is another organization that identifies skills under the domains of knowledge and understanding, personal development, practice skills, and personal qualities (BAPT., n.d.).

Implementing an explicit model, intervention, or approach which identifies a protocol or steps (Falender & Shafranske, 2017; Gonsalves & Calvert, 2014), provides essential components for competency-based supervision. These include for both supervisee and supervisor:

- self-assessment which informs goal setting
- establishment of a collaborative supervisory relationship
- attention to the power differential implicit in the relationship

- agreement on how feedback for both parties will be shared
- feedback as an integral part of performance review and assessment
- shared commitment to address diversity and multicultural personal factors (Hernández, Taylor, & McDowell, 2009; Falender, Shafranske, & Ofek, 2014)
- commitment to identify and adhere to ethical, legal, and regulatory factors (Kaslow, Falender, & Grus, 2012).

Self-Assessment of Competence

All human service professionals, who have defined competencies according to their discipline, can self-reflect on the skills and competencies already demonstrated and housed in their “tool box”. Prior to technology programs, this tool box was metaphoric. However, with technology software and programs such as *E portfolio* programs, the human service professional can track all examples of their gained competencies and build on these portfolios. Using technology, these items can even be shared with potential employers by adding a link to a CV or cover letter. The ability for professionals to review their own examples of competency-based practice using technology has profound impacts. This self-assessment is crucial in understanding where the practitioner is in their development. Having a mentor or supervisor who has already experienced this process can assist the supervisee in goal identification and subsequent training plans. Supervisors can best assist supervisees in this regard by providing them with artifact examples kept using technology programs.

A challenge for the new and emerging professional is how to compare their progress to that of colleagues. A supervisor and supervisee can identify what demonstrating a specific competency looks like for the new, emerging, and competent practitioner. For example, all therapists need to understand their non-verbal communication and what they are communicating with others. This becomes even more crucial if working with populations who struggle recognizing non-verbal communication. Once a supervisor has demonstrated the competency skills, the supervisees watch the demonstration again as needed.

CASE EXAMPLE

Shaniqua was learning how to utilize Floortime interventions (Greenspan, 2009), with her 10-year-old client who was diagnosed with Autism. Shaniqua was saying and doing all the “right things”, but her facial expressions were not communicating joy when greeting the child and interacting with him.

Her mentor/supervisor viewed her intervention recording and provided her with this feedback. Shaniqua then practiced her facial expressions in the mirror and when her next supervision recording was viewed, she was pleased with both the feedback she received from her mentor and the reactions she was receiving from the child. In subsequent supervision sessions, her supervisor helped her practice how to hold her posture and hands so she was less intimidating. These gains were made possible by utilizing technology to share the sessions with the supervisor and receive feedback.

Artifacts

The American actress, Angelina Jolie, brought three dimensional artifacts to the big screen in the movie, *Lara Croft: Tomb Raider*, (Gordon, Levin, Wilson, & West, 2001). In this movie, the character sought to gather pieces of a specific artifact while in competition with others, and time. Artifacts symbolize something cultural or historical, but they are nonetheless created by people so meanings are attached to the object. Like *Lara Croft's* artifacts, artifacts gathered in competency-based mentoring have meaning attached to them and represent the learning of the human service professional. These artifacts can be evidence of the learning that is being achieved as the practitioner proceeds through their development. Artifact examples can be video and audio recordings, examples of report writing, and/or intervention specific forms and resources. Using web-based resources, both supervisor and supervisee(s) can be seen and any one of the participants may be able to share their screen so learning artifacts can be shared with all the "room" members. This is important because confidentiality is heightened given artifacts are not being sent to the supervisor via mail when engaging in phone supervision. Also, group participants from various jurisdictions are benefiting from "seeing" examples of praxis that they previously could only see if they could engage in face to face supervision.

This author uses artifacts regularly as examples of evidence in online learning environments. Artifacts represent praxis irrespective of the human service profession or designation. Sharing artifacts with team members using technology can be a wonderful way to close or end a learning group so that all members gain understanding of the curriculum or supervision experience of each group member (if not the entire learning community). In some psychotherapeutic interventions such as *Sandtray*, (which is a play therapy approach where participants use toys/miniatures to create scenarios or worlds representing real, imagined, or remembered experiences/interactions or scenarios), it is not uncommon for a supervisor to suggest that participants or supervisees

pick a miniature that represents a client, how the clinician is feeling, or the best example of their learning last week. In this way, this healing tool also becomes an individual or group artifact for learning. Being able to replicate this experience in an online learning technology environment helps all participants share in the experience that they would previously be only able to do face to face if they had a supervisor or trainer nearby and could afford to travel.

CASE EXAMPLE

Afunre was a supervisor of counseling practitioners. He encouraged participants in his supervision group to identify an area of their development that would be their “growing edge”. What is an area where they hoped to gain mastery? Afunre then asked participants to identify a photograph that would represent this area for further development. In their second-to-last group supervision, all participants shared their photographs. In the last supervision group, they identified a SMART (Specific, Measurable, Attainable, Realistic and Time limited) goal that would address this area for further development. Participants were asked to keep their photograph on their desk and to bring it to the first meeting of the next supervision group. They were also encouraged to keep the examples of photographs or artifacts so they could add it to a PowerPoint that could then be shared with their individual supervisors.

In this example, PowerPoint (a digital/electronic presentation), was the technology that supported the learning. Web-based supervision approaches can effectively provide the platform so that participants can share their screen and the artifacts that they have chosen to represent their learning. Furthermore, supervisees can create and utilize electronic portfolios to showcase their learning (Morris & Buckland, 2000). A PowerPoint that stores photographs can be shared in face to face or digital supervision groups.

Building a Digital Community

As already noted, technological resources can also be utilized in competency-based group supervision. Meeting rooms and online learning platforms can provide the opportunity for participants who live far away from each other to join and share information and expertise about specific topics. Participants are then engaged in digital community building. For example, Play Therapist Jen Taylor (Hawaii, USA) created a Play Therapy Summit in 2017 using an online learning management system interviewing experts who were recorded in advance. Four

thousand, four hundred participants had access to all the recordings after the live event. She then created additional sub-groups who could meet for group supervision specifically around a shared interest in model or approach. In April 2018, she created a School Safety Summit where over 1,000 practitioners who are working with children/youth registered “to attend” to address the issues of violence in elementary and secondary schools. Ms. Taylor shares that:

an argument has been made that play therapy cannot be learned outside of a traditional classroom due to the experiential components required to become competent using this modality with children. And yet, play therapy training remains inaccessible to many clinicians who practice internationally or in rural settings. The overarching concern then becomes how to help clinicians overcome the obstacles to obtaining quality training so that the children and families they serve also have access to the best and most up to date resources available. Technology bridges that gap. The use of technology in training (through webinars, either synchronous (where the information is being shared in real time) or asynchronous (where information is viewed at a later time) allows practitioners unprecedented access to the highest quality trainers. Those who are not afraid of technology find that the resources currently available to monitor participation, measure learning, answer questions, and even simulate dyadic role-play is, at a minimum, equal to a traditional classroom environment. Through the use of technology, clinical competency can be enhanced not only by the knowledge gained in the course environment, but also by the connections to people that extend far beyond the walls of a classroom.

(personal communication, Taylor, April 9, 2018)

Ms. Taylor’s beliefs around the importance of training accessibility are significant for all helping professionals, and particularly for those who work in rural or underserved areas.

Relationship Development

Interaction and relationship development are important aspects of competency development for all human service practitioners. The structure of an online interaction must reflect an expectation of social interactions (Journell, 2013), as a digital classroom and community is being created. In online courses, supervision groups, or web training, technology allows the opportunity for participants to provide evidence of competency attainment.

Participants can create videos or post pictures when communicating with colleagues. Supervisors can follow up with written feedback or online meetings.

Summary

Supervision is the most expensive single investment of staff time in the training of helping practitioners (Gonsalvez & Milne, 2010). Supervisors provide supervisees with key information and support while connecting theory to practice. Technology can provide practitioners with the opportunity to obtain wise counsel and support from more seasoned practitioners who may be experts in a specific area of service provision but are not geographically close. As discussed, these types of technologies can include synchronous or asynchronous web-based platforms which provide an affordable alternative to expensive training attendance costs or, for those in remote areas, no training at all. Supervision can be provided to the individual practitioner or a group of practitioners. The supervisor and supervisee need to be cognizant of supervision models, culture, diversity, confidentiality, and the specific competencies that the practitioners need to develop. The practitioner can house artifacts of competency development in e-portfolios that can be accessed by the supervisor or supervisee on an ongoing basis as the supervisee moves through their various stages of development. It is key that both practitioner and supervisor discuss and evaluate, over time, the purpose and value of the technology that is being utilized. The purpose is to ensure that profession specific best practices are adhered to, practitioner needs are met, and the supervision contract will be honored. This is important given technology is constantly evolving to meet the needs of consumers. It is also important that supervisors do not practice in isolation and technology can support supervisors in creating supervisory communities (Thériault & Gazzola, 2018). As technology skills and tools are utilized more commonly, the expectation of technological literacy becomes a necessary competency for both supervisors and supervisees (Keino, 2006).

References

- Bernard, J. M., & Goodyear, R. K. (2009). *Fundamentals of clinical supervision* (4th ed.). Upper Saddle River, NJ: Pearson Education.
- British Association for Play Therapists (2014). *Play therapy core competencies*. Retrieved from www.bapt.info/play-therapy/play-therapy-core-competences/.
- Brockbank, A., & McGill, I. (2012). *Facilitating reflective learning: Coaching, mentoring and supervision*. London: Kogan Page.
- CAPT. (2018). *Criteria for certification*. Retrieved from www.cacpt.com/standards/.

- Carlisle, R. M., Hays, D. G., Pribesh, S. L., & Wood, C. T. (2017). Educational technology and distance supervision in counselor education. *Counselor Education and Supervision*, 56(1), 33. 10.1002/ceas.12058.
- Celano, M. P., Smith, C. O., & Kaslow, N. J. (2010). A competency-based approach to couple and family therapy supervision. *Psychotherapy: Theory, Research, Practice, Training*, 47(1), 35–44. doi:10.1037/a0018845.
- Doran, G., Miller, A., & Cunningham, J. (1981). There's a S.M.A.R.T. way to write management's goals and objectives. *Management Review*, 70(11), 35–36.
- Eklund, K., Aros-O'Malley, M., & Murrieta, I. (2014). Multicultural supervision: What difference does difference make? *Contemporary School Psychology*, 18(3), 195–204. doi:10.1007/s40688-014-0024-8.
- Falender, C. A., Cornish, J. A. E., Goodyear, R., Hatcher, R., Kaslow, N. J., Leventhal, G., Shafranske, E., Sigmon, S. T., Stoltenberg, C., & Grus, C. (2004). Defining competencies in psychology supervision: A consensus statement. *Journal of Clinical Psychology*, 60(7), 771–785.
- Falender, C. A., & Shafranske, E. P. (2007). Competence in competency-based supervision practice: Construct and application. *Professional Psychology: Research and Practice*, 38(3), 232–240. 10.1037/0735-7028.38.3.232.
- Falender, C. A., & Shafranske, E. P. (2017). Competency-based clinical supervision: Status, opportunities, tensions, and the future. *Australian Psychologist*, 52: 86–93. doi:10.1111/ap.12265.
- Falender, C. A., Shafranske, E. P., & Ofek, A. (2014). Competent clinical supervision: Emerging effective practices. *Counselling Psychology Quarterly*, 27(4), 393–408.
- Gonsalvez, C. J., & Milne, D. L. (2010). Clinical supervisor training in Australia: A review of current problems and possible solutions. *Australian Psychologist*, 45(4), 233–242. 10.1080/00050067.2010.512612.
- Gonsalvez, C. J., & Calvert, F. L. (2014). Competency-based models of supervision: Principles and applications, promises and challenges. *Australian Psychologist*, 49(4), 200–208. 10.1111/ap.1205.
- Gordon, L., Levin, L., & Wilson, C. (Producers), & West, S. (Director). (2001). *Lara Croft: Tomb Raider* [Motion Picture]. USA: Paramount Pictures.
- Greenspan, S. (2009). *Engaging autism: Using the floortime approach to help children relate, communicate and think*. Boston: MA. Da Capo Lifelong Books.
- Hernández, P., Taylor, B. A., & McDowell, T. (2009). Listening to the ethnic minority AAMFT approved supervisors: reflections on their experience as supervisees. *Journal of Systemic Therapies*, 28(1), 88–100.
- Journell, W. (2013). *Online learning: Strategies for K-12 teachers*. Lanham, MD: R&L.
- Kaslow, N. J., Falender, C. A., & Grus, C. L. (2012). Valuing and practicing competency-based supervision: A transformational leadership perspective. *Training and Education in Professional Psychology*, 6(1), 47–54. 10.1037/a0026704.
- Keino, L. C. (2006). Electronic learning portfolios: Evaluating artifacts in an international FCS program. *Journal of Family and Consumer Sciences*, 98(4), 44.
- Landon, T. J., & Schultz, J. C. (2017). Exploring rehabilitation counseling supervisors' role in promoting counselor development of ethical fluency. *Rehabilitation Counseling Bulletin*, 3435521772891. doi:10.1177/0034355217728912.
- Lloyd, K. J., Boer, D., & Voelpel, S. C. (2017). From listening to leading: Toward an understanding of supervisor listening within the framework of leader-member exchange theory. *International Journal of Business Communication*, 54(4), 431–451. doi:10.1177/2329488415572778.

- Morris, J., & Buckland, H. (2000). Electronic portfolios for learning and assessment. In *Proceedings of Society for Information Technology and Teacher Education International Conference 2000*. Norfolk, VA: AACE. Retrieved May 6, 2004, from [www.aace.org.library.sheridanc.on.ca/newdl/index.cfm?fuseaction=Reader.ViewAbstract&paper_id=15838](http://www.aace.org/library.sheridanc.on.ca/newdl/index.cfm?fuseaction=Reader.ViewAbstract&paper_id=15838).
- Rousmaniere, T., Abbass, A., & Frederickson, J. (2014). New developments in technology-assisted supervision and training: A practical overview. *Journal of Clinical Psychology*, 70(11), 1082–1093. doi:10.1002/jclp.22129.
- Shafranske, E. P. (2016). Finding a place for spirituality in psychology training: Use of competency-based clinical supervision. *Spirituality in Clinical Practice*, 3(1), 18–21.
- Thériault, A., & Gazzola, N. (2018). Becoming a counselling supervisor in Canada: Key elements from the perspective of supervisors. *International Journal for the Advancement of Counselling*, 1–19. doi:10.1007/s10447-018-9351-1.
- Wolf, A. W. (2011). Internet and video technology in psychotherapy supervision and training. *Psychotherapy*, 48(2), 179–181. doi:10.1037/a0023532.

Therapeutic Texting

Judi Parson, Kate Renshaw, and Andrea Hurt

The world of multi-media and technology has knocked on the therapeutic practitioner's consulting room door. Recent advances have enabled practitioners to use therapeutic texting as a way to engage young people and families to facilitate relationship building. This chapter showcases a review of academic literature in relation to the use of technology for therapeutic and multimedia texting. The authors consider the impact on the therapeutic relationship within an increasingly virtual world and highlight issues in setting therapeutic boundaries. Further consideration is given to the time required to engage with a client and the need for persistence when working with adolescent populations (13–18 years). A case example illustrates therapeutic texting as part of a specialized play therapy service provision. Issues of privacy and confidentiality will be highlighted and discussed. The chapter concludes with sharing insights of the process of developing draft guidelines which were based on supervision, consultation and benchmarking to formulate recommendations and practice in the field. The first section provides a brief overview and orientation to the evolution of oral and text communication.

Defining RxTxT: From Spoken Word to Emojis

In 1923, Rudyard Kipling spoke to the Royal College of Surgeons in London and famously stated that “words are of course the most powerful drugs to mankind . . . not only do words infect, egotize, narcotize, and paralyze, but they enter into and colour the minutest cells of the brain” (Kipling,



Figure 6.1 Evolving forms of language communication

1923, para. 2). This historical account is vitally important to contextualise the power of words in all its forms and is particularly relevant to modern communication methods. Words in language, including abbreviated spoken and written words, are all symbols to communicate, engage, and maintain human relationships. Orthography is the set of conventions for written language (English Oxford Dictionary, 2018), however, text message is an example of a non-standard orthography (Crystal, 2008). The following process graph demonstrates the evolution from oracy (spoken word), to traditional written orthography (literacy), through to non-standard text, and onto current emoji language.

Whilst oracy and literacy have a high level of consistency in language, the further along to the right side of the graph requires less precise literacy skills. One factor that has impacted on written word and essentially forced abbreviated text was when mobile phones limited the user to 160 characters per text (Crystal, 2008). As a result, society saw an increase in the use of acronyms and textspeak. For example, “by the way” (btw), “laugh out loud” (lol), “great” (Gr8), and “are you ok” (RUOK). So, for a period of time there was a reduction in word length due to the financial cost of sending text messages, whereas today with reduced associated costs the volume and frequency of mobile phone communication has increased exponentially.

Mobile phone communication traffic has dramatically intensified, so much so that there are more mobile devices than people on the planet (Davies Boran, 2014). And by 2017, there were 15,220,700 text messages sent every minute (Schultz, 2017). Part of this growth includes the integration of additional expressions in the form of emoticons. Emoticons extended the art of sending and receiving text or email communication by adding visual cues to augment the meaning of textual electronic messages (Rezabek & Cocenour, 1998). Emoticons supported text communication, similar to the way that facial expressions facilitate face to face verbal communication. Emoticons are embedded in text messages to create a rotated image that represents facial features or expressions. Thus, providing a way to better define emotions and intent regarding a particular phrase or statement. For example, a smiley face :-) could mean that the sender is communicating happiness, joy, pleasure as opposed to a sad face emoticon :(indicating unhappiness or sadness. Alternatively, a wink ;-) indicating a joke or jest in relation to the text

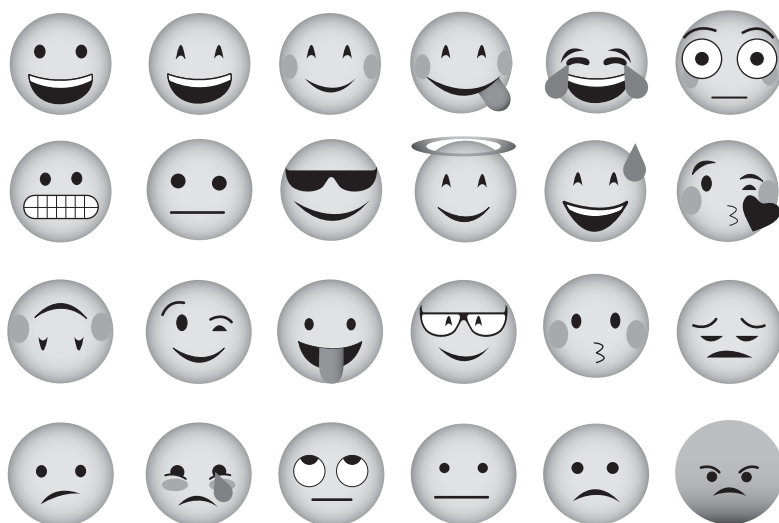


Figure 6.2 Examples of emojis

www.pixabay.com/en/emoji-smilie-whatsapp-emotion-2762568/

and a heart <3 indicating love and affection. For more examples and a list of the coding system of emoticons and emojis and copyright information by Unicode see: www.unicode.org/reports/tr51/ and www.unicode.org/charts/PDF/U1F600.pdf.

Emoticons were the precursor to emojis. The word emoji is an English adaptation from Japanese which means $e \cong \text{picture}$, $mo \cong \text{writing}$, and $ji \cong \text{character}$, which means simply picture-word (Danesi, 2017). In 2015, the “face with tears of joy” emoji (see Figure 6.2 top row and second from the right) was chosen as the word of the year by the Oxford English Dictionary (Danesi, 2017) and has been listed in the top 10 most popular emojis on emojiopedia since 2014 (see www.emojiopedia.org/).

As a result of the frequent and worldwide use of emoticons and emojis over the last several years they have now become a common way to communicate. Gene, the character from *The Emoji Movie* (2017) eloquently introduces the importance of emojis to humankind by explaining the shift in the pace of life and the subsequent changes in modern communication. He explains that emojis have significantly changed the way we communicate, emojis are a powerful and fast method to communicate whilst incorporating additional elements which includes, for example facial features and gestures to enhance written messages.

In light of the text messaging incorporating emojis, people who are time poor or who have lower literacy skills may choose this media to communicate to others and therefore increase speed of message transmission and assist in transcending literacy barriers. Therefore, these advancements have enabled a more simplified, yet expressive communication experience and could be integrated to promote therapeutic engagement.

Discussing RxTxT: Towards a New Orthography

Renshaw, Parson and Hurt (2015) first introduced RxTxT at the Australasia Pacific Play Therapy (APPTA) conference titled 'Towards the Future'. They explained that the abbreviated symbol "Rx" stands for the Latin word 'recipe' and indicates 'to take'. However, in modern medicine "Rx" refers to a prescribed treatment or therapy. The "TxT" abbreviation stands for text messages or other instant message communication formats. Thus, "RxTxT" represents Therapeutic Texting as an advanced modern therapeutic communication tool.

Human beings navigate the digital world concurrently with the physical world and therefore it is important for practitioners to consider if (and if so, when) it may be appropriate to integrate a range of digital communication aids for the client population. The internet has been compared to a town square for the global village (Gates, 2014), therefore, how can healthcare and psychological services enter into this space? Furthermore, if we are all now connected to nearly everyone through the internet like the synaptic connections through a worldwide brain, how then can these connections be harnessed for the benefit of therapeutic engagement and communication?

The historical era we currently live in is referred to as the Information Age (Wang, 2012). In the Information Age, there are strong messages in both the media and in current literature around the notion of both connection and disconnection. Three key aspects have arisen from the literature which interface with the notion of connection through RxTxT and is represented above (see Figure 6.3) which highlights the intersection between the environment (physical and virtual) with human interaction (client and practitioner). These aspects are essential ingredients for connection and communication in the Information Age and the central space within which to examine the literature in the context of text messaging and modern therapeutic communication modes of practice.

Incorporating technology into healthcare delivery is not a new concept, the Information Age is said to have begun around 1980; therefore, decades of research exists and continues to be generated almost in tandem with the

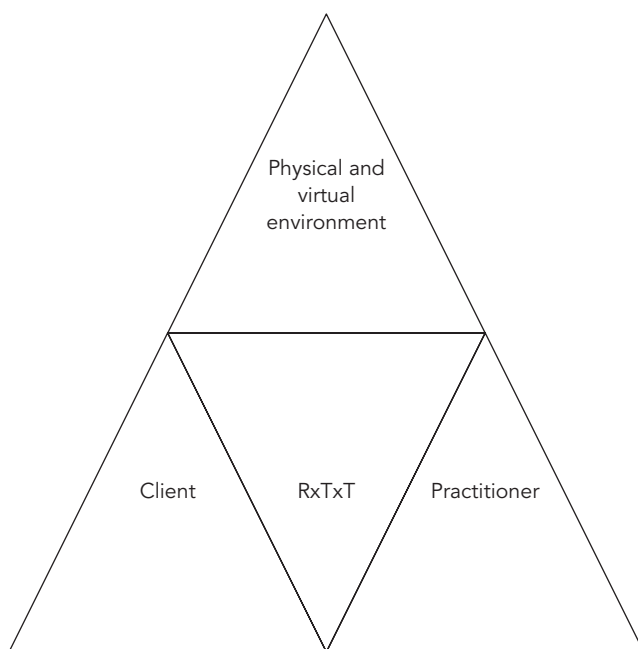


Figure 6.3 Triadic considerations for RxTxT

speed of technological advancement (Field, 1996). The review of literature considers the use of texting and other technologies, specifically the subheadings include e-health, m-health, txt, regional and remote communities, txt and adolescence, and concluding with the exploration of the therapeutic relationship and therapeutic alliance.

E-Health

Dating back to 1999, e-Health was used to define healthcare practice supported by electronic processes and communication (Barak, Hen, Boniel-Nissim, & Shapira, 2008). Telemedicine, telehealth, telepaediatrics, telepsychology, e-therapy, and virtual medical services all fall under the umbrella of e-Health (Maeder & Smith, 2010). E-Health uses telecommunication and information technologies, such as: e-mail, text message, videoconferencing, telephone/mobile phone, internet-based programs, etc., in order to provide clinical health care at a distance (Field, 1996). It helps eliminate distance barriers and can improve access to medical and allied health services.

M-Health

Traditional e-Health platforms have grown and flourished at a rapid rate. Through the increasing mobile nature of technology, e-Health has developed and evolved into m-Health (Istepanian, Laxminarayan, & Pattichis, 2006). M-Health is defined as “emerging mobile communications and network technologies for healthcare” or simply put, health applications and links on mobile phones (Istepanian, Laxminarayan, & Pattichis, 2006, p. 3). M-Health has the potential to reshape healthcare through cost effective, accessible, and flexible ways of delivery (Istepanian, Laxminarayan, & Pattichis, 2006). For the purpose of this literature review, using mobile devices to send short message service (sms) and text messages (txt) will both be referred to as txt/text/texting and will be discussed under the umbrella of m-Health.

TxT

Txt is now a common mode of communication globally and access to mobile devices is now easier than ever before (Davies Boran, 2014). Kannisto, Koivunen, and Välimäki reviewed the ways txt reminders had been incorporated into health services and found “a positive impact on patient appointment attendance, adherence to chronic medication and to antiretroviral therapy, patient self-management of health outcomes, and care processes” (2014, p. 1439). The use of supportive text messages for patients with alcohol use disorder and depression supported them to abstain from alcohol and experience improved mental wellbeing (Agyapong, Milnes, McLoughlin, & Farren, 2013). Breastfeeding continuance support through text messages was explored by Gallegos, Russell-Bennett, Previte, and Parkinson (2014). They found improved exclusive breastfeeding duration in conjunction with ongoing txt support. Txt has been used for a range of other health service provisions, such as: drug and alcohol addictions, depression (Agyapong, Milnes, McLoughlin, & Farren, 2013), HIV and chronic diseases (Mbuagbaw, Mursleen, Lytvyn, Smieja, Dolovich, & Thabane, 2015), suicide attempt recurrence reduction, (Ligier, Kabuth, & Guillemin, 2016), and management of chronic health in remote indigenous communities (Phillips, Wigger, Beissbarth, McCallum, Leach, & Morris, 2014).

Regional and Remote Communities

Rural health and remote communities have been a particularly prevalent group that e-Health and m-Health has been more widely used with. Therefore,

they are an important population to consider in the literature. This literature review will present three examples of txt rural/remote health projects.

Firstly, Phillips et al., incorporated Multimedia Messages (MMS) and txt into a paediatric healthcare initiative in a remote Australian community (2014). Aboriginal children living in remote areas of Australia have some of the highest adverse healthcare rates worldwide (Phillips et al., 2014). This study found that MMS and txt offered healthcare providers an “accessible and acceptable approach for engaging families in remote Aboriginal communities” (Phillips et al., 2014, pp. 366–367).

The second project of interest is the txt project for adolescents with Type 1 Diabetes (Jones Herbert, Mehta, Monaghan, Cogen, & Streisand, 2014). The SMART project aimed to increase self-management and provide education. In diabetes research with adolescents the authors reported a growing body of research using txt with this clinical population (Jones Herbert et al., 2014). “Inclusion of mobile health technologies such as text messages in clinical care may be a unique, relevant method of intervention for youths” (Jones Herbert et al., 2014, p. 265).

Thirdly, the Therapeutic Texting project in New Zealand is a regionally focused yet national youth service (Youthline Changing lives, n.d.; Haxell, 2014). Youthline Changing Lives conducted a scope and review report in order to investigate the viability of therapeutic texting as a type of e-Therapy as part of Youthline’s Text 234 Service (n.d.). Haxell’s review of Youthline’s shift in service from telephone helpline format to texting found that “being relevant requires being responsive to young people” (2014, p. 11). When examining the Youthline Changing Lives program it was found that “even in the tightly constrained space of a text-based medium”, the therapeutic skills essential for forming a therapeutic relationship may be able to be implemented effectively (Haxell, 2014, p. 1).

Txt and the Adolescent Client Population

Fine (2014) acknowledges that communication for adolescents today may be even more complex than previous generations; “technology has added many new twists” (Fine, 2014, p. xvi). In the increasing complexity of adolescence “the mobile phone provides a sense of security and the microcoordination of everyday life” (Ling, 2004, p. 83). Texting is increasingly being described as the most convenient way to keep in touch, and facilitates adolescents to “overcome their awkwardness and develop their social and communication skills” (Crystal, 2008, p. 171). On close examination, texting dialogue may resemble “village-green conversations where little content may be exchanged

but personal connections are made” (Crystal, 2008, p. 171). Another unique aspect of adolescent communication and texting is that “messages are asynchronous; that is, the sender does not need to engage the receiver in order to communicate”; communication timeframes have become more flexible and accessible and multiple conversations can be occurring simultaneously in a virtual space (Ling, 2004, p. 151).

Therapeutic Relationship and Therapeutic Alliance

Santhiveeran (2004) dated the use of computers in psychotherapy to 1972 with the advent of bulletin boards and online support groups. The first web-based mental health advice site went live in 1986 in the USA. The International Society for Mental Health Online (n.d.) was established in the late 1990s, to promote the use of online technologies among mental health professionals. Around this time, guidelines were established regarding ethical online counselling: American Psychological Association (1997), the British Association of Counselling and Psychotherapy (2005), and the Australian Psychological Society (2004) (as cited in Santhiveeran, 2004). Essential components of the therapeutic relationship with adolescents, and the therapeutic alliance with caregivers, are establishing a sense of trust in the relationship and ultimately engagement in therapy (Digiuseppe, Linscott, & Jilton, 1996).

Text messages afford adolescents the “opportunity to engage young people via a familiar and accessible medium” (Gibson & Cartwright, 2014, p. 96). Haxell (2014) explored the humanistic psychotherapeutic context for client centered therapeutic relationship conditions within the communication medium of texting. “The necessary and sufficient conditions of the therapeutic relationship, of being accessible, friendly and relevant in working with young people, are shown to translate within a texting medium” (Haxell, 2014, p. 11). Employing therapeutic conditions into texting with both adolescents and their caregivers may be an avenue to induce a feeling of security, an important milestone for an adolescent physically presenting to engage in therapy (Otway, Carnelley, & Rowe, 2014). Priming has been used in a text message format to enhance felt security; methods used include the use of words and pictures via txt or MMS (Otway, Carnelley, & Rowe, 2014).

If therapeutic relationship conditions are considered transferrable to use within technological mediums such as texting, and texting can be used as a method to prime a sense of felt security, then many more technological applications may be possible when engaging adolescents in therapeutic services. Other possible applications for engagement and therapeutic work include: the internet, Skype, computers, tablet and phone apps, etc. The use of therapeutic

texting within a therapeutic relationship and therapeutic alliance, as well as the inclusion of technology use within therapeutic sessions is presented in the following case study.

Case Study: Anna

Background

At the time of referral Anna¹ was 16 years old. She had been referred to therapy as a last resort by foster care services to re-engage her due to her disengagement in education and contact with social service and foster care agency staff. Her care team was concerned about her mental health as she had expressed depressive thoughts and worries about possibly needing medication for depressive symptoms. Anna had been removed from the care of her biological mother at approximately 14 years of age. This was following reports that Anna was persistently absent from school for over a year. Further to this, the social care team discovered that Anna and her siblings were living in physically unsafe conditions. Concurrently, Anna's mother was significantly ill with multiple chronic health issues which impacted on her ability to provide care. Anna moved from placement to placement within the foster care system. She had re-engaged at times in education services but this was not sustained for any length of time. Anna had identified that she needed therapeutic support and said that she would like to attend some counselling/expressive therapy so her care team prompted the referral.

Indicators for RxTxT

Anna failed to attend the initial meeting with the therapist at the office of Anna's care team. The care team manager had previously explained to Anna that this meeting would provide her with the opportunity to meet the therapist and ask any questions before agreeing to undertaking therapy. The meeting was rescheduled and again she did not attend. Usually the therapist would meet with children and young people at a home visit, however, Anna opted to meet away from her foster home. Anna was becoming increasingly difficult to engage due to transitioning between foster homes, therefore the social worker was keen for Anna to receive therapeutic support.

The social worker spoke to Anna on the phone and although she had agreed to meet with the therapist at the clinic, for the third time, Anna did

not attend. It was at this stage that the Play Therapist hypothesized that Anna was indicating avoidant and evasive behaviors and was therefore proving difficult to engage using traditional therapeutic methods. Consent and assent was sought from the social worker and Anna to call and text Anna directly. When Anna relocated to a new foster home the therapist connected with the new foster carers to systemically plan Anna's relational and logistical supports needs.

The therapist sent pictures of the playroom via txt so that Anna was able to see the room before attending. This facilitated a txt dialogue between Anna and her therapist about which toys/resources she connected with which led Anna to express an interest in attending in person. As a result of the txt dialogue Anna agreed to her Therapist completing a home visit at her foster placement prior to therapy commencing. On this occasion, Anna was at home and available to meet. The therapist also met her new foster family. Anna, the foster carers and the therapist agreed that the ongoing use of texts throughout the intervention was appropriate for appointment reminders, cancellations or rescheduling sessions.

The therapist sent a reminder text message to Anna and her foster carer on the morning of the first appointment. Anna attended the first play therapy session with the support of her foster carer. Relational and reminder texts were used successfully throughout the intervention. Anna always brought her mobile phone to the playroom with her and kept it in her pocket. The therapist hypothesized that the mobile phone was, for Anna, a transitional object and a necessary component to engage in the therapeutic process. On occasions, Anna received texts or calls during sessions, this prompted her to incorporate important communication and people into therapy.

Voice of Anna

To emphasize the importance of the voice of Anna and integrating RxTxT, permission was continually maintained whilst in attending therapy. Anna chose to incorporate her phone during therapeutic art making experientials, this inclusion highlighted the significance of digital communication, for her, both in therapy and in life. Feedback on attending therapy was obtained through a txt experiential activity whereby Anna was asked to craft three text messages that represented the start-point, mid-point and end-point of her experience of play therapy (see Figure 6.4). This affirms Anna's support for RxTxT and offers a personal reflection.

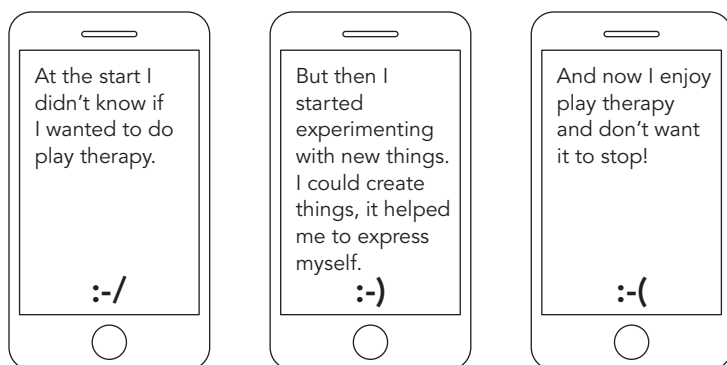


Figure 6.4 Anna's reflections of RxTxT within a play therapy process

Considerations of the Case of Anna within Clinical Supervision

The Play Therapist discussed the use of RxTxT with Anna in clinical supervision. The British Association of Play Therapists, in its description for Play Therapists, states that clinical supervision “supports the practitioner in their development and understanding of the therapeutic process and their own self-awareness” (BAPT, 2014). Thus, it is important that clinical supervision was accessed to focus on Anna's therapeutic process. Anna displayed avoidant attachment behaviours and this impacted on her ability to trust and engage with her therapist and the therapy. Supervision provided the space so that the therapist and supervisor could collaborate and reflect on Anna's attachment behaviours and communicated needs. This enabled in-depth consideration on how RxTxT supported the building of trust within the therapeutic relationship.

It was important to acknowledge that Anna had not rejected the proposal for RxTxT. In fact, it would seem that Anna's acceptance of the RxTxT proposal indicated that she felt this communication method could allow for a reciprocal and non-threatening stance. It was a form of communication she, as an adolescent, was familiar with. “Texting has become a kind of native dialect for teenagers and young adults” (Boodman, 2015, para. 4). The Play Therapist explored the use of RxTxT within supervision to build a therapeutic relationship, and as a result she was able to engage Anna in therapy. Once the therapeutic relationship was established, the therapist continued to reflect within supervision with the ongoing use

of RxTxT. Ongoing discussions in supervision enabled reflexivity around topics such as appropriate boundaries, mutual consent, structure, and engaging a young person with avoidant attachment difficulties, as well as in depth discussion about conveying tone and empathy.

Reflecting on RxTxT in Practice

When considering the use of RxTxT, the initial relationship building phase is pivotal in building the foundations of an ongoing therapeutic relationship. Clients may need dual environments (i.e. both virtual and physical) to engage throughout the therapeutic process for various referrals such as attachment and relational difficulties, post-traumatic stress disorder, self-harming behaviours, eating disorders, and grief. It would be wise for Mental Health practitioners to explore available options in the use of technology, such as RxTxT, that may support therapeutic engagement. This could potentially avoid disengagement, nonattendance, and/or restrictions in accessing service provision (Children and Adolescent Mental Health Service (CAMHS), 2016). If practitioners do not engage the client using current modes of communications, then there is a potential risk that they may not attend. This lack of engagement could lead to escalation of symptomology and potential psychopathology.

The use of RxTxT comes with multiple benefits and is a pivotal opportunity for the practitioner to engage the client using their therapeutic skills within textspeak language. Firstly, meeting the client in the virtual environment allows introductions through txt without the pressure of a face-to-face meeting which may alleviate anxiety. Secondly, sending txt may showcase images of the consulting room and available therapeutic resources which may entice curiosity. Finally, ongoing benefits for the use of RxTxT are session reminders (helpful for young people whose lives are quite chaotic), empathic acknowledgement of missed/unattended sessions, and holding client in mind during breaks in therapy.

It is also important to acknowledge limitations in the use of RxTxT, such as pragmatic issues of set-up costs and internet access. Other issues include the potential for miscommunication, confidentiality and data security, and maintaining boundaries. These issues could be detrimental to the therapeutic relationship which is why engaging in continual clinical supervision, adhering to guidelines for RxTxT, and ensuring clinical competencies and practice standards are upheld are key factors moderating the inclusion of RxTxT in practitioner's service provision. Practitioners need to be mindful of their use of words and emojis, as it is not easy to convey tone in text thus, can easily

be misinterpreted especially when considering the client's internal working model. However, the practitioner may need to clarify or review txt dialogues to ensure that they are accurately represented and provide fodder to explore relationships and communication within relationships within the virtual environment.

Whilst there are limitations to the use of RxTxT, in this present day and age where txt is a common form of communication, perhaps the role of the practitioner is to meet the client in both the physical and digital environments to integrate RxTxT as another avenue to be with and communicate with clients. The following draft guidelines have been established to inform professional standards and future research opportunities.

Draft Guidelines for RxTxT

1. Adhere to ethical principles of clinical practice in relation to use of technology;
2. Assess suitability for use of technology with client and caregiver/s;
3. Obtain informed consent from client and caregiver/s;
4. Maintain confidentiality/security;
5. Develop a crisis response protocol with the client;
6. Establish boundaries for technology use within the therapeutic relationship;
7. Record use of technology in clinical notes, including interaction log;
8. Store e-interactions securely;
9. Comply with data security laws;
10. Sit with a drafted message and hold it before sending.

Conclusion

This chapter has introduced the evolution of language from spoken word, to traditional and non-standard orthography, and towards the conceptual understanding and integration of RxTxT as an adjunct to professional therapeutic practice. As showcased in the case study of Anna, RxTxT was pivotal for her to access and engage in the therapeutic process. When reflecting on the use of RxTxT both positive and negative implications for practice have been identified. Ultimately, RxTxT is one therapeutic conduit to establish and maintain the therapeutic relationship and alliance and, most importantly, one way to meet clients within both physical and virtual worlds to engage and support the therapeutic process.

Note

- 1 Pseudonym based on a composite case.

References

- Abbott, J. M., Klein, B., & Ciechomski, L. (2008). Best practices in online therapy. *Journal of Technology in Human Services*, 26(2/4), 360–375.
- Agyapong, V. O., Milnes, J., McLoughlin, D. M., & Farren, C. K. (2013). Perception of patients with alcohol use disorder and comorbid depression about the usefulness of supportive text messages. *Technology and Health Care: Official Journal of The European Society for Engineering and Medicine*, 21(1), 31–39.
- Australasia Pacific Play Therapy Association (APPTA). (2014). *Australasia Pacific Play Therapy Association's definition of play therapy*. Retrieved from www.appta.org.au/who-is-appta/.
- Balick, A. (2012). 'TMI in the transference LOL: Psychoanalytic reflections on Google, social networking, and 'virtual impingement''. *Psychoanalysis, Culture & Society*, 17(2), 120–136.
- Barak, A., Hen, L., Boniel-Nissim, M., & Shapira, N. (2008). A comprehensive review and a meta-analysis of the effectiveness of internet-based psychotherapeutic interventions. *Journal of Technology in Human Services*, 26(2/4), 109–160.
- Boodman, E. (2015, November 30). *Psychotherapy by emoji: Mental health community wrestles with texting*. Retrieved from www.statnews.com/2015/11/30/psychotherapy-texting-mental-health/.
- British Association of Play Therapists (BAPT). (2014). *Introduction to clinical supervision*. Retrieved from www.bapt.info/play-therapy/clinical-supervision/.
- Crystal, D. (2008). *Txtng. The Gr8 Db8*. Oxford: Oxford University Press.
- Cundy, L. (Ed.). (2014). *Love in the age of the internet: Attachment in the digital era*. Retrieved from www.ebookcentral.proquest.com.
- Danesi, Masel. (2017). *The semiotics of emoji: The rise of visual language in the age of the internet*. London: Bloomsbury Publishing Ltd.
- Davies Boran, Z. (2014, October 7). There are officially more mobile devices than people in the world. *The Independent*. Retrieved from www.independent.co.uk.
- Department for Health (2015). *Future in mind*. Retrieved from www.gov.uk/government/uploads/system/uploads/attachment_data/file/414024/Childrens_Mental_Health.pdf.
- Digiuseppe, R., Linscott, J., & Jilton, R. (1996). Developing the therapeutic alliance in child-adolescent psychotherapy. *Applied & Preventive Psychology*, 5, 85–100.
- Dowling, M., & Rickwood, D. (2014). Investigating individual online synchronous chat counselling processes and treatment outcomes for young people. *Advances in Mental Health*, 12(3), 216–224.
- Drum, K. B., & Littleton, H. L. (2014). Therapeutic boundaries in telepsychology: Unique issues and best practice recommendations. *Professional Psychology: Research and Practice*. Advance online publication. DOI: 10.1037/a0036127
- English Oxford Dictionary. (2018). Retrieved from www.en.oxforddictionaries.com/definition/orthography.

- Field, M. J. (1996). *Telemedicine: A guide to assessing telecommunications in health care*. Washington, D.C: National Academy Press.
- Fine, D. (2014). *Beyond texting: The fine art of face-to-face communication for teenagers*. Retrieved from www.ebookcentral.proquest.com
- Gallegos, D., Russell-Bennett, R., Previte, J., & Parkinson, J. (2014). Can a text message a week improve breastfeeding? Proof of concept. *BMC Pregnancy and Childbirth*, 14, p. 374.
- Gamble, N., Boyle, C., & Morris, Z. A. (2015). Ethical practice in telepsychology. *Australian Psychologist*, 50(4), 292–298.
- Gates, B. (1999). *Business @ the speed of thought*. New York, NY: Penguin, p. 131.
- Gibson, K., & Cartwright, C. (2014). Young people's experience of mobile phone text counselling: Balancing connection and control. *Children & Youth Review*, 43, 96–104.
- Goss, S., & Anthony, K. (2009). Developments in the use of technology in counselling and psychotherapy. *British Journal of Guidance & Counselling*, 37(3), 223–230.
- Haxell, A. J. (2014). On becoming textually active at Youthline, New Zealand. *British Journal of Guidance & Counselling*, DOI: 10.1080/03069885.2014.922163.
- Herbert, L. J, Mehta, P., Monaghan, M., Cogen, F., & Streisand, R. (2014). Feasibility of the SMART Project: A text message program for adolescents with type 1 diabetes. *Diabetes Spectrum*, 27(4), 265–269.
- International Society for Mental Health Online (ISMHO). (n.d.). Retrieved from www.ismho.org/.
- Istepanian, R. H., Laxminarayan, S., & Pattichis, C. S. (2006). *M-health: Emerging mobile health systems*. New York, NY: Springer.
- Kannisto, K. A., Koivunen, M. H., & Välimäki, M. A. (2014). Use of mobile phone text message reminders in health care services: A narrative literature review. *Journal of Medical Internet Research*, 16(10), 1438–8871.
- Kipling, R. (1923). *Words are, of course, the most powerful drug used by mankind*. Retrieved from www.truenorthquest.com/rudyard-kipling/.
- Levinson, P. (2004). *The story of the world's most mobile medium and how it has transformed everything!* New York, NY: Palgrave Macmillan.
- Lightning Review: Access to child and adolescent mental health services (CAMHS) (2016). Retrieved from www.childrenscommissioner.gov.uk/wp-content/uploads/2017/06/Childrens-Commissioners-Mental-Health-Lightning-Review.pdf.
- Ligier, F., Kabuth, B., & Guillemin, F. (2016). MEDIACONNEX: a multicenter randomised trial based on short message service to reduce suicide attempt recurrence in adolescents. *BMC Psychiatry*, 16, 251–257.
- Ling, R. S. (2004). *The mobile connection: the cell phone's impact on society*. San Francisco, CA: Morgan Kaufmann.
- Maeder, A., & Smith, A. C. (2010). *Global telehealth: Selected papers from Global Telehealth 2010 (GT2010): 15th International Conference of the International Society for Telemedicine and eHealth and 1st National Conference of the Australasian Telehealth Society*. Amsterdam: IOS Press.
- Mbuagbaw, L., Mursleen, S., Lytvyn, L., Smieja, M., Dolovich, L., & Thabane, L. (2015). Mobile phone text messaging interventions for HIV and other chronic diseases: An overview of systematic reviews and framework for evidence transfer. *BMC Health Services Research*, Sample.
- Otway, L. J., Carnelley, K. B., & Rowe, A. C. (2014). Texting “boosts” felt security. *Attachment & Human Development*, 16(1), 93–101.

- Phillips, J. H., Wigger, C., Beissbarth, J., McCallum, G. B., Leach, A., & Morris, P. S. (2014). Can mobile phone multimedia messages and text messages improve clinic attendance for Aboriginal children with chronic otitis media? A randomised controlled trial. *Journal of Paediatrics and Child Health*, 362–367.
- Renshaw, K., Parson, J., & Hurt, A. (2015). *RxTxT: Engaging adolescents with avoidant attachment behaviours by therapeutic texting*. Presented at the Australasia Pacific Play Therapy Conference: Towards the future. August 9–11. Melbourne, Australia.
- Rezabek, L. L., & Cochenour, J. J. (1998). Visual cues in computer-mediated communication: Supplementing text with emoticons. *Journal of Visual Literacy*, 18(2), 201–215.
- Santhiveeran, J. (2008). E-therapy: Scope, concerns, ethical standards, and feasibility, *Journal of Family Social Work*, 8(3), 37–54, DOI: 10.1300/J039v08n03_03.
- Schultz, J. (2017, October 10). *How much data is created on the internet each day?* [web log post]. Retrieved from www.blog.microfocus.com/how-much-data-is-created-on-the-internet-each-day/.
- The Emoji Movie*. (2017). [Motion Picture]. USA: Sony Pictures [Animation]
- Vocabulary.com (2018, April 23). *Orthographic*. Dictionary Definition. Retrieved from www.vocabulary.com.
- Wang, V. C. X. (Ed.). (2012). *Handbook of research on technologies for improving the 21st century workforce: Tools for lifelong learning*. Retrieved from www.ebookcentral.proquest.com.
- Youthline Changing lives (n.d.). *Therapeutic texting: Understanding text messaging as an e-therapy*. Prepared by Youthline for Counties Manukau District Health Board. Retrieved from www.youthline.co.nz/assets/Uploads/PDFs/Understanding-text-messaging-as-an-e-therapy.pdf.

VR Has It

A Framework for Virtual Reality Integration into Therapy

Richard Lamb and Elisabeth Etopio

Virtual reality (VR) is an important tool to engage in therapy with both children and adults. Practitioners working in a variety of contexts – to include those professionals working with populations with special needs – often make use of multiple activities to advance therapeutic sessions. Despite the wide availability of augmented reality, virtual reality, and the near ubiquitous use of these technologies in multiple fields, there is little adoption of these technologies in the areas of mental health therapeutic services. As with any game, virtual reality provides a means to develop interactions with others, promote questions for discussion, allow opportunities for problem solving, and allow the exploration of abstract emotional concepts such as trust, impulsiveness, and anxiety. Recently, the application of virtual reality (VR) has received considerable attention in terms of research and popular press in such areas as cognitive retraining (Weiss, Rand, Katz, & Kizony, 2004), exposure therapy (Rizzo & Koenig, 2017), socioemotional wellbeing (Rizzo et al., 2017), mindfulness (Maples-Keller, Bunnell, Kim, & Rothbaum, 2017), and other areas of therapy and education. Virtual reality used in therapeutic contexts and designed with therapeutic approaches in mind is defined as therapeutic virtual reality (tVR).

Introduction to Virtual Reality (VR)

Virtual reality (VR) is defined as: the use of an integrated system of three-dimensional graphics, auditory elements (such as spatial audio), and combinations of various interactive interfaces to provide the effect of

immersion in a 360-degree environment (Ihemedu-Steinke, Erbach, Halady, Meixner, & Weber, 2017; Lamb et al., 2018). There are two forms of immersion that need consideration: mental immersion and sensory immersion. Mental and sensory immersion, in conjunction with fluidity and authenticity of environments, form the basis for successful therapeutic approaches (Morina, Ijntema, Meyerbröcker, & Emmelkamp, 2015). Mental and sensory immersion are critical in creating a therapeutic experience within tVR because of the synchronization of movement and response. When tVR is used appropriately, in interventions and treatment plans, users interpret visual, auditory, and haptic (tactile) cues as they gather information in the simulated environments (Lamb et al., 2018; Lamb, 2016).

Conversely, mental/emotional immersion refers to the “state of being deeply engaged” within a VR environment (Calleja, 2014, p. 12). In tVR environments, the development of treatments is related to achievement of mental immersion or how involved the user becomes within the therapeutic environment and attends to skills and strategies the environment is designed to teach (Griffiths, Kuss, & Ortiz de Gortari, 2017). VR affords users the ability to interact with the environment in ways that reinforce both mental and sensory immersion and provides greater efficacy to treatment plans (Venture, Banos, & Botella, 2018). As participants move within VR environments, they expect visual, auditory, and haptic feedback and interactions to be readily interpretable and predictable based on these inputs (Maurice, Hogan, & Sternad, 2018). These responses and the ability to take logical actions are identified as degrees of freedom. This is particularly important in the context of VR based therapies as it leads to greater interactivity and realism. VR, as we are discussing, is not a three-dimensional model on a flat computer screen and/or use of 3-D glasses. Such environments are limiting as full immersion is interrupted as soon as the user looks away. Further, the flat, three-dimensional computer screen-based systems makes it difficult to use basic tools such as proximity during interaction since participants are unable to “walk” into the screen. True three-dimensional VR mitigates these limitations as participants can move in all directions. As a result of integrating this freedom and spatial audio, both mental and sensory immersion are promoted.

While there are many benefits associated with tVR, there are some potential drawbacks, including VR motion sickness or *Simulation Sickness*. Dizziness and/or disorientation are reasons frequently cited for not using tVR. Simulation sickness occurs when there is a disconnect between a person’s movement in the virtual environment and the person’s perceived motion in real life (i.e. a mismatch between visual and vestibular systems). Essentially, the brain believes it is moving and the body signals it is not. A person experiencing simulation sickness may experience symptoms comprising of general

discomfort, headache, nausea, vomiting, sweating, fatigue, disorientation, or other dysphoric events reducing the immersion and user enjoyment (Ferrer-Garcia, & Gutierrez-Maldonado, 2012; Lamb et al., 2018.). Dysphoric events may distract from the work occurring with the practitioner and inhibit the therapeutic process. While some users may experience simulation sickness and its associated symptoms, there are practical steps to minimize this concern. Reduction or prevention of simulation sickness, other health related problems, or injury may be achieved through the following recommendations:

- Clear a sufficiently large area and setup the VR system in accordance with manufacture recommendations. Demonstrate the boundaries to the user.
- Rule out pre-existing conditions such as involuntary muscle twitching, blackouts, loss of balance, epilepsy, seizures, etc. Consult a medical provider prior to use if conditions exist.
- Familiarize the participant to the VR equipment prior to use.
- Stop use of the headset when there are performance problems (i.e. frame rate, reductions, or skipping).
- Use the headset sitting if possible.
- Avoid using the headset if users are ill.
- Ensure the headset fits correctly and adjust display settings for participants' eyes and vision.
- Use gradual acclimation and increase headset usage slowly (Table 7.1).
- Rest between sessions or whenever participants feel the need to do so.
- Monitor for symptoms 30-minutes to 1-hour after completion of tVR.
- Always provide supervision when a person is in tVR. If comfortable, the operator (the person outside of the headset) should be within about 1.5 arm lengths of participant.

Table 7.1 provides an overview of suggested rest and usage times for tVR along with daily maximum usage time. If maximum usage times are reached, participants should not use tVR headsets or similar devices for 24-hours. For example, the maximum time a 9-year-old is recommended to use the headset is 25-minutes with a 60-minute rest and then not engage with tVR or other such devices for 24-hours. Rest in this context is complete removal of the headset from the person's head and face, and change to a non-tVR based activity. Upon session completion, the practitioner should remove the headset and debrief the user to ensure they are well. Questions could include, "does your head feel bad?", "how does your stomach feel?", or "are you tired?". If the person does not suggest any problems, "rest" can consist of low demand activities as tolerated without the tVR headset (i.e. Mindfulness



Table 7.1 Recommended time for VR use and rest during tVR sessions

Age (Yrs.) / Time (Min.) of Rest	5	15	25	35	45	50	55	60
3*								
4–6	15	45**						
7–10	15	45	60**					
11–14	10	30	45	50**				
15–17	10	30	45	50	60**			
Adult	10	30	45	50	55	60**		

Note: Timing may be adjusted downward based upon individual tolerance. First time VR users should be introduced slowly and rest times increased until the user is able to tolerate the suggested times. Rest is the complete removal of the headset from the person’s head and face, and change to a non-tVR based activity. All times are based upon the University at Buffalo Neurocognition Science Laboratory usage guidelines and protocols. This table and recommendations may be distributed with the proper citation: Lamb, R. (2018). Recommended virtual reality use times and safety recommendations, *University at Buffalo Neurocognition Science Laboratory Safety Protocol 1,1–2*.

*Shaded Cell = Not recommended

**Denotes maximum time for age group

Based Cognitive Therapy). If responses by the participant do indicate there is a problem, i.e. nausea or headache, the practitioner should monitor every 10 or 15 minutes with questions such as “does your head feel any better?” As the practitioner is monitoring, non-tVR activity such as talk therapy may continue as the participant is willing and able. If symptoms of Simulation Sickness persist beyond the session, the person may take motion sickness pills according to package directions. Should symptoms not resolve in 24-hours, the person should contact their health care provider.

The ability within tVR to interact with the environment helps to reinforce mental immersion and provides greater efficacy (Medalia, Herlands, Saperstein, & Revheim, 2017). When mental immersion is achieved, the autonomic nervous system responsible for responses to stress, such as heart rate, blood pressure, and breathing, respond in much the same way they do when engaging the real-world environment (Lamb et al., 2018).

A second important feature of tVR that separates it from other therapeutic technologies is the real-time interactivity in stereoscopic 3D environment. Specifically, a tVR system is responsive to gestures and user inputs with relatively little lag in environmental changes resulting in more authentic and real world-like immersion. Interactivity, control, and tVR’s ability to respond promotes the sensation of immersion by responding to user intentions with actions on the screen. This allows users not only to visually interact with objects but to manipulate graphic objects on the screen; i.e. they touch and feel the objects using, auditory, and haptic inputs (Jafari, Adams, & Tavakoli, 2016). Accordingly, individuals using VR feel and interact with objects and their senses are fully engaged in the VR experiences to a degree where they “forget” they are in a virtual world. The benefit to this is that participants can work through exposure and therapeutic skills in a soft failure environment (an environment that feels real, yet holds no consequence if they are not at first successful). As confidence and mastery are gained, skills can be transferred into real life settings.

VR technologies have intrinsic properties that activate cognitive and affective systems that help to engage in meaningful learning, discussion, and problem solving (Lamb et al., 2017). In follow-up discussions, VR participants cite realism as a key factor in their immersion and engagement with the environment. Neuroimaging and psychophysiological studies of participants also confirm the perceived realism (Lamb et al., 2018), suggesting that the realism and interactivity found in VR environments triggers similar responses from people in VR as in the real world (Lamb & Firestone, 2017). VR technology is well suited to convey difficult abstract concepts due to its visualization, fluidity, interactivity, and immersion. The suitability of VR to convey difficult concepts arise from the ability of user to fully control how and what they see

in terms of content, scale of representation, and amount of time they experience the content.

The perceived immersion of tVR allows practitioners to address therapeutic goals via the immersive experiences afforded by VR. Most recent tVR work uses three-dimensional video from the real world in ultrahigh resolution, creating ultra-realistic content. Infusion of digital content and information into virtual environments enhances the experience, making it nearly indistinguishable from reality and more likely that users of tVR transfer skills learned in tVR to the real world. For example, a fully scaled environment in tVR, such as a forest with trees or rocks that are photo quality, allows the user to walk around, see the size of the trees, touch animals and plants, and experience the responses. Such experiences allow people to engage in activities such as social scripting, environmental control, and exploration in safe, low-risk environments. Thus, tVR technology engages children and adults in an immersive context through authentic experiences while still providing a large degree of environmental control by the practitioner and user.

The portability of the tVR device is an additional aspect of VR that holds promise. Some tVR environments may be downloaded via services such as Docola or iTunes to smartphones. The use of these tools allows the practitioner to “prescribe” scenarios for home use, within a safe and secure environment. During their use, smartphones are capable of collecting data related to eye gaze, physiological responses, content responses, and utterances. Data collection permits identification of participant responses and visualization of underlying cognition allowing for further goal development. Therefore, it may be prudent to suggest that practitioners understand the potential tVR technology in gathering data informing therapeutic goals and plans.

tVR is thought to have considerable potential for therapeutic applications, especially due to its effectiveness related to (a) cognitive retraining (Bashiri, Ghazisaeedi, & Shahmoradi, 2017), (b) feedback (Laver, George, Thomas, Deutsch, & Crotty, 2015), (c) interest (North, 2016), (d) emotional regulation (Rodriguez, Rey, Clemente, Wrzesien, & Alcaniz, 2015), (e) self-regulation, and (f) mindfulness.

Historical Development of tVR

As technology integration in therapeutic settings has increased, more attention has been placed on tVR modes that can supply greater realism, fluidity, and immersion with extensive environmental control. The increased realism and functionality associated with tVR situates tVR as an up-and-coming tool for use in therapeutic sessions. Historically, tVR arises out of the tradition of

Serious Educational Games. Serious Educational Games (SEGs) are games in which players engage in a series of complex interactions, based on a priori learning approaches. SEGs ultimately morphed into tVR.

With tVR's rapid growth and application, it becomes important to characterize aspects of tVR that provide affordances or barriers to therapy, including the use of neuroimaging and neurofeedback to assist in triangulation of underlying therapeutic outcomes. As a person engages in various tVR scenarios, neuroimaging and neurofeedback may be used to generate environmental responses through incorporation of artificial intelligences (AI), customizing the scenarios for the patient over time. Changes in the scenario can be tracked by practitioners and incorporated into therapeutic approaches. For example, a person engaging in immersion therapy may have scenario "ramp-up" stimuli as they adapt to the previous stimuli. Continuous measurement of hemodynamic response (neuroimaging) and alpha wave re-regulation (neurofeedback) allows the AI to determine when conditions are met, classify the participant as ready for additional stimuli, and accordingly adjust intensity of the scenario.

The use of tVR provides additional opportunity for practitioners to observe a person's abilities to engage in prospective decision making, recall specific details, make use of cueing and knowledge, engage in socially acceptable control, and release aggression. Within a tVR "game" scenario, a user is faced with a chain of decisions and must judge the anticipated outcomes and future actions. Many VR Role Playing Games (RPG) routinely take advantage of this idea. As a player in the RPG progresses they are faced with choices they must analyze their choices and take action. These choices are often "permanent" and impact how the game will end, providing consequence to action. Similarly, in tVR scenarios the practitioner can guide the participant to explore options and discuss and analyze outcomes in safe environments.

The key goal within therapeutic research is to develop strategies, approaches, and modes of thinking that facilitate a deeper understanding with learning, especially as related to a person's wellbeing. Recently, researchers have argued that it is necessary to focus less on hands-on activities and more on creating environments where participants can practice a combination of new and existing skills to analyze their actions, construct understanding, and apply knowledge (Berland & Duncan, 2016). Thus, creating environments sets the conditions for individuals to practice strategies and skills that facilitate growth and learning. Processing of information occurs in these authentic contexts because scenarios may be iterated through repeated exposure. Since participants can go through the scenario as often as they would like, with discussion in between, practitioners can guide the participant to analytically think and learn from situations in a novel way (Murphy,

Rowe, Ramani, & Silverman, 2014). This places the tVR firmly in the role of a therapeutic learning tool.

Some practitioners, in conjunction with researchers, have created their own tVR environments. Parsons and Mitchell (2002) studied the impact of tVR to assist in creating social stories for children with Autism Spectrum Disorder. At the University at Buffalo, students and scholars are designing a tVR authoring and analytics platform where practitioners can create their own therapeutic environments and analyze best practices that align with standards of care. Although the platform is usable in other domains, such as school psychology and school counseling, tVR is most often examined in the context of mental health practice. tVR is not entirely a new idea but rather a recycling of earlier attempts to integrate video games into therapy and practice during the early millennia. Games allow practitioners to accomplish goals which may not be accomplished through other approaches.

Annetta (2008) advocated that participants should experience environments and not be passive recipients of ready-made activities. Researchers contend that knowledge is “not information but a mode of intelligent practice and habitual ‘disposition of mind’” (Linn, Bell, & Davis, 2004, p. 124). Modifying Linn’s (2004) proposed four meta-principles to support knowledge integration in information and communications technology produces the following important suggestions:

- make the environment and goals accessible;
- make thinking visible;
- help participants to learn from others and themselves;
- promote autonomy.

If we take into account Lamb’s and Linn’s work, we can see how learning through both creation of, rather than just interacting with VR, might have the greatest potential for software applications in therapy.

At this point it is important to distinguish between some similar types of environments: serious games, simulations, and tVR environments. While there is overlap between each, there are some important differences. In short, *serious games* are flat screen electronic/computer-based games that are not designed for commercial purposes but rather for teaching specific skills. For example, the military and medical professions have been the leader in serious games using specific scenarios that could not be replicated completely in trainings in the physical world. tVR environments juxtapose serious games by targeting not just skill development but content knowledge. tVR allows practitioners and participants to connect real-world scenarios with therapeutic content, helping to answer the question, “Why do I have to do this?”

tVR environments are customarily three-dimensional environments used for social interactions, greater complexity of interaction, and more authentic replication of universal phenomena than are games or simulations focused on specific skills or content. Common examples of tVR can be found in modified games, such as *Face Your Fears*, using headsets like the Vive and Oculus Rift. Brief and controlled exposure to anxiety producing stimuli in tVR (i.e. fear of heights) may accompany a therapeutic desensitization plan. While these examples exist as entertainment, through proper planning, development, and supporting educational materials, therapy and services, practitioners may use entertainment-based VR for therapeutic purposes.

In short, VR technology is well suited to convey difficult abstract concepts, practice skills, and interact in complex environments due to the visualization, fluidity, interactivity, and immersion of the environment (Psotka, 2013; Lamb, 2018). As researchers design an environment for the delivery of complex concepts, it is necessary to ensure the presence of these three features of interaction, immersion, and authenticity in the therapeutic environment. Weighting one over the other necessitates shifts in therapeutic design and consideration in much the same way one designs Serious Educational Games (Annetta, 2010).

To be clear, tVR technology is not a panacea; the technologies are simply a therapeutic tool. What is different about tVR from traditional therapies is the infusion of technology to create environments, and arguably more importantly, to assess therapeutic outcomes. By integrating artificial intelligences in the tVR, these systems, the AI would allow the tVR to become adaptive to a wider spectrum of therapeutic needs.

The addition of the artificial intelligence (AI) will promote greater cognitive action. Video games which have relatively unsophisticated AI exploit both verbal and visual information which are processed by different cognitive systems. Factors such as memory, skill acquisition, and reasoning ability affect a participant's capacity to incorporate new knowledge into existing prior understandings (Beier & Ackerman, 2005). Incorrect understandings, strategies, and mechanisms need to be confronted in an appropriate manner to help participants develop deeper knowledge and promote automaticity of response. Meta-cognitively guided reflection, construction of conceptual representations through experimentation, graphical representations, argumentation coupled with reasoning, and idealized representations are effective methods that should be incorporated into therapeutic progressions in tVR.

Finally, tVRs have the potential to be a new standardized way to assess therapeutic responses from participants for understanding by practitioners. Fully digital tVR environments are able to be standardized in much the same way medical schools make use of standardized patients for learning and

development purposes. The standardization of the environments allows practitioners to have sustained controlled scenarios to assess participant outcomes not based upon self-report. On average, self-report has been unsuccessful in ascertaining participant understandings of their own activities and perceptions, and is suspect based upon norm-referenced testing (Antonenko, 2017). Either through play or construction of tVRs, therapeutic outcomes may be assessed in a performance-based manner based upon tVR environments. In therapy, we often ask our participants to construct scenarios to see how well they understand the mechanism by which their concerns exists. As the participants engaging in therapeutic environments shift from pre-millennial to post-millennial, the lack of familiar technologies and connection to prior experiences using technologies in therapeutic approaches may make current approaches less interesting and effective. To put this in perspective, many of the therapeutic methods currently used were developed well before the millennia and without consideration of future available technologies. Probing technology's role in therapy may drive new research directions. Designing platforms seems to be the next logical step to develop assessments that measure what participants really understand about given situations. Moreover, as telemedicine develops, different scenarios will not necessarily require a practitioner to participate in all aspects of the training and may allow work at a distance. Given the difficulty participants sometimes have in generalizing, acquiring skills, and applying them from one setting to another, the soft-failure environment of tVR allows participants to engage with repeated practice of skills and strategies. VR has the potential to be a powerful tool to treat multiple conditions with the flexibility needed by practitioners. tVR has tremendous potential to act as a multimodal approach in therapeutic settings. For example, tVR allows for increased participant agency, assessment, and even education through its self-guided, engaging nature. Factors such as immersion, fluidity, and authenticity place tVR in a unique place as a tool for therapy and participant development. Examples of some of the affordances are best examined in case studies.

Case Example Using VR

Robert is a 9-year-old male child referred for ADHD and a high aversion to failure due to his experiences in school. This has influenced his every day functioning in school and at home. Robert is often distracted and unable to complete assignments, has difficulty with details, and often unable to complete home chores due to being easily sidetracked. Initial diagnostic visits provided evidence of intact perceptual awareness but with impulsivity control

difficulty and the ability to understand conceptual ideas when presented. Thus, he is able to engage in slow serial processing of information with high flexibility. In this case, Robert's parent has often provided rigid prescribed scheduling and little opportunity for self-direction. Robert did not illustrate other clinically significant concerns. Many of Robert's sessions were spent immersed in simulations where time-management skills, enhanced attention using cognitive training tasks, and social skill development in conjunction with neurofeedback were promoted. Robert was initially "trained" in the use of the VR controls using a tutorial contained within the VR program. When initially signing into the tVR environment, Robert was greeted by a small robot character who taught him how to use the tVR equipment, including skills such as how to grasp objects, interact with the environment, and how to walk and move.

The system allowed full ambulatory movement with visual cues demarcating the boundaries. Robert could walk around with the headset on within a confined five-foot by five-foot space. When Robert reached the boundary, a blue grid would appear indicating he should not walk any further. This encouraged more natural movement and interaction in the environment. During initial immersive experiences, Robert exhibited aggressive exploratory behaviors and explored several areas with little "concern" for wellbeing within the environment. Behaviors included "running" after fish, swinging his controller and hitting jellyfish, poking, other sea life, and trying to "jump" off a larger underwater escarpment. While in tVR, Robert was allowed to approach exploration with a sense of aggressiveness and lack of concern for mistakes. After Robert completed his time in the tVR session then he and the practitioner discussed how activities such as attacking the fish, attempting to jump down the escarpment, and "jumping" between activities may lead to less enjoyment of the virtual world. Robert stated he was doing this in an attempt to try new things he saw within the environment such as jellyfish and other sea life that appeared in the scenario. Post tVR discussions between Robert and the practitioner often focused on how Robert felt in an environment when the new appearances disrupted initial planning of how he would explore the environment. Within these environments, Robert must continually reason (how his movements impacted others), plan (figure out where and how he would get to difficult areas of the environment), and engage with unknown distractors and multiple opportunities in the VR world (such as new animals appearing). After several sessions, Robert came to understand the environment by being able to anticipate outcomes as he worked through activities in the environment, generalized the thoughts of how one might feel when he took actions such as damaging the coral, and attempted to control impulsive desires. Robert also began to consider how others throughout the world may respond to his activities. Overtime during his work in tVR, and

with help from the practitioner, Robert began to consider the wider community outside of tVR. This consideration was illustrated by his transference of his realizations to strategies in the real world such as how to “resist” the impulse to continuously explore new items and things in the environment.

The practitioners who worked with Robert in the tVR environment were not only able to work with Robert using traditional therapeutic approaches such as cognitive behavioral therapy but were also able to observe Robert’s actions in tVR, and access the responses he gave in the interactions. All of this data was collected by the practitioner from the VR’s database providing a richer narrative and means by which to understand Robert. Results and responses from Robert in tVR may be examined using data visualizations to inform therapeutic sessions. More importantly, settings within the tVR allowed the practitioner to adjust the therapeutic scaffolds and develop activities to align with objectives. tVR, as a tool for treating ADHD and other sensory based difficulties, provides promise for skill development such as practices associated with increased attention which can be applied in novel situations, not just the tVR environment. One additional advantage of tVR is that participants can be exposed to dozens of virtual environments with differing levels of attentional demands.

The roles and opportunities for practitioners to make use of the tVR and assist participants in the development of positive and productive behaviors in the 21st century will continue to grow with the development of new technologies. Innovations will continue to provide means for practitioners to develop new therapies and strategies both for use under their direct supervision and as an additional means for home practice. tVR is one innovation with potential to reshape how therapy is conducted.

References

- Annetta, L. A. (2008). Video games in education: Why they should be used and how they are being used. *Theory into Practice*, 47(3), 229–239.
- Annetta, L. A. (2010). The “I’s” have it: A framework for serious educational game design. *Review of General Psychology*, 14(2), 105.
- Antonenko, P. D., & Keil, A. (2017). Assessing working memory dynamics with electroencephalography. In R. Zheng, (Ed.), *Cognitive load measurement and application: A theoretical framework for meaningful research and practice*. New York, NY: Routledge.
- Bashiri, A., Ghazisaeedi, M., & Shahmoradi, L. (2017). The opportunities of virtual reality in the rehabilitation of children with attention deficit hyperactivity disorder: a literature review. *Korean Journal of Pediatrics*, 60(11), 337–343.
- Beier, M. E., & Ackerman, P. L. (2005). Age, ability, and the role of prior knowledge on the acquisition of new domain knowledge: Promising results in a real-world learning environment. *Psychology and Aging*, 20(2), 341.

- Berland, M., & Duncan, S. (2016). Computational thinking in the wild: Uncovering complex collaborative thinking through gameplay. *Educational Technology*, 29–35.
- Calleja, G. (2014). Immersion in virtual worlds. *The Oxford Handbook of Virtuality* (pp. 222–236). New York: Oxford University Press.
- Dede, C. (2009). Immersive interfaces for engagement and learning. *Science*, 323(5910), 66–69.
- Gee, J. P. (2003). What video games have to teach us about learning and literacy. *Computers in Entertainment (CIE)*, 1(1), 20–20.
- Griffiths, M. D., Kuss, D. J., & Ortiz de Gortari, A. B. (2017). Videogames as therapy: An updated selective review of the medical and psychological literature. *International Journal of Privacy and Health Information Management*, 5(2), 71–96.
- Ihemedu-Steinke, Q. C., Erbach, R., Halady, P., Meixner, G., & Weber, M. (2017). Virtual reality driving simulator based on head-mounted displays. In *Automotive User Interfaces* (pp. 401–428). Springer.
- Jafari, N., Adams, K. D., & Tavakoli, M. (2016). Haptics to improve task performance in people with disabilities: A review of previous studies and a guide to future research with children with disabilities. *Journal of Rehabilitation and Assistive Technologies Engineering*, 3. doi.org/10.1177/2055668316668147.
- Lamb, R. L. (2016). Examination of the effects of dimensionality on cognitive processing in science: A computational modeling experiment comparing online laboratory simulations and serious educational games. *Journal of Science Education and Technology*, 25(1), 1–15.
- Lamb, R. L., Annetta, L., Firestone, J., & Etopio, E. (2018). A meta-analysis with examination of moderators of student cognition, affect, and learning outcomes while using serious educational games, serious games, and simulations. *Computers in Human Behavior*, 80, 158–167.
- Lamb, R., Annetta, L., Hoston, D., Shapiro, M., & Matthews, B. (2018). Examining human behavior in video games: The development of a computational model to measure aggression. *Social Neuroscience*, 13(3), 301–317.
- Lamb, R., Antonenko, P., Etopio, E., & Seccia, A. (2018). Comparison of virtual reality and hands on activities in science education via functional near infrared spectroscopy. *Computers & Education*, 124, 14–26.
- Lamb, R. L., & Firestone, J. B. (2017). The application of multiobjective evolutionary algorithms to an educational computational model of science information processing: a computational experiment in science education. *International Journal of Science and Mathematics Education*, 15(3), 473–486.
- Laver, K., George, S., Thomas, S., Deutsch, J. E., & Crotty, M. (2015). Virtual reality for stroke rehabilitation: An abridged version of a Cochrane review. *European Journal of Physical and Rehabilitation Medicine*, 51(4), 497–506.
- Linn, M. C., Bell, P., & Davis, E. A. (2004). Specific design principles: Elaborating the scaffolded knowledge integration framework. *Internet Environments for Science Education*, 315–340.
- Maples-Keller, J. L., Bunnell, B. E., Kim, S. J., & Rothbaum, B. O. (2017). The use of virtual reality technology in the treatment of anxiety and other psychiatric disorders. *Harvard Review of Psychiatry*, 25(3), 103–113.
- Maurice, P., Hogan, N., & Sternad, D. (2018). Predictability, force and (anti-) resonance in complex object control. *Journal of Neurophysiology* 120, 765–780.
- Medalia, A., Herlands, T., Saperstein, A., & Revheim, N. (2017). *Cognitive remediation for psychological disorders: Therapist guide*. New York, NY: Oxford University Press.

- Morina, N., Ijntema, H., Meyerbröcker, K., & Emmelkamp, P. M. (2015). Can virtual reality exposure therapy gains be generalized to real-life? A meta-analysis of studies applying behavioral assessments. *Behaviour Research and Therapy*, 74, 18–24.
- Murphy, P. K., Rowe, M. L., Ramani, G., & Silverman, R. (2014). Promoting critical-analytic thinking in children and adolescents at home and in school. *Educational Psychology Review*, 26(4), 561–578.
- North, S. M. (2016). Effectiveness of virtual reality in the motivational processes of learners. *International Journal of Virtual Reality (IJVR)*, 2(1), 21–33.
- Paivio, A., & Representations, A. M. (1986). *A dual coding approach*. New York, NY: Oxford University Press.
- Parsons, S., & Mitchell, P. (2002). The potential of virtual reality in social skills training for people with autistic spectrum disorders. *Journal of Intellectual Disability Research*, 46(5), 430–443.
- Reitan, R. M., Hom, J., & Wolfson, D. (1988). Verbal processing by the brain. *Journal of Clinical and Experimental Neuropsychology*, 10(4), 400–408.
- Rizzo, A., & Koenig, S. T. (2017). Is clinical virtual reality ready for primetime?. *Neuropsychology*, 31(8), 877.
- Rizzo, A., Roy, M. J., Hartholt, A., Costanzo, M., Highland, K. B., Jovanovic, T., & Difede, J. (2017). Virtual reality applications for the assessment and treatment of PTSD. In *Handbook of Military Psychology* (pp. 453–471). Springer.
- Weiss, P. L., Rand, D., Katz, N., & Kizony, R. (2004). Video capture virtual reality as a flexible and effective rehabilitation tool. *Journal of Neuroengineering and Rehabilitation*, 1(1), 12.

I Am My Avatar and My Avatar Is Me

8

Utilizing Video Games as Therapeutic Tools

Anthony M. Bean

Millions of people play video games on and offline in today's society (Duggan, 2015). One of the many primary interests in video games, from either a popular news or academic perspective, has been in the addictive potential of video games. The possibility that participation in video games might have individual therapeutic probability has been largely ignored (Charlton, 2002; Bean, 2015; 2019). This undoubtedly leads any therapist working with video gamers to adopt an addiction perspective which further guides treatment into a reduction or complete termination of all video games due to the perceived addiction or overuse of video games. However, frequently, this does not allow for the video game itself to be a useful tool in treatment. The possibility, albeit unlikely, that 97% of today's youth are assumed to be addicted to video games, is a potential assumption which warrants further consideration of the use of video games as a therapeutic technique (Lenhart et al., 2008).

Video Games

Video games themselves are rich virtual worlds which require a keen eye and understanding for the immersive content. The player utilizes an interface to interact with the virtual world and control their avatar or online digital persona. Through this, the player completes quests which gives experience and knowledge of the game to the player to use later. By accomplishing these tasks, the player is allowed further access to storyline, levels, equipment, and characters.

Table 8.1 Video gamer play styles with descriptions, adapted from Bean (2018)

<i>Method of Avatar Play</i>	<i>Description of play style</i>
Player Versus Environment (PvE)	Players interact with Artificial Intelligence (AI), Non-Player Characters (NPCs) and/or human companions in order to start or complete a quest or storyline scenario
Player Versus Player (PvP)	It is an interactive multiplayer interface, focusing on battles and conflict in the video game between two or more live participants
Role-Playing (RP)	The video gamers become their avatars while playing in the virtual world and assume the character's role while playing. It is similar to how an actor plays a part in a play or movie, the video gamer develops the character and acts out the character's role.

Character development is critical to gameplay, and an attribute which necessitates a conversation based upon the accomplishment and characteristics one creates, plays as, and focuses upon throughout their journey. Talents, or an individual's personal abilities to play through the game, are additionally of extreme importance in order to obtain goals, objectives, and unlock other new and exciting areas. Some players utilize talents like magic while others use ranged weapons, while even others throw themselves into the heat of combat with a sword and shield. While there are many different ways to play video games (PvE, PvP, and RP; see Bean, 2018 and Table 8.1), each interactive interface allows the player to experience and guide themselves to a new developmental plane alone or with others.

Communication differs across the varying genres, but overall knowledge of the different manners of video game storylines is just as crucial as analyzing the types of communication contextual clues which arise. In essence, there are seven major categories of video game genres, each holding a different gameplay style: *action*, *adventure*, *action-adventure*, *role-playing*, *simulation*, *strategy*, and *other*.

Online communication is a part of the process and one which is of concern to many individuals who do not believe the style of communiqué is analogous to face-to face communication. On some level, they are correct, it is not the same but that is due to the interactive nature of a medium device helping to supply the communication. This does not mean it lacks existence but that

Table 8.2 Primary play genres with descriptions, adapted from Bean (2018; For a more nuanced look at these categories, see Apperley, 2006; Bean, 2018; McAllister, 2013; Wolf, 2002)

Genre	Type of play
Action	Challenge the player in tests of skill
Adventure	Games focus on the exploration of a world
Action/adventure	Focus on exploration and tests of skill
Role-playing	Intensive interactive experience of the virtual world, character composition and customization, storyline, and group and solo playability
Simulation	Games attempts to replicate real life scenarios in virtual context
Strategy	Focuses on careful, methodical and cunning playing
Other	Holds all other games which do not fall into these categories

it has changed and been transformed into a new form of interaction to which one has “real” friends and collaborates on goals and tasks together. While different, yes, it still holds the same characteristics of other styles of communication which have been in existence for a period of time (i.e. mailing letters, talking on the telephone, playing games outside, etc.).

As therapists are presumed to be experts in communication, it makes sense to utilize the language of the video game world to communicate and understand where the client may be presently situated. Utilizing this immersive experience opens the door for a more collaborative therapy, increasing communication about video games, playing, and extrapolating players’ experiences into real life contexts.

Video Game Addiction

The newest *Diagnostic and Statistical Manual*, 5th Edition (DSM-5) has listed this newfound problem as a phenomenon called “Internet Gaming Disorder” (IGD) requiring further clinical research before inclusion in future manuals (American Psychiatric Association, 2013).

However, the World Health Organization (WHO) has deleteriously created a diagnosis of “Gaming Disorder” citing “political pressures” of the creation of

the diagnosis although “accumulated evidence reflected in the literature” was “indeed, not without controversies” and that “[I]ndeed there is no consensus among scholars on all aspects of “gaming” or “internet use” disorders” (personal communications occurring with Dr. Vladimir Poznyak and Dr. Geoffrey Reed; August-September 2016). By utilization of diagnostic criterion based upon unconfirmed, nonconsensual, and poor research methodologies, researchers and clinicians only confirm what has been iterated as a diagnosis rather than understanding the culture, video gamers, and the games themselves, creating a disadvantage for prime therapeutic interventions.

Immersion

Immersion is a key factor in working therapeutically with a video gamer population. It is about being immensely and intensely present with an activity, yet engaged wholly encompassing all of one’s attention. Immersion is similar to Csíkszentmihályi’s (2009) state of flow but in reality provides a step farther suggesting flow may be more of a stepping stone but immersion is beyond the concept as Bean (2018) writes:

[A]s immersion is important, one must have a schema in which to build on and become immersed. This is where Flow can be of service. A state of flow is considered a basic schema to which one learns new cognitions and repeated encounters. As video gamers create and build the basic schemas for different video games and genres, they utilize the concept of Flow to create and absorb the building blocks of the occurrence. However, once the schema has been created, Flow is no longer needed to create the satisfaction and immersion takes over.

(p. 155)

Inherently, this means that the video gamer has become captivated into the game, narrative, visual pictures, and actions being taken in the game itself. The video gamer is not just playing the game any longer, they are living it through projecting upon their character different aspects of themselves as well.

Psychological Projection

Conceptually, projection refers to a phenomenon of an individual taking a part of their self and thrusting it upon an external object or person. Usually this occurrence is completed unconsciously and the individual is not aware of

it – similar to most video game players. The concept is derived from Freud and Jung (1916/1960) and suggests that everyone projects outward onto one's surroundings in all aspects of life. While this may be seen as a beneficial action, it additionally can have destructive consequences as well. When one projects into their surroundings, they additionally meet other psychic projections from others which collide with one another. If one is not aware of the projections and cannot reclaim them, then they can lead to difficult interpersonal problems which require support and can cause significant disruption.

However, while one is playing a video game, one is constantly projecting onto their character. The player takes on their avatar's characteristics just as the avatar takes on their players. It helps individuals create a specific narrative for the character which may represent internal manifestations of our own personality. These instances of the video gamer finding meaning are extremely rich and important to the video gamer and their thoughts and behaviors. As the video gamer concludes battles, quests, and storyline, the character – and player – grow stronger and the opportunity of taking back that newfound strength survives when the immersion concludes and the projection is reclaimed. This means that playing video games can provide the player with growth opportunities which may not otherwise be found in society and offer that important development we all seek in ourselves.

Clinical Case Study

The present Clinical Case Study describes a case study of “Greg,” a Caucasian 10-year-old boy who came into the office in a constant state of mistrust of his current surroundings, including his family. He had been previously diagnosed with posttraumatic stress disorder by a prior therapist and was found to be using video games as a coping mechanism. When he witnessed physical altercations at school, he immediately became anxious and worried.

Greg's step-mother and father expressed their concerns about his exhibition of aggressive tendencies, difficulties with attention, anxiety and depression at home and school, and his parents felt as if he was breaking apart from the family. Greg was socially isolating himself and withdrawing from his parents at home.

As a result of his past, Greg became curious and immersed with the video game worlds, specifically *Garry's Mod* and the *Borderlands* trilogy. He would play them or discuss them as he got home from school, when he had any additional free time, or with his friends. His father would play video games with him to build closeness in their relationship, help Greg understand the world and consequences, and also to monitor the games being played. Greg's

parents expressed a worry about the video game worlds he chose to play in but were unsure about the consequences.

A great amount of rapport had to be built quickly with him as he lost the relationship with this previous therapist and was mistrustful at first. This quickly dissipated once Greg found out his therapist knew substantial information about the video game world and the games he played. He reported feeling more comfortable working with a therapist who understood his world and “did not look down” on him for playing these video games as his previous therapist had done. At the end of the first session, the therapist suggested Greg continue to play video games with his parents to help his parents with the understanding of the video game world and so they could help him process and overlay character qualities upon Greg’s life difficulties. This entailed Greg immersing himself into the characters played and questioning why he played defined roles, chose in-game identities, and how he could relate these characteristics back into his life experiences.

Once discourse began about superheroes and video game characters he began to pay more attention. Greg became animated and excited about discussing his accomplishments and experiences within his virtual worlds. He was powerful and could withstand multiple attacks but still able to hold out and win the area or level by his determination. He further expressed how he was able to play the video games because they provided a cathartic experience for him and helped create positive and helpful coping styles for him. These coping styles consisted of thinking of how to handle a new situation, dealing with confrontation, helping people in need, and being rewarded for caring behaviors as identified by Greg.

The video games appeared to be allowing him to experience different methods in which to handle difficult scenarios for himself across his lifespan and different peer circles. He expressed an importance of his characters and how they were specifically chosen for qualities he felt needed to be represented in the virtual world as he saw these same qualities in himself. The primary video game trilogy being played was called *Borderlands*. In total, there are three games in this series to date which can be played in multiplayer online or offline or by oneself. Greg had already played the first two that had come out and was working on the third one at the time of therapy.

As we continued to talk about the video game, class points (ability points specific to the character being played which gave them special and powerful abilities) and the linear storyline, we were able to briefly see the progression of the characters Greg chose to play. He selected to play as a ranged sniper or in-your-face melee brawler during this play-through of the games. However, it was discovered that Greg continually played the same characters or avatars within all three videogames, suggesting some standardization of avatar

building, itemization, and playability. Moreover, Greg had difficulty with affiliation with any character that was not personally deemed to be “good.” This additionally projected problems on his ability to delineate between good and bad incorporating a dichotomous cognition style.

Through examination of Greg’s conscious thoughts and choices within the videogame, and experiences outside of the videogame, we were able to work on his own personal heroic journey found within. As a result, after multiple analyzations of his game play, he felt as if he played the video games to understand his personal heroic journey. Greg chose to work as a hero saving everyone he could, including other NPCs (non-player characters) who he did not believe deserved it. He stated it was because they asked for his help. The personal heroic journey occurred very quickly because of the knowledge and playability the therapist utilized with the *Borderlands* video game franchise. Through this application, Greg was able to relate it to his personal experience, including his trauma, to the video game characters.

We discussed the heroic journey he had to go through in each of the video games and how he experienced them. In addition, there was another NPC that was not playable but was in all three virtual realms. His name was Handsome Jack. Through playing these video games he was able to understand why he was drawn to certain characters and overlaid their qualities upon his real life as well.

For example, we discussed how in certain situations with his peers, Greg decided to take a spectator approach in the conversation or playing when he felt he did not have anything to contribute or his self-esteem was low. However, in other situations he would jump right in and participate and become very excited at the different prospects when his self-esteem was higher. These were very symbolic with his character development within the virtual worlds as well as with his sniper (distance video game player) and melee character (in the midst of the excitement video game character). We further discussed the possibilities of him choosing his characters he played as because they *represented him* in the video game itself. Further, by playing as a part of himself in the video game, he was able to work through his feelings and concerns with the implementation of his coping skills and further helping him understand the video game world as well. Greg then became more thoughtful and further engaged with his character as a form of himself.

In the consecutive sessions, we discussed Handsome Jack of the *Borderland* Trilogy and where he may have gone wrong in his cognitions and greed across all three video game environments. Handsome Jack was a NPC character that was helpful at first with guiding the character played but became the evil villain for the last game. Greg believed he was a hero by working for a good cause and helping players through the sales of in-game items and hints at where

to explore next. Greg deciphered that Handsome Jack began to change in his thoughts and patterns when talking to people (the players) and acting out through maladaptive behaviors and uncordial words suggesting a change for the worse. Handsome Jack would use more negative choices and aggression in order to obtain a result rather than thinking through his actions for a less or non-destructive approach. Finally, Handsome Jack became the villain in which the video game player had to have a final showdown in order to beat the game.

Greg then had to discuss the importance of being a hero and the difference between a hero and a villain. Greg was able to understand this conceptually through his superhero play in the form of good versus evil but showed some difficulty with more abstract and nuanced parts of the concept. In order to help him expand his knowledge and understanding of this topic, he played *Garry's Mod*. *Garry's Mod* is a sandbox video game (a game where the player is free from typical video game structure and linear gameplay allowing them to choose how to approach the video game content with creativity) where minimal character limitations are in place, and the player can explore the surrounding environment while creating almost anything. In *Garry's Mod*, the video gamer can roam and change the virtual world at will and the game world itself emphasizes exploration and creativity rather than end game attributes and leveling their character.

Greg fashioned a character in *Garry's Mod* who he deemed to be a hero within a world with many villains to defeat as well. He had to push his limits in order to create these different characters and tell a story of how each villain was defeated. Greg described this to be a challenge because it made him think about how each person was different in their thinking patterns. However, he also began to notice the villains were individuals who thought they were positive with their actions but in reality were negative and harmful. Greg named his hero "Papa Alachalla" and continued to evolve on the idea of what comprised a hero. He was even able to draw his hero out in the therapy room and describe how he was able to take care of the villains.

Greg was able to determine that a villain was a misguided hero in his eyes. In essence, Handsome Jack meant well but took the wrong approach, was blinded by personal desires, and was too aggressive in his tactics. Overlapping this new distinction for Greg provided differential insight into his videogame play and how he could approach his own difficulties in life. Overlaying the general concepts found within the videogame to his actual life experiences and trauma, Greg was able to see how he had found and developed his own personal hero, and that his anger was his villain. Whenever he lost control, his villain side was coming out because he was driven by one thing; his anger. Greg additionally was able to see when his friends became angry, they turned to villainous behavior, and required some attention in order to rectify their behaviors.

In the case that one of them began acting aggressively, another friend would ask the question “are you being a villain or a hero?” Through these interactions, Greg was able to feel more comfortable with himself and his friends. This further allowed Greg to use his metacognitive abilities by discerning how other people are thinking in situations. He reported that by using the hero and villain ideological approaches, he was able to place himself in their shoes and understand where the other individual was psychologically approaching from, suggesting a decrease of child egocentrism (Berger, 2014; Feldman, 2015). He and his parents began to report he was able to handle his anger easier and reflected upon his cognitions with greater ease by asking himself “is this what a hero does?” He was able to think more clearly and rationally when experiencing difficult situations, diffuse altercations, and increase his positive emotions. Furthermore, he was able to use these same concepts learned in therapy across his different environments to great success.

We role-played new scenarios which he had not experienced yet to determine how he would be able to handle new and unfamiliar problems which he may come across. Greg was able to think through these difficulties using the same hero and villain mentality he learned in his previous sessions to find a solution.

Greg’s hero continued to shine through much more often than his villain. Once he was able to understand when his villain portion of his own personal heroic myth was approaching within his cognitions, behaviors, and words; he was able to take a moment to step back and put a stop to it. He was also able to begin to understand and notice when his personal villain was approaching consciousness while being able to take a step back in order to control his maladaptive emotions. He *understood* why it was happening and was able to make a meaningful memory, relationship, and knowledge from it all because he had the virtual experience to rely on from playing the *Borderlands* Trilogy. In essence, he had been shown the concepts in his video game play and exploration of his virtual worlds but just required some overlapping and exploration of the characters and his life experience.

Greg was able to see his resilience in being a hero, having overcome his travesty in his past, being able to push through and continue on in life, and with the knowledge that he has many supporters in his life, he was able to let go of most of the anger. In truth, this is where most of his drive had come from over his life and will continue to come from. At this point, Greg was ready to leave the therapy room and continue to mold his myth of being his own hero.

Greg’s parents reported that he continued to be more outgoing, understanding his emotions on a greater expanse, and that he was making new friends and allowing his experience to unfold naturally. His parents reported

this as a marked improvement as he used to “hold back” in conversations and “be unsure of himself.” They further reported being amazed and happy with his transition in school, friendships, family life, and attributed it to the different interventions applied during our therapy sessions. Most prominently, Greg has been able to incorporate less dichotomous cognition patterns into his daily life. His mother reported “he is able to see that good versus bad isn’t always black and white and we talk about that even now.” She attributed this substantial change from the discussions about Handsome Jack during therapy.

Therapist and Treatment Involvement

This case study illustrates the use of Archetypal heroic journey and Jungian therapies with prescribed video games for a 10-year-old male diagnosed with post-traumatic stress disorder. Video games were utilized as a main form of treatment inside and outside of the therapeutic setting to increase personal growth and abilities of Greg, along with a greater understanding for his parents of the video game world. With the inclusion of and immersion playability of the different video games along with the emphasis of the heroic journey, he experienced a reported improvement in his symptoms across his environments by himself and his parents. He was able to utilize the virtual worlds, and the concepts found within, to increase his abilities and then overlay them upon his life difficulties. Through the help of the therapist involved, the video game world was an important and safe playground for Greg to learn about himself and problem solve through an archetypal and imaginative new narrative. He was able to transfer material learned within the virtual world, his character, and his actions to his other environments with great success.

Incorporating the hero’s journey into the therapeutic process appeared to be crucially helpful in allowing Greg to overcome his difficulties and increase his confidence. The literature on the concept of the heroic journey suggests every individual undergoes multiple personal and heroic journeys throughout their lifetime (Campbell, 1972). For Greg this was an important part of his life which in turn, he came to realize was an important feature of himself.

The knowledge of video games by the therapist helped engage Greg substantially. The emphasis placed upon enlarging Greg’s perspective of the heroic journey through video game play and character identification was crucial. Greg had to learn how he was using his hero as a form of safe imaginative play and discovering parts of himself through his in-game choices. Focusing upon the creation and articulation of hero compositions, discussing details of his experience, and how the video games provided this for him in his life was significantly important to the progression of therapy.

Parental involvement was also critical to Greg's success, particularly his at-home and school behaviors. His parents helped him experience different emotional content which surfaced during his video game play, and later in his different environments, by using the idea of the hero. They ensured he followed through with his practice across the different settings in forms of support rather than other methods of punishment or escapism. Overall, this created a broader and more accepting support network in which Greg quickly thrived and succeeded. His parents additionally immersed themselves in the video games Greg was playing and therefore were more able to answer questions and provide guidance when necessary or queried. Parental involvement is considered to be key in any therapeutic process, thus should be considered a first line of defense/offense when working with this population, and is largely recommended.

A key and important part of the overall process was the therapist's knowledge, acceptance, and ability to see psychological and personal value in the video game world. It allowed rapport to be quickly built, and provided key talking and discussion topics. Furthermore, with this experience of the virtual world it provided more accelerated understanding of the greater concepts which could be extrapolated from a less knowledgeable, surface level, or brief viewing of the video game. By playing the video game itself, the therapist was able to place himself in the client's own world space and therefore work appropriately from it. Knowledge of the video game world is crucial to understanding what an individual may be experiencing. Therefore, before pursuing this method, it is recommended a therapist should have more than a basic understanding of the video game world the patient is involved with. This may include briefly learning about the different gameplay, character developments, and linear storyline uniquely found in each video game or even consulting with video game experts.

By utilizing video games in this manner and deepening knowledge about the styles of play, choices within the game, and overlapping similar characteristics upon Greg's life environments, he was able to continue forward. This approach is novel as it does not place an emphasis on terminating video gaming in order to work therapeutically, rather, the focus is on delving into the immersive worlds of video games in order to reach the client where they are currently, both emotionally and mentally.

Video games hold immense important potential to work with many clinical disorders, and to help many heal through post-traumatic growth. A clinician simply needs to be willing to jump into the journey with their client and learn more about their virtual and internal worlds. With Greg's improvement over multiple sessions, it illustrates the progress of one child using video

games, archetypes, and the heroic myth to help with his trauma difficulties. Had an addictive perspective been utilized instead of the immersive/Jungian approach, focus would have concentrated upon the removal of video games from Greg's life possibly damaging the clinical relationship along with his personal growth. He would not have been able to practice a new narrative through his video game play. As outlined through this case study, there may be different approaches which may be more suitable for clinical cases as such to help improve client's well-being and useful tools for engagement within the realm of video games.

As such, more documentation of this strategy is required to examine a psychologically and culturally different approach to video gamers outside of the normal "addict" scope. Greg may have been a more astute individual who was able to transfer material much easier than the average video gamer but still required the guidance and tutelage of an experienced therapist and video gamer in order to draw the appropriate elements out of the video games and into the real world. Furthermore, as archetypes and the heroic narrative was identified in the utilization of video games in therapy; it is important to determine whether other video games hold similar or identical characteristics for our clients therapeutically, the clinical field overall, and the utilization of video games as a respectable digital tool in clinical practice.

References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5*. Washington, D.C: American Psychiatric Association.
- Apperley, T. H. (2006). Genre and game studies: Towards a critical approach to video game genres. *Simulation & Gaming*, 37(1), 6–23.
- Bean, A. M. (2015). *Video gamers' personas: A five factor study exploring personality elements of the video gamer* (Doctoral Dissertation). Retrieved from ProQuest Digital Dissertations. (AAT 3726481).
- Bean, A. M. (2018) *Working with video gamers and games in therapy: A clinician's guide*. New York, NY: Routledge.
- Bean, A. M. (2019). *The archetypal attraction*. Dallas, TX, BenBella
- Berger, K. S. (2014). *Invitation to the life span*. New York, NY: Worth Publishers.
- Campbell, J. (1972). *The hero with a thousand faces*. Princeton, NJ: Princeton University Press.
- Charlton, J. P. (2002). A factor-analytic investigation of computer 'addiction' and engagement. *British Journal of Psychology*, 93, 329–44.
- Csikszentmihalyi, M. (2009). *Flow: The psychology of optimal experience*. New York, NY: Harper and Row.
- Duggan, M. (2015). *Gaming and gamers*. Retrieved from www.pewinternet.org/2015/12/15/gaming-and-gamers/.

- Feldman, R. S. (2015). *Development across the life span*. Upper Saddle River: NJ; Pearson Education.
- Jung, C. G., & Hull, R. F. C. (2006). *The archetypes and the collective unconscious*. London: Routledge.
- Lenhart, A., Kahne, J., Midaugh, E., Macgill, A., Evans, C., & Vitak, J. (2008). *Teens, video games, and civics*. Retrieved from www.pewinternet.org/2008/09/16/teens-video-games-and-civics/.
- McAllister, S. (2013). *Video game genres*. Ebook. OxBo Publishing.
- Wolf, M. J. P. (2002). *The medium of the video game*. Austin, TX: University of Texas Press.

Part 3

Technological Applications
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Tech, Trauma Work, and 9 the Power of Titration

Paris Goodyear-Brown and Eric Gott

Introduction

As the use of technology in mental health work is evolving, so is our understanding of its' integration with existing models of treatment. TraumaPlaySM, formerly known as Flexibly Sequential Play Therapy (FSPT), is helpful in resolving symptoms for children with discrete traumatic events but was designed for children who have complex trauma histories which have affected their abilities to thrive and grow in multiple developmental arenas. These children, most accurately understood as having Developmental Trauma Disorder (van der Kolk, 2005, 2014), need thousands of repetitions of opening and closing circles of communications with caregivers in more than one area of development. While the vast majority of the repetitions need to be in direct relationship with a safe, connected grown up, severely traumatized children often enter treatment with a very small window of tolerance for person-to-person connection. It is in these moments when technology becomes a tool of titration. Titration is a core principle of the TraumaPlaySM model (Goodyear-Brown, 2010b, in press) and is understood as the process by which therapists offer, in clinically informed doses, experiences that shape the child in a healthful direction. What might need dosing? The therapeutic rewiring of any aspect of healthy development. Eye contact? Yes. Physical touch? Yes. Cycles of upregulating and downregulating the physiology aimed at expanding a child's window of tolerance for excitement without it slipping over into aggression? Yes. Aspects of the trauma narrative itself? Yes.

TraumaPlaySM honors the role of play as intrinsically helpful, providing healthy, developmentally appropriate experiences to the child. TraumaPlaySM

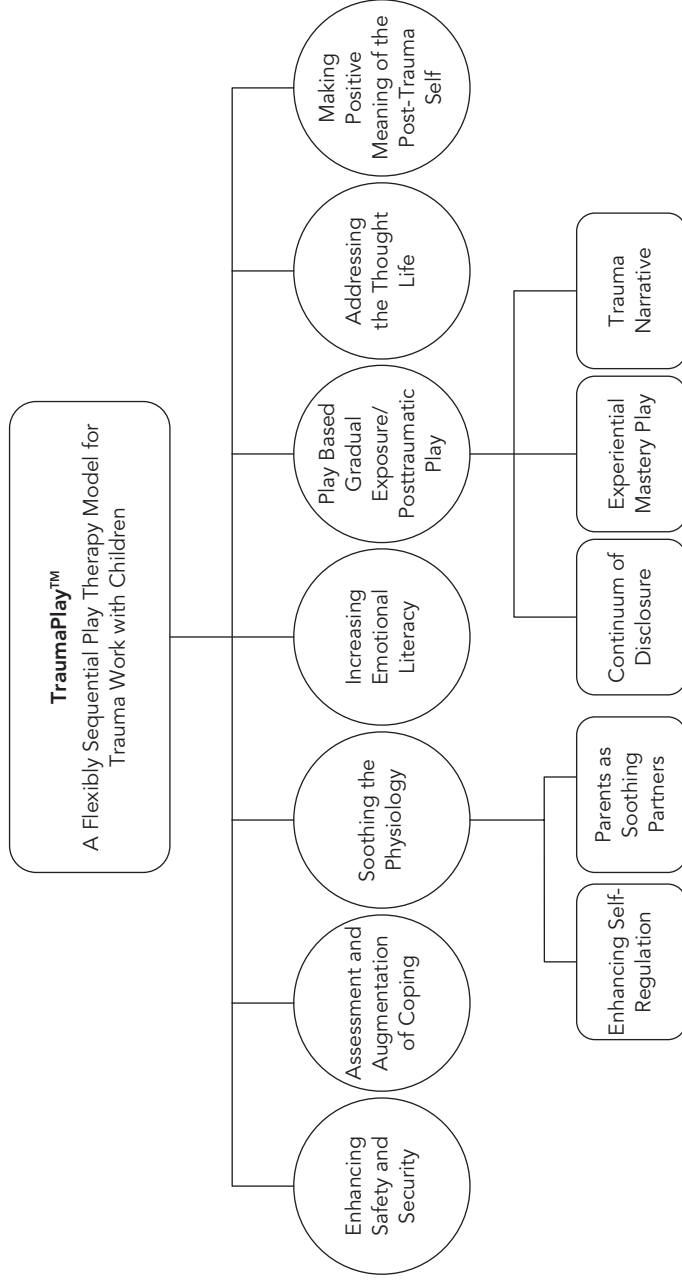


Figure 9.1 Flow Chart of Core Components of TraumaPlay™. Reproduced with permission from Goodyear-Brown, P. (2019). *Trauma and Play Therapy: Helping Children Heal*. New York, NY: Routledge. . . .

also views the play itself as providing the positive physiological and neurochemical effects of mastery experiences in mitigating a child's approach to harder content. So, while technology is unlikely to be used in every phase of TraumaPlaySM with any child, we will selectively choose it as a mitigator which helps provide a titrated approach to any particular treatment goal that appears to be especially challenging for the child. Below is the flow chart of treatment goals within TraumaPlaySM. This chapter will offer specific applications of technology, supported by case examples, within the pursuit of each treatment goal.

Technology in Therapy

The use of technology in play therapy began to gain momentum in the mid 1990s with clinicians using video games to help children improve self-control (Resnick & Sherer, 1994), lessen anxiety (Gardner, 1991), and improve the therapeutic relationship (Clarke & Schoech, 1994). As technology continued to improve, researchers and clinicians incorporated video games to help children express their thoughts and feelings (Bertolini & Nissim, 2002). Clinicians have also used the computer game, *The Sims*, as a computerized version of sandplay. In *The Sims* children are able to create an electronic version of themselves and interact in a 3-D computerized world which allows them to increase their decision-making skills (Fanning & Brighton, 2007; Skigen, 2008; Hull 2011). The *Virtual Sandtray App* is a more recent offering of digital sandtray environments for play therapists (Stone, 2016).

Virtual reality is now being used as a primary method of counseling and has been used to help children overcome phobias as well as posttraumatic stress disorder (Hoffman, 2004; Klinger et al., 2005; Macedonia, 2009). Virtual Reality has also been used to help children with cerebral palsy experience playfulness while in therapy. Children were able to increase motivation due to the accessibility of virtual reality allowing them freedom to play games they could not otherwise play due to their disabilities (Harris & Reid, 2005).

Research has also begun to explore the benefits of children playing with electronic games. Cheryl Olson (2010) suggests that as clinicians identify which electronic games increase engagement for particular clients in the playroom, deeper movement into therapeutic work is expedited. Seligman (2011) identifies three functions: displacement, defense, and communication that are potentially achieved through the playful use of cyber devices. Multiplayer video games allow for compromising and negotiating skills where each child has to learn to work on a team. Video games also provided greater opportunities for children to expand their window of tolerance for frustration as

compared to other technology such as television. Children reported increasing enjoyment in a particular video game as the levels became more challenging. Our belief is that neurochemical surges of competency driven hormones creates an expanding sense of mastery as new levels are achieved. Creativity in video games allows children to develop new worlds, structures, and people as well as experiment with new identities. A child is able to experience himself in unique ways such as being strong or popular. Video games allow children to practice play skills relevant to making friends, regulating emotions, and deepening creativity (Olson, 2010).

These authors conceptualize shared digital building spaces (as with Minecraft) and shared video games that may include in-game chat opportunities a form of titration of cooperative communications, problem-solving, and playful interaction. Traumatized children often have hypervigilance symptoms that make it difficult to quickly assess all the “data” coming from a live person (eye contact, tone, gesture, potential touch, the words themselves). The internal static that these children must push through to respond appropriately to a spontaneous peer interaction in live game play situations may be overwhelming, even debilitating for a child. The online forum gives them time to process the data and bring their executive functioning capacities to bear on a reply.

Clinicians have also found the use of iPads to be beneficial in therapy because children can easily express their thoughts and emotions through various applications (Snow et al., 2012). Most children are comfortable with technology and their sense of mastery of the medium can increase their interest in therapy (Altwater, Singer, & Gil, 2017). Because of their familiarity with technology, children can perceive counseling to be less intimidating and therefore be less resistant to the process. Technology can increase the relationship between the clinician and child as well. Children may find that they have a shared interest with their clinician if he or she has an understanding of various video games. Video games can increase trust and decrease anxiety for the child (Hull, 2011). Finally, video games and tablets can be beneficial for clinicians working with children with special needs whether in hospitals, schools, or other inpatient facilities. The games offer creative approaches to help children who may have difficulties playing with traditional toys (Hull, 2016).

Hull (2016) offers characteristics for clinicians seeking to include technology in their therapeutic approach. A clinician using technology should be open-minded and willing to learn but able to maintain appropriate boundaries. Children often may have greater knowledge of various mobile apps and, if the clinician is willing to listen the child, can increase their feelings of mastery and pride. Hull (2016) encourages clinicians to use a prescriptive approach to play therapy where technology can be used as an aid to treatment. This is precisely how we view the use of technology within the TraumaPlaySM model.

Enhancing Safety and Security

At Nurture House, our child and family treatment center, we believe that reestablishing a child's sense of safety is of utmost importance for treatment planning and the therapeutic relationship. A clinician working with traumatized children has the benefit of using tools in the playroom to establish a relationship, and if technology or video games can increase rapport too, these tools can be welcomed without fear (Delfos, 2003). Building this trusting relationship means allowing the child to experience the playroom as a safe place and become the secure base for the child, which involves following the child's need moment by moment. The client's window of tolerance for the stress of navigating entrance into a new space must be respected. A child who is faced with an unfamiliar play environment that includes an expectation of relational exchange may become frozen in the playroom, unable to make eye contact, explore the room, or play with the toys. The child's autonomic nervous system devolves quickly into collapse (Porges, 2011), potentially resulting in an iatrogenic association of the playroom with debilitating fear. In this scenario, simply offering an iPad game may be effective in reducing anxiety, increase his feelings of competence and comfort, and restoring social engagement, ultimately leading to the first real connection between clinician and child in therapy. Children generally feel proficient at video game play and the confidence surges they may experience while getting to new levels of a video game or showing the therapist how to play a particular game can go a long way in equalizing the sense for the child that while the therapist is expert in some things, the child has his own areas of expertise. This shared power enhances safety and security as it minimizes the hierarchical power dynamics that are often at play in the therapeutic relationship. This kind of exchange levels the playing field in the following example.

Case Example

Tyler was referred to therapy initially for social anxiety and school refusal. His mother's insistence that he attend school had led to aggressive outbursts at home. At first meeting the clinician quickly learned that Tyler's initial diagnosis of social anxiety was more accurately a diagnosis of selective mutism. This young man was unable to talk and could not open and close circles of communication verbally, however, he could occasionally make eye contact with the clinician to show that he was listening. He often sat with his head down and shoulders hunched. The clinician noticed Tyler brought a Nintendo Switch with

him into the playroom and was invited to play the console. As Tyler watched the clinician attempt to play the video game he was able to increase eye contact and answer a few questions about the console.

By following Tyler's love of video games the beginning of safety was being built. The newness of the playroom was too overwhelming causing Tyler to freeze, however the familiarity of his own Nintendo Switch provided a degree of mastery and control in the playroom. During Tyler's early sessions the clinician encouraged him to bring his Switch into each session. While Tyler played his Switch the clinician asked a series of yes or no questions to gain insight into school, and Tyler was able to answer nonverbally with increased eye contact. Through these interactions, the clinician learned Tyler had a passion for filmmaking and he could readily verbally discuss this topic. Rapport, trust, and safety were being established by integrating Tyler's video games, and without them Tyler would likely have continued to remain silent due to his selective mutism. Racing each other in *Mario Kart* became the norm for sessions, and Tyler would often laugh with the clinician as he became more at ease. Tyler was able to continue verbally discussing his film making class, his love for voice-over work, and different aspects of his family. The clinician learned Tyler's voice-over-work involved his creation of live action videos and overlaying the audio of himself playing each of the voices. . . a titration of verbal practice between created characters that would step him to verbal interaction with real people. Simply playing *Mario Kart* provided the necessary tools to help Tyler increase his eye contact and reduce his anxiety with being in the playroom. During this time, Tyler did not miss any more school (Tyler had previously met with other clinicians for traditional talk-therapy resulting in little to no progress).

A standard therapeutic technique for enhancing safety and security in the TraumaPlaySM model is creating a safe place in art, clay, or in sandtray. The *Virtual Sandtray App* (Stone, 2016) provides digital symbols and digital sandtray environments, including the potential to have things in the air, change the background environments, and add natural elements. This can be offered as an option to highly sensory defensive clients or as a stepping stone to three dimensional, kinesthetically grounded, real time work in the playroom. It can be a valuable titration tool for children who benefit from the creation of a visual safe place but may have sensory defensiveness that make it unlikely that they would immediately use a real sandtray. Safe place work can be titrated using first the *Virtual Sandtray App* and then moving into use of the real-world materials. At Nurture House, we have a variety of sandtrays, round ones, traditional ones, ones filled with Jurassic Sand, ones filled with Kinetic Sand, and

ones filled with little iron pebbles or gold nuggets. Respecting the continuum of sensory needs at Nurture House, we recognize that while sensory seeking clients may be immediately drawn to the sand, a virtual sandtray offers a respite for those who may need to babystep their way to these materials.

Assessing and Augmenting Coping

TraumaPlaySM practitioners often create Coping Trees, Coping Menus, and Copecakes with children as we explore the client's current coping repertoire and enhance adaptive coping. CopeCakes (Goodyear-Brown, 2010a) distills healthy coping into four main ingredients and then encourages children to play with the ingredients to create adaptive coping strategies. At Nurture House, we keep actual ingredients, baking tins and cupcake liners, but some of our children, due to their somatic sensitivities, will not want to touch the ingredients. In that case, the app *Cupcakes! Bake & Decorate*, by Maverick Software LLC provides a nice alternative.

Soothing the Physiology

TraumaPlaySM practitioners understand that the goal of soothing the physiology of a traumatized child will involve two sub-goals. The first focuses on expanding the client system's ability to learn, practice at non-stressful times, and then eventually employ (during stressful moments) any number of stress reduction, mindfulness or relaxation strategies. The second sub-goal further equips parents to be soothing partners for children, often enhancing co-regulation through psychoeducation and in vivo experiences of delighting in each other in ways that may need therapeutic support as the system recovers from trauma.

Many of the tried and true play-based relaxation strategies used in affect regulation, such as deep breathing, progressive muscle tension and relaxation (PMR), and guided imageries, now have digital aids for children who may benefit from another form of structure. For children who are able to dive right in to full body somatic experiencing of physiological change states, our clinicians use technology only tangentially, as a novel way to help children track the changes in their heart rate. For children who need a titrated approach to somatic calming, we welcome the use of technology. There is a fun app, *Instant Heart Rate: HR Monitor*, to use when practicing cycles of in vivo upregulation and downregulation. For many of our traumatized children,

excitement, anxiety, and aggression can balance on the head of a pin neuro-physiologically. These children benefit from in session practice of having their heart rate raised . . . usually through full body inducement . . . we do jumping jacks, put on a up-tempo piece of music and dance around, or play chase in the backyard. The child then places his finger over the camera lens and in a few seconds his heart rate shows up on the screen. We then engage in something down regulating, like Five Count Breathing (Goodyear-Brown, 2010a) or The Balancing Act (a technique learned from Richard Kagan in a live training in which you simply balance a peacock feather). When we take the heart rate measurement again, there has usually been a drop of at least thirty percent. Children are astonished that they can exert so much control over their own bodies. The monitoring of heart rate as we complete cycles of up and down regulation serve a playful form of biofeedback.

At Nurture House, many sessions begin and end with a mindfulness activity. These routine moments provide a sense of control and relaxation as the child understands what is expected during his session. There are now many mobile apps that can aid therapy sessions in teaching relaxation strategies. *Smiling Mind*, *DreamyKid*, and *Headspace* have been incorporated with children in play therapy to allow time to focus and adjust on leaving the playroom. Because of the abundance of mindfulness apps available we recommend clinicians familiarize themselves with ones that work best for their clinical practice. Yoga can also be incorporated in session as a closing ritual for therapist and child. Several YouTube channels are available for clinicians (and parents/guardians) to use in teaching children different yoga poses. Cosmic Kids Yoga's YouTube channel is full of videos clinicians can incorporate in their sessions. Clinicians can choose from multiple videos related to different holidays, movies, or cartoon characters.

Parents as Partners

One of the difficulties we see most often at Nurture House with traumatized families is a distortion in the Safe Boss relationship (Goodyear-Brown, in press). Children who have been traumatized desperately need to know who is in charge and that the person who is in charge will provide balance of structure and nurture, continuing to delight in the child, especially when correction is needed. Parents can land on one end or the other of a continuum in which they give demands/commands to the exclusion of being with the child or they offer complete permissiveness. To help practice new ways of relating, we have used a cooperative mobile app called *Spaceteam* in which the goal is to keep your spacecraft flying by working together to command the aircraft.

At least two mobile devices (phone, tablet, iPod etc.) are needed to play the game with each device connecting through Bluetooth technology. The game can allow two to eight players working together to successfully fly the aircraft but each person must have their own device when playing. Each device's screen has a control panel with various dials, switches, and levers as well as instructions with "technobabble" commands. The game is only successful if positive intentionality is assigned to each person by the other. *Spaceteam* can be challenging due to the communication that must take place between the family. No one person will successfully win the game on their own as the spacecraft is designed to fall apart, and your team is also trying to outrun a shooting star. It is expected that children will become frustrated while playing the game, and these moments offer clinicians an opportunity to observe their current coping skills. *Spaceteam* is unique because it is designed to be cooperative rather than competitive. The first few levels can be accomplished successfully even if one person is not fully participating, however eventually the family must all listen and talk with one another. At times the command words are replaced with symbols where the family then must agree as to how to name the commands. Once the game has ended the clinician is able to model appropriate behaviors, encourage exploration of emotions, and teach further coping skills. When the family is ready to play again they can create goals to try and reach a higher level and listen to one another more effectively. One can quickly see how the excitement of play combined with the shouting out of directions could begin to trigger for cycles of communication that may happen at home. Practicing cooperative communication digitally can be a titration towards real world practice of healthier family patterns.

Enhancing Emotional Literacy

Children who come to Nurture House often have difficulty naming and noticing their emotions. Feelings of loneliness, frustration, fear and hurt are often wrapped up in one big emotion of anger for children who have been traumatized. Emotional literacy is the ability to appropriately acknowledge emotions, accurately communicate them, and effectively manage them. As clinicians, we often have to help children increase their recognition of emotions beyond sad, mad, and happy to provide them with a stronger voice to name what they have felt and experienced. One of the TraumaPlaySM tools for assessment of a child's internal emotional life is the Color-Your-Heart (Goodyear-Brown, 2002). While the activity is normally completed with paper and markers, crayons, or paints, occasionally we will have a child who feels safest to approach this work through a Coloring App on the iPad. Some of our favorites are

Colorfy, and *Crayola*. For clients who can handle more choices, an iPad Pro paired with an Apple Pencil is a powerful force, as is *Inspire Pro*, a digital tool offering 150 brushes, paints, pencils, charcoals, crayons, markers, and paint splatters. Another digital app, *ArtRage*, has multiple canvas and paper settings, letting the client choose even from the very beginning of creation the color or texture of the surface for their art. The art studio of Nurture House has an array of tangible versions of the paints, brushes, etc. listed above. Most children are drawn to the art studio and delighted by their number of choices. However, a subset of our clients become overstimulated quickly. For these clients, the art apps are a wonderful titration of smallness of space, and offer more control over the organization, and choice of supplies prior to using real world materials. Within these apps, the client is in complete control of their medium, moving among icons, picking and choosing at will. If they make a mistake, it is easily erased, disappearing as if it never happened, something that is difficult and sometimes impossible with real world materials.

Case Example

Samantha, an 11-year-old girl, came to Nurture House for help processing through her early childhood trauma with the aim of positively enhancing the relationship between Samantha and her mother. Samantha was adopted at age six and had always had a difficult relationship with her adopted mother. After completing dyadic play assessments with Samantha and her parents, I met with Samantha to explore emotions and gain insight into her emotional literacy. Samantha did not want to participate in any art activities, so I introduced her to a mobile app called Emojily. Emojily is an app that allows users the opportunity to design their own emojis, a digital icon intended to express an idea or emotion. The user has the ability to build an emoji by designing its shape, facial features, size, and proportion. Samantha was quiet and defensive towards being in therapy, however she enjoyed texting her friends and using her smartphone therefore the concept of Emojily was intriguing. In order to gain insight into Samantha's emotional recognition the therapist would call out a specific emotion and ask her to create the Emojily to correspond with it.

Allowing Samantha to play on the iPad diffused her frustration with being in therapy, and therefore allowed further insight into Samantha's world. Samantha was able to create an emoji representing the core feeling she experienced in relation to her family, her view of her own emotional response in various situations, and her view of coming to counseling. When asked to

design the emoji for her view of coming to counseling, this sweet, put together young woman designed a character giving “the bird” (a middle finger raised) to the therapist. The therapist was then able to hold and reflect what may in other settings have been perceived as a sign of disrespect and furthered the therapeutic relationship while amplifying the client’s emotional communication. In essence, the emojis become a digital set of symbols for the kind of amplification work sometimes done in the sandtray. Although Samantha and I could likely have explored emotional literacy through other interventions, Samantha was defensive to work with many of the toys and art supplies in the playroom. The iPad was a familiar, enjoyable tool for Samantha to use and enhanced the therapeutic relationship.

Another mobile app that allows for emotional exploration and understanding is *Cove*, a musical journal that allows you to create musical entries to document the emotions you feel on any given day. Creating a musical entry in the *Cove* journal offers clients a new strategy to express themselves, allowing for left and right brain integration. Clinicians now have a better understanding than ever of the limitations of left hemisphere encoding. Clients can have access to the left hemisphere’s linear, linguistic, logical, “just the facts ma’am” naming of an emotion, almost robotically identifying the feeling. While some of our clients are even lacking in their access to this left-brain information, the overwhelming majority of our clients have deficits in integrating left and right brain forms of knowing. The right hemisphere is more visual-spatial, is dominant during the first three years of life, encodes the tone, facial expression and “gestalt” of an experience. Therefore, when the emotional naming work of the left hemisphere is not rounded out by information from the right, clients do not develop somatic and relational intelligence surrounding their experience of the feeling. When a client says, “I feel lonely”, they are only beginning to articulate their experience of the feeling. *Cove* has six basic emotion tones that you start with at the beginning of each entry. These tones range from playful to somber. The app then allows you to layer melodies and notes on top of the underlying tone. The musical entry is finished with percussion and rhythm. The music entries can be saved and we are then able to reflect with clients on the emotions they experienced over the past several days. Often the music entries provide more insight than the child or teenager could give through verbal communication. As a form of titration, this therapeutic exercise can precede the use of actual instruments in a play therapy setting, using an exercise such as Mood Music (Goodyear-Brown, 2002). A more traditional application of technology to emotional literacy work can be found in an adolescent friendly mobile phone app, that allows teenagers to chart their moods directly on the app (Matthews, Doherty, Sharry, & Fitzpatrick,

2008). In an initial study, teenagers' compliance with mood charting was higher when recorded on their mobile device than with more traditional methods.

Trauma Narrative Work Itself

Even when child therapists have provided all the appropriate preparation for trauma narrative work, a child can have great difficulty showing or telling the story of what happened in any form. This is one of the phases of TraumaPlaySM where technology really shines, helping therapists titrate the approach to the trauma narrative. For many years, I have used the idea of "putting it on a screen" as a distancing technique whenever a traumatized client would appear to be moving outside their window of tolerance. Now many apps are available to help children and families literally tell the story through a digital portal. One of my first introductions to this was an app for the iPad called *Puppet Pals*. In the app, you can choose from a variety of backgrounds . . . ranging from a castle to the woods to a stage. Children can then choose characters for the story . . . a fairy, witch, etc. There are options that work for both perpetrator symbols and self-objects (Goodyear-Brown, 2010b) and once the child has chosen all their storytelling tools, they can create different scenes with voice recordings. Kelly, an 8-year-old girl who had been sexually abused by her uncle, had no interest in telling the story verbally or in creating real world art or sandtray creations to aid in the narrative but was able to choose figures to be herself (a princess) and her uncle (an ogre) in the app and to play out the entire narrative with voice overs for both characters. Adoptive families will also tell their adoption stories or build more coherence in their life narratives using digital tools for online publishing. This can look as simple as creating a LifeBook as a photo album in *Shutterfly*, to creating three dimensional digital animations with varying levels of complexity.

In other situations, a child will create a narrative in the sandtray using three dimensional objects and as we explore the deeper themes represented by various parts of the tray, we take photographs with digital devices. Joey, an 11-year-old boy, was recently invited to create a sandtray depicting himself and his brother in their foster home. He chose symbols for himself and his brother in an otherwise denuded landscape. Then he lost interest. Once the clinician introduced the idea of photographing the tray from different vantage points and pairing it with the story to create a hardbound book, he re-engaged quickly and began adding "set pieces" and reflecting on what

the scene would be communicating through the screen, which took his exploration of psychological content to another level. Seeing parts of the tray through the camera lens had him rearranging spatial relationships in the tray, and taking the perspective of an observer, both powerful ways of exploring and potentially integrating the trauma into a more coherent sense of self.

Virtual Reality is being used with great success to do exposure work with veteran soldiers who have PTSD. The timing, amount, and exact nature of exposure-how loud the sounds are, how much stimuli are present, even how “real” it seems can be titrated in ways that ultimately bring relief to clients. After the terrorist attacks on the World Trade Center on September 11, 2001, practitioner guided VR was found to be more effective in reducing PTSD symptoms for 9 out of 10 first responders than imaginal exposure therapy. VR therapy allowed for emotional engagement in the process while minimizing the need for verbal recollection (Difede et al., 2007).

There is a fascinating new area of study that is looking at how a brief immersion, shortly after exposure to traumatic material, into a cognitively engaging video game, may mitigate a person’s absorption of the trauma. Psychiatrists at Oxford University have discovered the video game, Tetris, can be beneficial in reducing flashbacks of traumatic events associated with PTSD symptoms if the video game is able to be played within a span of four hours from witnessing the traumatic event. Due to the visual processing of Tetris, the brain must be fully focused on the game in order to play it successfully. The psychiatrists noted playing Tetris did not remove the details of the trauma from memory but rather removed the intensity of the emotions from the memories. Finally, the researchers believe a few minutes of playing a ‘visually absorbing’ game like Tetris can be beneficial for children who may see or hear reports of traumatic events in various media outlets (Holmes et al., 2011, 2010). We often articulate the overarching goal of TraumaPlaySM as an intentional leaching of the emotional toxicity out of the trauma. The above cited authors refer to it as a cognitive vaccine and this potential help is well worth exploring further.

While continued research on the integration of technology with trauma recovery work is most certainly warranted, there appears to be a growing consensus in our field that technology can be a useful tool, when guided by a trained clinician who is operating under clear theoretical and practice guidelines. The goals of TraumaPlaySM can, in some cases, be more quickly or effectively reached through the selective use of technology, particularly when technology is viewed as a tool of titration, helping traumatized children come closer to the goals of integration and healing.

References

- Altwater, R. A., Singer, R. R., & Gil Eliana (2017). Part 1: Modern trends in the playroom--preferences and interactions with tradition and innovation. *International Journal of Play Therapy*, 26(4), 239–249. www.dx.doi.org/10.1037/pla0000058.
- Bertolini, R., & Nissim, S. (2002). Video games and children's imagination. *Journal of Child Psychotherapy*, 28(3), 305–235.
- Clarke, B. & Schoech, D. (1994). A computer-assisted therapeutic game for adolescents: Initial development and comments. *Computers in Human Services*, 11(1–2), 121–140.
- Delfos, M. F. (2003). The conquered giant: The use of the computer in play therapy. In F. J. Maarsse, A. E. Akkerman, A. N. Brand, & L. J. M. Mulder (Eds.), *Clinical assessment, computerized methods, and instrumentation* (pp. 53–65). Lisse, the Netherlands: Swets & Zeitlinger.
- Difede, J., Cukor, J., Jayasinghe, N., Patt, I., Jedel, S., Spielman, L., & Hoffman, H. G. (2007). Virtual reality exposure therapy for the treatment of posttraumatic stress disorder following September 11, 2001. *Journal of Clinical Psychiatry*, 68(11), 1639.
- Fanning, E., & Brighton, C. (2007). The sims in therapy: An examination of feasibility and potential of the use of game-based learning in clinical practice. In B.K. Weiderhold, G. Riva, & S. Bouchard (Eds.), *Annual Review of Cybertherapy and Telemedicine: Advanced Technologies in the Behavioral, Social, and Neurosciences*, 5, 1–11.
- Gardner, J.E. (1991). Can the Mario Bros. help? Nintendo games as an adjunct in psychotherapy with children. *Psychotherapy: Theory, Research, Practice, Training*, 28(4), 667–670.
- Goodyear-Brown, P. (2002). *Digging for buried treasure: 52 prop-based play therapy interventions for treating the problems of childhood*. Nashville, TN: P. Goodyear-Brown.
- Goodyear-Brown, P. (2010a). *The worry wars: A workbook for kids and their helpful adults*. Nashville, TN: P. Goodyear-Brown.
- Goodyear-Brown, P. (2010b). *Play therapy with traumatized children*. Hoboken, NJ: Wiley.
- Goodyear-Brown, P. (in press) *Trauma and play therapy: Helping children heal*. New York, NY: Routledge.
- Harris, K. & Reid, D. (2005). The influence of virtual reality play on children's motivation. *The Canadian Journal of Occupational Therapy*, 72(1), 21–29.
- Hoffman, H. (2004). Virtual-reality therapy. *Scientific American*, 291(2), 58–65.
- Holmes, E., James, E., Coode-Bate, T., & Deeprose, C. (2011). Can playing the computer game "Tetris" reduce the build-up of flashbacks for trauma? A proposal from cognitive science. *PLoS ONE* 4(1), e4153. www.doi.org/10.1371/journal.pone.0004153.
- Holmes, E. A., James, E. L., Kilford, E. J., & Deeprose, C. (2010). Key steps in developing a cognitive vaccine against traumatic flashbacks: visuospatial Tetris versus verbal Pub Quiz. *PLoS ONE*, 5(11), e13706.
- Hull, K. (2011). *Play therapy and Asperger's syndrome: Helping children and adolescents grow, connect, and heal through the art of play*. Lanham, MD: Jason Aronson.
- Hull, K. (2016). Technology in the playroom. In K.J. O'Connor, C.E. Schaefer, & L.D. Braverman (Eds.) *Handbook of play therapy* (pp. 971–987). Hoboken, NJ: John Wiley & Sons, Inc.
- Klinger, E., Bouchard, S., Chemin, M. A., Lauer, F., Legeron, P., Nugues, P., & Roy, S. (2005). Virtual reality therapy versus cognitive behavior therapy for social phobia: A preliminary controlled study. *CyberPsychology & Behavior*, 8(1), 76–88.
- Macedonia, M. (2009, January/February). Virtual worlds: A new reality for treating post-traumatic stress disorder. *IEEE Computer Graphics and Applications*, 29(1), 86–88.

- Matthews, M., Doherty, G., Sharry, J., & Fitzpatrick, C. (2008). Mobile phone mood charting for adolescents. *British Journal of Guidance & Counselling*, 36(2), 113–129.
- Olson, C. (2010). Children's motivations for video game play in the context of normal development. *Review of General Psychology*, 14(2), 180–187. DOI: 10.1037/a0018984.
- Porges, S.W. (2011). *The polyvagal theory: Neurophysiological foundations of emotions, attachment*. New York, NY: Norton.
- Resnick, H., & Sherer, M. (1994). Computer games in human services. *Computers in Human Services*, 11(1–2), 17–29.
- Seligman, S. (2011). Effects of new technologies on child psychotherapy: Discussion of clinical papers from the conference, "Where the wired things are: Children and technology in treatment". *Journal of Infant, Child, and Adolescent Psychotherapy*, 10(4), 422–427. DOI: 10.1080/15289168.2011.614190.
- Skigen, D. (2008). Taking the sand tray high tech: using the Sims as a therapeutic tool in the treatment of adolescents. In L.C. Rubin & L. C. Rubin (Eds.), *Popular culture in counseling, psychotherapy, and play-based interventions* (pp. 165–179). New York, NY: Springer.
- Snow, M.S., Winburn, A., Crumrine, L., Jackson, E., & Killian, T. (2012). The iPad playroom: A therapeutic technique. *Play Therapy*. Retrieved from www.mlppubsonline.com/display_article.php?id=1141251.
- Stone, J. (2016). *The virtual Sandtray app*. Retrieved from www.sandtrayplay.com/Press/VirtualSandtrayArticle01.pdf.
- Van der Kolk, B. (2014). *The body keeps the score*. New York, NY: Viking.
- van der Kolk, Bessel A. (2005). Developmental trauma disorder: Toward a rational diagnosis for children with complex trauma histories. *Psychiatric Annals*, 35(5), 401–408.

Utilizing Technology 10 Interventions with Children and Adolescents with Autism Spectrum Disorder (ASD)

Robert Jason Grant

Introduction

Autism Spectrum Disorder (ASD) is the fastest growing neurodevelopmental disorder with 1 out of every 68 children being identified as having an ASD (CDC, 2017). The diagnosis covers a wide range of manifestation and functioning levels. The popular phrase “If you have met one child with autism, then you have met one child with autism” is well noted. Not only are there many different variants regarding ASD, but ASD holds many mysteries; there are often more questions or theories than answers. For many years ASD was a widely-misunderstood diagnosis. Often children diagnosed with ASD were thought to have limited ability, intelligence, vocabulary skills, and emotional response.

Awareness and understanding of ASD has increased significantly over the last several decades, and new insights seem to be consistently produced. Some of the advancement in knowledge of ASD must be attributed to technology. Augmentative and alternative communication systems and assistive technology devices have provided individuals with autism the ability to communicate and interact in ways that were not happening previously (Simpson, 2005). Such systems and devices changed the views of the ability levels of many with ASD and in some cases literally gave individuals with ASD a voice.

ASD is a complex multi-system diagnosis. Practitioners must first understand the complexities of ASD and then mirror treatment interventions to match the complexity and variance that ASD manifests. Technology related interventions

offer the opportunity to select from a variety of options including internet, social media, robotics, virtual reality, tablets, apps, computer programs, video modeling, computer aided instruction, and gaming (Bolte, Golan, Goodwin, & Zwaigenbaum, 2010). As individuals with ASD are often drawn to technology (Goldsmith & LeBlanc, 2004), incorporating technology-based interventions (especially those that have shown promise in addressing autism issues), becomes a logical treatment process

The increasing popularity, affordability, accessibility, and availability of technology devices have influenced research on ASD. Because of the popularity and versatility of technology devices, utilizing these devices as therapy tools has become an acceptable practice. The implementation of technology-based devices provides a variety of possibilities for improving intervention services to children with ASD (Kim & Clarke, 2015). When considering technology-based interventions for children and adolescents with ASD, practitioners open possibilities that are not only engaging to their clients but offer a plethora of options designed to address the complexity of issues that accompany an ASD diagnosis.

Autism Spectrum Disorder

The Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-V, 2014) classifies ASD as a neurodevelopmental disorder. The spectrum of autism refers to a presentation of symptoms that individuals may display, in less or greater amounts, typically in certain combinations of atypical communication, social interaction, and restricted repetitive patterns of behavior, interests, and activities (Grant, 2016a; Picard, 2009). ASD can frequently include mild to major affect swings that may arise from regulation and sensory challenges, and mild to major disturbances that can affect gait, posture, and the person's ability to write, speak, and produce facial expressions (Wing & Shah, 2000).

The Centers for Disease Control (2018) defined ASD as a developmental disability that can cause significant social, communication, and behavioral challenges. There is often nothing about how people with ASD look that sets them apart from other people, but people with ASD may communicate, interact, behave, and learn in ways that are different from most other people.

The learning, thinking, and problem-solving abilities of people with ASD can range from gifted to severely challenged. Some people with ASD need significant help in their daily lives; others need very little. People with ASD often have problems with social, emotional, and communication skills. They might repeat certain behaviors and might struggle with change in their daily

activities. Many people with ASD also have different ways of learning, paying attention, or reacting to things. Signs of ASD begin during early childhood and typically last throughout a person's life. Karim et al. (2014) proposed some of the more general challenges for those with an ASD include reciprocal social interaction, impairment in communication ability, restrictive and repetitive behaviors, interests, and activities, sensory processing struggles, learning difficulties, emotional regulation struggles, and coordination problems.

Although formal definitions and descriptors exist, ASD is difficult to universally define (Karim, Ali, & O'Reilly, 2014). No two individuals have the exact same set of symptoms or respond to the same combination of therapies; each individual's needs will be unique. Children on the autism spectrum may broadly share common general manifestations such as some level of social skill deficit, but the triggers and causes for these manifestations may vary greatly from one person to another (Siri & Lyons, 2010).

ASD ranges from severe to mild in terms of impairment on an individual. A child on the severe end of the spectrum may be unable to speak, and have more serious developmental delays. A child on the mild end of the spectrum may be able to function in a regular classroom at school and eventually reach a point where he or she no longer meets the criteria for ASD (Grant, 2016a). Even if two children have the same diagnosis, no two children with an ASD are alike. One child with an ASD may be nonverbal and have a low IQ, while another child with the same diagnosis may have an above average IQ, and yet a third child may be verbally and intellectually precocious. Moreover, often the terms "low functioning" and "high functioning" are merely used to describe the child's placement on the autism spectrum (ExKorn, 2005).

A more accurate way to view the autism spectrum might be to view each child individually and assess the particular child, plotting him or her where he or she currently places in each developmental skill area. Children and adolescents with ASD do not fall into one of two categories – low or high functioning; each child has their own place on the spectrum according to their individual functioning and skill level (Grant, 2016a). Since the manifestations of ASD are influenced by a variety of multiple factors, a one size fits all intervention approach to treatment is not likely to be successful. Creating an individual profile that highlights the uniqueness of the person with ASD and tailoring the interest to best align with the person, provides the best chance for effective intervention (Siri & Lyons, 2010).

Practitioners must develop understanding of the individual with ASD's perspective on their world. Through careful observations, practitioners must assess what is providing satisfaction for the individual and causing challenges for the individual and then select the type of intervention to implement. Practitioners must decide on the timing of the intervention and they may have

to try a myriad of different strategies to discover a way to build relationships with the individual and engage them in the intervention process. Regardless of the intervention selected, the practitioner should always be ensuring that the intervention is addressing designated treatment goals (Macintyre, 2016).

Grant (2018) proposed that the intensity and duration of therapy and interventions that a person with ASD participates in will vary across the spectrum. It is likely that individuals with an ASD diagnosis will participate in some form of therapy or intervention sometime during their lifetime while many individuals will participate in interventions for the duration of their lifetime. Therapies and interventions may cover a whole variety of needs depending on the individual and the level of the individual's impairment, but common focus areas include: social functioning, speech and language issues, independent living skills, emotional regulation ability, anxiety struggles, and executive functioning impairments. Technology-based interventions offer a variety of modalities that have been successful in addressing many of the struggle areas common with ASD. Technology-based interventions offer the unique opportunity to both engage and build relationships with clients, while addressing treatment needs through the ever-developing technology medium.

Technology and Autism Spectrum Disorder

The use of technology to work with individuals with ASD is not a new concept. In fact, technology has been used with individuals with ASD for over 40 years (Colby, 1973). Colby (1973) conducted one of the first studies examining the use of computers with individuals with ASD. Panyan (1984) published a review on the use of computer technology for children with autism reporting the use of technology to promote responsiveness, attention, performance, verbal interactions, social skills, and interactions with peers. Further, Panyan offered that technology could be used to capitalize on the learning characteristics of students with ASD. The nature of technology has shown to (a) benefit students with ASD due to their differences in attention and motivation from typically developing peers, (b) decrease stereotypic behaviors, (c) provide students with consistent feedback, and (d) increase language (Knight, McKissick, & Saunders, 2013).

A growing number of research studies have been conducted (Goldsmith & Leblanc, 2004), including a meta-analysis review, which highlight the use of various technology interventions for treatment of ASD. The results provide evidence for the overall effectiveness of technology-based interventions, support for continuing development, evaluation, and clinical usage of technology-based interventions with the ASD population (Grynszpan, Weiss, Perez-Diaz, & Eynat, 2013).

Technology-based interventions have proven successful in teaching new skills to children and adolescents with ASD. Social skills are often considered a priority focus for autism interventions and technology-based social skill interventions have proven successful in helping children with ASD gain social skills (Fletcher-Watson, Petrou, Scott-Barrett, Dicks, Graham, O'Hare, Pain, & McConachie, 2016). Technology based-interventions for ASD can be thought of as an umbrella concept where several different types of interventions exist. Some technology-based interventions are designed for indefinite use as an assistive tool such as an augmentative communication device, while others are introduced as a temporary instructional aid to be removed once the goal of treatment has been met (Goldsmith & LeBlanc, 2004).

Some technology-based interventions are more formal (MyVoice, ProxTalker, Smartstones Touch, Talking Tablet Communication Aids) and some are less formal and more common in the mainstream population (social media sites, YouTube, specific computer games, tablet apps). Regardless of the type of technology, many parents, practitioners, and individuals with ASD themselves, have noted that individuals with ASD are drawn to technology, signifying the importance of devising treatments that take advantage of technology-based interventions (Goldsmith & LeBlanc, 2004; Kimball & Smith, 2007; and Grynspan, Weiss, Perez-Diaz, & Eynat, 2013).

The Center for AAC and Autism (2018) proposed that research demonstrates that Augmentative and alternative communication (AAC) devices increase speech and language ability in individuals with ASD. AAC devices have been used to help individuals with developmental disabilities to communicate successfully. These devices have offered tremendous promise in helping nonverbal individuals with ASD overcome their unique communication barriers. Further, auditory output of AAC devices provides sensory feedback to help children develop receptive and expressive language skills (common deficits in individuals with ASD), simplify the sensory processing and motor planning involved in communicating, and provide consistent auditory output matched with a consistent motor plan. AAC devices can be valuable in the therapeutic process allowing child and practitioner an avenue of communication that might not otherwise be present.

Ramdoss et al. (2012) reported that many researchers have suggested potential reasons why computer-based interventions (CBI) may be particularly effective with individuals with ASD. For example, software programs may be created that establish clear routines and expectations, reduce distractions, and provide additional controls for the influence of autism-specific characteristics such as stimulus over selectivity. The use of CBI to improve the social and emotional skills of individuals with ASD is a promising practice. A comparison of CBI plus tutoring and face-to-face social skills training

suggests that CBI can be as effective as face-to-face instruction (Ramdoss, Machalicek, Rispoli, Mulloy, Lang, & O'Reilly, 2012).

Video technology such as video social stories and social interaction vignettes have proven useful as a tool for modeling appropriate behavior, providing feedback, and creating discrimination opportunities for an individual's own behavior (Goldsmith & LeBlanc, 2004). Research on virtual reality has suggested that individuals with ASD experience virtual environments similarly to their neurotypical peers and that these environments can successfully simulate authentic social situations, thus providing practice and mastery of new social skills (Bolte, Golan, Goodwin, & Zwaigenbaum, 2010). Practitioners may discover the implementation of video modeling programs, social story apps, and virtual reality not only engaging to the child but easy to incorporate into therapeutic sessions targeting specific treatment goals.

Since its release in April 2010, the iPad has quickly become one of the most effective, motivating, indispensable learning tools for those on the autism spectrum (Brady, 2015). Several studies specifically focusing on iPad apps have yielded positive attitudes among participants, shown a lack of harm in usage, addressed the potential of apps to deliver therapeutic content at low economic cost, and suggested the ability to target multiple skill domains (Fletcher-Watson, Petrou, Scott-Barrett, Dicks, Graham, O'Hare, Pain, & McConachie, 2016). Research focusing on tablet devices and apps has shown that these types of interventions can be effective tools to support socialization such as turn taking and joint attention in children with ASD (Kim & Clarke, 2015). Tablet apps cover a vast variety of type and concept. Popular game playing apps such as *Smash Hit* can be used to help children improve focus and concentration skills. Educational apps such as *Language Builder* aim to increase speech development. Two player interactive apps such as *Fingle* are designed to improve social interaction skills. Mental health focused apps such as *Zones of Regulation* are designed improve emotional regulation ability. The movement of tablet devices and apps into the therapeutic setting has led to what Brady (2015) defines as iTherapy – the use of an Apple product in combination with an app in a therapy environment as a modality to meet treatment goals.

Grant (2016a) proposed that technology-based interactions are useful in working with children and adolescents with ASD in a therapeutic setting. Engagement and relationship building can be enhanced through interacting with a child or adolescent through his or her technology interest, whether it be a social media site such as Facebook, and computer game such as *Minecraft*, or a preferred app. AutPlay® Therapy interventions such as *Social Media Friend, Foe, or Other* (Grant, 2016b) can be designed and implemented that engaged the client in a technology focused activity that is a preferred interest of the client while, at the same time, addressing and improving social

skill ability. When considering technology-based interventions for children and adolescents with ASD, practitioners should recognize the natural draw toward technology for many on the spectrum and recognize the creative possibilities to utilize technology in the therapy process.

Case Example

Bailey

Bailey, a 12-year-old female, was referred for therapy due to increasing behavioral and social struggles. Bailey lived with her mother and three younger siblings and attended a private school focused on providing individualized education for children diagnosed with ASD. Bailey entered therapy with a previous psychological evaluation which resulted in a diagnosis of ASD (Asperger's Syndrome) and indicated that she had an above average intelligence. Bailey had been participating in therapeutic interventions since she was a young child, including previous experiences with mental health therapy.

Presenting Concerns and Initial Session

Bailey's mother reported that Bailey was extremely oppositional and defiant at home. She was often argumentative and did not want to interact with her mother or her siblings. Bailey's mother was concerned because Bailey was becoming very isolated and only wanted to spend time on her computer or tablet (Bailey was displaying a typical ASD obsessive interest, her interest being focused on Anime). Bailey was also displaying poor social skills with little to no interaction with other peers and stating no desire to interact with other peers other than online. Her mother stated that she had observed what might be depression, anxiety, and low self-esteem from Bailey. In the initial session with Bailey, she presented being somewhat disinterested in being in the therapy session. She appeared to be higher functioning on the autism spectrum, being able to fully attune and participate but displaying some social skill deficits.

The superficial presentation of oppositional behavior was present along with some obvious social interaction challenges. Bailey communicated that she did not want to be in therapy and was angry at her mother, and that her mother was the source of all her problems. She also communicated that she did not interact with any other peers because "they are all stupid", and she preferred

to spend all her time online, where she did interact with other people. Bailey's online preferences were maintaining her YouTube channel, watching Anime, and interacting with others through a few social media sites.

Number of Sessions

Bailey participated in therapy sessions for approximately 11 months. She completed 50 therapy sessions. Bailey's therapy time ended after 50 sessions due to Bailey accomplishing her treatment goals.

Basic Background

Bailey was diagnosed with ASD at a young age and begin treatments related to ASD immediately after her diagnosis. Bailey had been in some type of therapy most of her life. She was the oldest of four children with two of her younger siblings also being diagnosed with ASD. Bailey lived with her mother and saw her father periodically (3–4 times per year). Bailey attended a small private school focused on children with ASD but was socially isolated. She spent most of her free time at home, in her room, on her computer. Bailey's primary supports were her mother and her siblings and a couple of online friends.

Technology Interventions in Therapy

Through intake and initial session assessment, it was established that a relationship development focus, utilizing technology, would be the initial treatment goal for Bailey. As relationship development progressed, more structured technology-based interventions focusing on social skill development would be implemented. A relationship development focus utilizing Bailey's primary interest areas was chosen due to Bailey's resistance to participating in therapy. Utilizing structured technology-based social skill interventions was chosen due to Bailey's interest in technology and the hypothesis that she would be more engaged and thus fully participate in the interventions.

The practitioner began by establishing with Bailey that she could show the practitioner a 10-minute selected clip of any Anime program she chose each session. The Anime clips were watched on the practitioner's computer and sometimes Bailey would bring her own computer to show the clips. The practitioner would then ask questions about the characters and the situations they were in, including their peer interactions and family dynamics.

The practitioner would engage with Bailey about her own thoughts and experiences based on what was happening with the Anime characters. Bailey responded positively to the practitioner showing interest in something she liked and seemed excited to share a new Anime clip each session.

After each clip, the practitioner would reflect on emotions the characters were displaying and situations they were struggling with. The practitioner would engage with Bailey about how she might handle the emotions and situations the characters were dealing with, and would also engage Bailey in asking about her own life and how elements in her life reflected and did not reflect the Anime characters. The practitioner was mindful to observe, reflect upon, and open for discussion, situations in the clips that might have relevance to Bailey and her own life. This intervention was successful with Bailey, and with moving forward with designated treatment goals. It enabled relationship development between Bailey and the practitioner, which facilitated forward movement in therapy. This intervention also increased Bailey's willingness to talk about her own emotions, struggles, and life dynamics – something she was against doing in the initial session. Problematic issues with this intervention included Bailey often wanting to show longer or multiple clips in sessions beyond the agreed 10 minutes. Also, some of the Anime session clips continued graphic images and/or language that might be uncomfortable for some practitioners to watch or hear.

Therapy sessions progressed with the practitioner introducing an intervention using Bailey's YouTube channel. Bailey had a YouTube channel that was focused on Anime characters. At the beginning of this interaction, Baileys YouTube channel was not public due to Bailey feeling too anxious to make it public. Most of her YouTube page consisted of several short clips she had designed with several Anime characters displayed set to a music background. Bailey was hesitant to show the practitioner any of the videos she had created but initially agreed to show the practitioner one video. It was obvious to the practitioner that Bailey was self-conscious about her own work and worried about criticism. Bailey eventually showed the practitioner all the videos she had created on her channel. The practitioner was mindful to reflect on all the work Bailey had put into her videos, and how she had chosen the images and music and created the videos just the way she wanted. The practitioner also asked about the characters in the videos and as Bailey described who they were and what their story was about, the practitioner was able to again engage Bailey in talking about how her own emotions and life situations related to the characters.

This intervention helped to further discuss Baileys emotions and thoughts about her own life, continued to increase relationship development with the practitioner, and provided the opportunity to work on increasing Bailey's self-confidence and positive view of herself. After participating in this intervention for approximately 8 sessions, Bailey decided to make her YouTube channel

public. It should be noted that Bailey's mother was aware of her YouTube channel and had already approved Bailey having a YouTube channel and making the channel public. After about 8 sessions of the YouTube intervention, Bailey shared with the practitioner that she had created a video with one of her sisters and published it on her YouTube channel. The video was a departure from her typical Anime clips and was instead a humorous clip that she and her sister had designed, it was also the first time anyone other than her mother had been involved in Baileys YouTube page. This intervention was successful in moving Bailey forward with her treatment goals and had little to no downside.

The Anime and YouTube interventions lasted approximately 18 sessions. At this point in therapy, Bailey had strong relationship development with the practitioner and had made progress in improving her mood, becoming more self-confident, talking about her emotions, and being less oppositional at home. The practitioner began to introduce more structured interventions designed to increase social skill deficits. The practitioner initiated an AutPlay[®] Therapy intervention that incorporated technology. The AutPlay[®] Therapy intervention *Tweet, Tweet, Tweet* (Grant, 2016b) is designed to help adolescents navigate appropriateness in social situations, especially online social situations and interactions.

The practitioner explained to Bailey they would be completing the intervention called *Tweet, Tweet, Tweet* to help Bailey improve some of her social skills. The practitioner explained they would be discussing appropriate and inappropriate social media comments. The practitioner began by role-playing with Bailey, pretending to tweet appropriate and inappropriate tweets back and forth. Bailey identified the tweets as either appropriate or inappropriate. When Bailey was unsure, the practitioner would discuss with her which category the tweet would be in and why. Next, the practitioner gave Bailey a list of several tweets taken from real twitter accounts (see Table 10.1). Bailey had to place each tweet into one of three categories – “appropriate”, “inappropriate”, and “not sure”. Bailey had to explain why she put each tweet in each category. For the “not sure” category, the practitioner and Bailey talked about each tweet and decided if it should be labeled “appropriate” or “inappropriate” and why. The final component of this intervention was to look at Bailey's Twitter account and have her assess the appropriateness or inappropriateness of several of her tweets. This intervention lasted multiple sessions as several of the tweets generated a further discussion of social appropriateness and interaction that was applicable to other settings.

Once the practitioner and Bailey had finished the *Tweet, Tweet, Tweet* intervention, the practitioner explained they were going to create a video social story to help Bailey remember some of the appropriate ways to interact socially on social media. Using the *Stories2Learn* app, the practitioner and Bailey created a video social story using real images of Bailey to reinforce some of the social

Table 10.1 *Tweet, Tweet, Tweet* intervention sample tweet list

<i>Appropriate</i>	<i>Not appropriate</i>	<i>Not sure</i>
Lol, no one likes you.		
So are you straight or gay I'm like really confused.		
I hate you, Ted.		
You and me. Lunch next week. I won't be late this time.		
That's like saying Superman is better than Batman. You're dead to me.		
Just finished doing laundry ☺ I hate Laundry!		
Congratulations! Your new baby is so cute!!!!		
She is a complete slut! I hate her!!! HATE!!!		
I am seriously going to kill someone if all these a#%es don't stop messing with me.		
The Hobbit is an awesome movie! Just saw it – Loved It!		
Really frustrated with everything right now.		
I love Justin Bieber, if you say anything bad about him I will kill you – you stupid idiot!		
Guess who is on TV acting like a total retard!?		
Home alone, so bored. Somebody hit me up!		

skills she had learned. The app was installed on Baileys tablet and the social story was created on her table. Bailey was able to watch and/or reference the social story at any time. Throughout the duration of treatment, Bailey and her mother created additional video social stories. Bailey responded positively to the video social stories. She was engaged by and enjoyed the video creation element, while at the same time, she was learning appropriateness and inappropriateness in social situations.

This intervention helped to move Bailey forward in improving identified social skill deficits. Bailey was engaged by the technology base of the *Tweet, Tweet, Tweet* and social story interventions, and willing to participate in a more formally structured intervention due to the content being something that interested her. She was able to fully engage in the process and gain needed social interaction ability. These interventions might present a challenge to the practitioner if the child did not have any social media accounts, and had never interacted with another person through an online system. In that case, an intervention more applicable to the individual should be implemented.

The practitioner was able to implement several additional AutPlay® Therapy interventions that utilized technology with a focus on improving social skills. After Bailey had been participating in 50 sessions, she had reached her treatment goals with no additional goals identified, and she graduated

from therapy. By the end of therapy, Bailey had begun to participate in social activities in her community. She became active in her church youth group, she was sharing her YouTube page publicly with peers, she had made a couple of friends in person who she had been spending time with, she was demonstrating a wide range of emotions which included several positive emotions, she was interacting with her family more, and her oppositional behaviors at home had reduced to an appropriate level.

The implementation of technology-based interventions and approaches provided Bailey the outlet to build relationship with the practitioner, and work on her issues and skill deficits. This type of approach reduced her defiance and resistance to therapy, provided her comfort and familiarity to explore her struggles, and made her therapy time engaging. The practitioner was able to recognize and be comfortable entering Bailey's world and work within the interest and systems that most spoke to Bailey, resulting in a progressive and successful therapeutic experience.

Conclusion

Research focused on ASD and technology interventions has provided several positive findings. Currently, there is an ever increasing, rapid emergence of new technologies, especially those created as interventions for ASD. This growth, speaks to the popularity of technology-based interventions for ASD and the need for continued research.

There are over 100 identified treatments for ASD. Some of those treatments are technology-based or incorporate technology into the treatment protocol. Since technology-based interventions for ASD were first introduced more than four decades ago, they have been increasing in prevalence. Children and adolescents with ASD present a wide manifestation of presentation on the autism spectrum. Technology can provide practitioners with an additional element in treatment to address the individually unique needs of those with ASD. Practitioners who understand the benefits of technology-based interventions for their clients with ASD and can effectively access and implement technology interventions, will have a valuable addition to their catalog of treatment options.

References

- American Psychological Association. (2014). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: American Psychological Association.
- Bolte, S., Golan, O., Goodwin, M. S., & Zwaigenbaum, L. (2010). What can innovative technologies do for autism spectrum disorder, *Autism*, 14(3), 155–159.

- Brady, L. J. (2015). *Apps for Autism*. Arlington, TX: Future Horizons.
- Center for ACC and Autism. (2018). *Why ACC*. Wooster, OH: Center for ACC and Autism.
- Centers for Disease Control and Prevention (CDC). (2018). *Autism Spectrum Disorder basics*. Atlanta, GA: CDC.
- Colby, K. M. (1973). The rationale for computer-based treatment of language difficulties in non-speaking Autistic children. *Journal of Autism and Childhood Schizophrenia*, 3, 254–260.
- Exkorn, K. S. (2005). *The Autism sourcebook: Everything you need to know about diagnosis, treatment, coping, and healing*. New York, NY: HarperCollins.
- Fletcher-Watson, S., Petrou, A., Scott-Barrett, J., Dicks, P., Graham, C., O'Hare, A., Pain, H., & McConachie, H. (2016). A trial of an iPad intervention targeting social communication skills in children with Autism. *Autism*, 20(7), 771–782.
- Goldsmith, T. R. & LeBlanc, L. A. (2004). Use of technology in interventions for children with Autism. *Journal of Early Intensive Behavior Intervention*, 1(2), 166–178.
- Grant, R. J. (2016a). *AutPlay therapy for children and adolescents on the Autism spectrum: A behavioral play-based approach*. New York, NY: Routledge.
- Grant, R. J. (2016b). *Play-based interventions for Autism Spectrum Disorders and other developmental disabilities*. New York, NY: Routledge.
- Grant, R. J. (2018). *Understanding Autism Spectrum Disorder: A workbook for children and teens*. Springfield, MO: AutPlay® Publishing.
- Grynszpan, O., Weiss, P. L., Perez-Diaz, F., & Eynat, G. (2013). Innovative technology-based interventions for Autism Spectrum Disorder: a meta-analysis. *Autism*, 18(4), 346–361.
- Karim, K., Ali, A., & O'Reilly, M. (2014). *A practical guide to mental health problems in children with Autistic Spectrum Disorder*. London, UK: Jessica Kingsley Publishers.
- Kim, S. & Clarke, E. (2015). Case study: An iPad-based intervention on turn-taking behaviors in preschools with autism. *Behavioral Development Bulletin*, 20(2), 253–264.
- Kimball, J. W. & Smith, K. (2007). Crossing the bridge: From best practices to software packages. *Focus on Autism and Other Developmental Disabilities*, 22, 131–134.
- Knight, V., McKissick, B. R., & Saunders, A. (2013). A review of technology-based interventions to teach academic skills to students with Autism Spectrum Disorder. *Journal of Autism and Developmental Disorders*, 43(4), 753–1004.
- Macintyre, C. (2016). *Strategies to support children with Autism and other complex needs*. New York, NY: Routledge.
- Panyan, M. V. (1984). Computer technology for Autistic students. *Journal of Autism and Developmental Disorders*, 14, 375–382.
- Picard, R. W. (2009). Future affective technology for Autism and emotion communication. *Philosophical Transactions of the Royal Society*, 364, 3575–3584.
- Ramdoss, S., Machalicek, W., Rispoli, M., Mulloy, A., Lang R., & O'Reilly, M. (2012). Computer-based interventions to improve social and emotional skills in individuals with Autism Spectrum Disorders: A systematic review. *Developmental Neurorehabilitation*, 15(2), 119–135.
- Simpson, R. L. (2005). *Autism Spectrum Disorders: Interventions and treatments for children and youth*. Thousand Oaks, CA: Corwin Press.
- Siri, K., & Lyons, T. (2010). *Cutting edge therapies for Autism*. New York, NY: Skyhorse Publishing.
- Wing, L. & Shah, A. (2000). Catatonia in Autistic Spectrum Disorders. *British Journal of Psychiatry*, 176, 357–362.

"See, I Can Focus"

11

How Video Games Can Be Used to Enhance Working Memory and Self-Control for Children with Attention-Deficit Hyperactivity Disorder (ADHD)

Heidi Gerard Kaduson

Although a great deal of media attention has been given to the negative effects of playing video games, relatively less attention has been paid to the positive effects of engaging in this activity. This is especially true for children diagnosed with Attention-Deficit Hyperactivity Disorder (ADHD). ADHD is a behavioral disorder characterized by a cluster of three symptoms: attention problems, hyperactivity, and impulsivity (DSM-5). These children struggle daily to follow the rules, curtail impulsivity, and stay focused on what may or not be interesting to them. In addition, many of them have learning disabilities. A great deal of research has been done on ADHD, and a discussion of the disorder is necessary in order to also understand the abilities that the children possess, and how video games can actually help them to focus.

ADHD is one of the most prevalent mental disorders diagnosed in children, affecting about 3 to 5% of children globally (Frank-Briggs, 2011). A study by the Center for Disease Control (2011) reported approximately 11% of US children, age 4–17 years of age (6.4 million), have received a medical diagnosis of ADHD. This constitutes an increase from 7.8% in 2003, which has caused concerns about over-diagnosis and over-medication of children by some (Schwarz & Cohen, 2013). While psycho stimulants continue to be the most dominant treatment implemented, the use of medication for ADHD actually decreased from 15% of visits (to the pediatrician or psychiatrist) in 2003 to 6% in 2010.

The majority of research conducted on treatment effectiveness examined the impact of medication, behavioral therapy, or cognitive-behavioral therapy for ADHD. Some professionals have questioned whether digital

technology or video games could be an effective intervention for the disorder. A vital aspect of the therapeutic use of video games in treatment is that children are actively engaged and they can practice and develop needed skills (i.e., focusing, self-control, and strengthening of their working memory). A key part of this treatment focuses on remediation of skill deficits, and allowing children to work on their psychological issues, such as anxiety and poor self-esteem. The specialist facilitates this psychological work by keeping the child focused on his/her own play, while simultaneously working on important issues and skills, without distraction.

The constellation of symptoms that make up ADHD is quite varied and the presentation can change over time, making it one of the most complex disorders to work with. Based on the symptoms, three types of ADHD can be diagnosed applying the DSM-5 criteria: Combined presentation, Predominantly Inattentive presentation, and Predominantly Hyperactive-Impulsive presentation. These symptoms affect children's interactions in all areas of their environment and can result in an inability to meet situational demands in an age-appropriate way (Imeraj, Antrop, Sonuga-Barke, Deboutte, Deschepper, Bal, & Roeyers, 2013).

Children with ADHD typically experience difficulties with home, school, and community behavior, including peer interaction, academic achievement and general adjustment. The adults in their lives primarily determine, create, and maintain the familial, social, and academic demands placed on the children (Goldstein, 2002). Teachers, parents, and other adults in their environments do not always understand the manifestations of the disorder. When that occurs, the focus of concern can become the "bad behavior" that a child exhibits, rather than an understanding of the symptoms of ADHD as a disorder.

Children who experience years of negative feedback, negative reinforcement, and an inability to meet the reasonable demands of family, friends, and teachers because of the aforementioned skill deficits, can end up feeling that what they can do is never good enough. A goal of therapy is to give children a safe place where they are accepted as they are; allowing them the freedom to learn coping mechanisms and to experience and gain self-confidence. With this kind of environment, children can realize their true potential through caring and unconditional positive regard.

Much of the research to date has focused on television as a potential contributor to attention problems (Acevedo-Polakovich, Lorch, & Milich, 2007; Christakis et al., 2004; Johnson, Cohen, Kasen, & Brook, 2007). Research examining video games has found similar associations with attention problems, although the research on video games is just beginning (Bioulac, Arfi, & Bouvard, 2008; Chan & Rabinowitz, 2006; Swing, Gentile, Anderson, & Walsh, 2010). It is important

to note, however, that some research has found playing action video games to lead to improvements in measures of visual attention (Green & Bavelier, 2003). "Visual attention" refers to the rapid and accurate extraction from the environment and processing of visual information.

In the past four decades, children's media entertainment has changed significantly in that it became more fast-paced, violent, and arousing (Allen, Livingstone, & Reiner, 1998; Bushman, Jamieson, Weitz, & Romer, 2013), as well as being more accessible to younger children. At the same time, the increase in the diagnosis rate of ADHD has also increased (Akinbami, Liu, Pastor, & Reuben, 2011). These increases at relatively the same time led to a concern among some authors that use of media entertainment may influence ADHD-related behaviors, but in actuality, the research led to mixed results (Huizinga, Nikkelen, & Valkenburg, 2013). They systematically collected all cross-sectional, longitudinal, and experimental studies examining the relationship between screen media use and ADHD-related behaviors. It was found that although a media-ADHD relationship had accumulated, the analysis was searching for which behaviors are related and under which conditions would they be related. Therefore, it was clear that different studies were looking at different ADHD behaviors.

While many studies focus on the association between electronic media and greater difficulties with attention, it is important to see the value of using electronic media for increasing focus and self-control. It has been noted that electronic screen media may make other activities (work or school) seem less interesting by comparison (Gentile, Swing, Lim, & Khoo, 2012). Many television shows and video games are very exciting and fun, including using features that trigger an orienting response, such as sound effects, lights, etc. (Kubey & Csikszentmihalyi, 2002). These salient features provide a type of continual support for attention. This is quite different from many of the work and school tasks that are difficult for those with attention problems. Over time, frequently engaging in exciting activities (e.g., playing video games) might change children's expectations regarding the desired level of stimulation. The greater the contrast between electronic media content and work or school tasks, the more difficult it could become to focus on work or school. However, it cannot be understated about the impact that desire and motivation have when children are learning. The passion of video games can actually increase the desire to learn more through this medium, rather than what has been offered in school settings. But it is just that hypothesis that required more research and interest by specialists. In fact, if the work or school requirements could build on how the electronic media can keep children so in tuned, it might access what is needed for children with ADHD.

The positive role that electronic media could have to help children with ADHD seemed worthy of investigation because many children find the use of these video games to be pleasurable and fun. Electronic media may engage them easily, and their use could be added to the treatment protocols which already exist. There are some negative impacts commonly associated with the use of video games by a child with ADHD, such as: increasing violence, aggression, and/or addiction to video games (Bioulac, Arfi, & Bouvard, 2008; Chan & Rabinowitz, 2006; Anderson, Shibuya, Ithori, Swing, Bushman, Sakamoto, Rothstein, & Saleem, 2010). But there are clearly more successful electronic games that do much more than cause negative impact. Electromyography (EMG) biofeedback has been used to help children with ADHD understand and experience what self-control actually is by measuring muscle tension (Kaduson, 2001). Biofeedback means that children are given information about their muscle tension activity through electrodes placed on the forehead. In order to engage children even more when using EMG biofeedback, this author created a biofeedback car racing game (Kaduson, 2001). In this game, measurements are taken by the Johnson & Johnson (J&J) EMG (model no. M59A). The machine is used to monitor and display ongoing EMG activity generated by muscle action in the form of audio and visual feedback. The J&J EMG is attached to a cumulative integrator, Biofax model no. S4000, which records the total number of microvolts at any given time. The instrument is adjusted so that existent tension exceeds the threshold value. For ADHD children, sensitivity is set at .5–15 microvolts. The output of the J&J EMG machine is fed into the Biofax, which then activates a remote-control road racing car game. Children who played would need to relax to win the game by having their car go around the track more than their competitors. While not an electronic game or app that could be purchased or used, the biofeedback process taught the children what it felt like to relax their muscles to win the racing game and feel success. Therefore, they are working on self-control the entire time.

Neurofeedback (via electroencephalogram – EEG) is a form of behavioral training aimed at developing skills for self-regulation of brain activity. This is not a new method as specialists have used neurofeedback in the medical field for decades. Development of neurofeedback digital games can be traced back to National Aeronautics and Space Administration (NASA) technology that measures the brain waves of pilots as they use flight simulators. Current neurofeedback digital games are generally only used in a therapeutic setting, with a specialist, and the children have their mental states reflected in the EEG by electrodes placed on the scalp. The children use their own focus and attention which is measured by brain waves in order to win the game. While it is considered a digital game, the children do not spontaneously pick it up

to play as they do with current video games, due to the complexity of the set up (i.e., using and placing electrodes on the scalp in the appropriate manner to record brain waves). The efficacy of this approach has been documented, however, many more studies will need to be done to establish clinical efficacy and effectiveness.

There are several video games that train the brain to focus. Games have been created which have the potential to increase attention stamina (Kollins, 2017). When using *Captain's Log* (Braintrain.com), children become the captain of their own brain, instead of letting impulses and distractions take them off course. *Captain's Log* sets the player as the captain of a star ship that has been lost in space. The player has to find the way home, scavenging for resources, upgrading the ship, embarking on dangerous missions, and scouting out worm holes. These games have been around since 1985 (originally for traumatic brain injury patients), but now they have 50 different programs and over 2000 exercises to help some children improve memory, and self-control (Hodges, 2017). Another game created for treatment is *S.M.A.R.T. Braingames*, which is a system that converts any home video or computer game into a neurofeedback device. Using the technology developed by NASA, this system includes state of the art wireless, handheld game controllers. It looks and works like any other game controller, but it receives brain wave signals from a headset worn by the player. The headset tracks the frequency of the children's brain waves while they play. When children exhibit low-frequency patterns during a car race on the track, their car slows and other cars pass. When children see that, they concentrate to produce higher frequency brain waves, and the car speeds up. The idea is that the higher frequency pattern will continue even after children stop playing the game.

Clearly many children and adults enjoy video and computer games, but what is now even more interesting is that not all the games result in negative behavioral effects on children with ADHD. In fact, there are brain building video and computer games that exist that children love, and with appropriate amounts of time on screens, they have shown positive results (Hodges, 2017). Most parents and research looking at the negative effects of video games are correct if the game is violent or frenzied action. This is not about those type of games, but there are electronic games that could help children with ADHD increase focus for tasks that they find boring and develop strategies or plans for completing tasks.

Bad Piggies, which is rated E, is a puzzle game from the makers of the popular game, *Angry Birds* (www.angrybirds.com). It challenges players to build contraptions that carry the "piggies" to their destinations. At the start of the game, you're shown the level layout, given a collection of parts, and sent on your way. It is up to the player to invent a solution to each puzzle and

there isn't only one right answer, therefore, it requires children to use different strategies to advance. They need to think flexibly and consider several ways of escorting the piggies through the stage. Many games are rated E, or for "everyone", and they are games that children like to play on their own. It is with these games that treatment for ADHD children can be enhanced and with positive outcomes.

Roblox is an online virtual playground and workshop. Players are given basic tools with which to construct buildings, machines, and other creations to explore the *Roblox* world. Players use working memory skills when they learn and remember how to use the different tools for arranging and building objects and altering their appearance. For children with ADHD, working memory is usually impaired and this game requires children to use working memory more often with success, thereby building the skills needed.

Minecraft is one of the most popular games. Players are placed in a borderless, randomly generated land with no supplies, directions, or objectives. They decide what to do and how to do it. Players collect materials from the world around them to "craft" items and build whatever their minds can imagine. This game improves planning skills by following multi-sequential steps because players need to gather materials, create items, and complete tasks. As children start the game, they need to collect mined materials, build a workbench on which to craft items, and construct a shelter. This uses executive functioning skills that are generally also impaired in children with ADHD (Barkley, 2012).

Another video game series rated E for everyone that has been around for a long time is The *Zelda* franchise (www.zelda.com). Players are challenged by a puzzle filled world, requiring critical thinking and goal directed persistence with a goal of completing a task despite distractions and competing interests. This uses the skills of problem solving and sustained attention, which are usually difficulties that children with ADHD encounter on a consistent basis.

Teenagers with ADHD are particularly attracted to games during treatment since they are often not interested in talking directly about things but enjoy game play – especially video or computer type. *Portal* and *Portal 2* are rated T for Teens. The *Portal* series is revolutionary in the video game industry because it prizes gameplay over flashy graphics or complex narratives. Players navigate a character through an abandoned research center using a "portal gun". It opens doors between chambers that players or objects can then move through like a puzzle set in a three-dimensional world. The game is engaging and requires players to use executive functioning skills, such as planning, time management, and working memory, which don't come easily to children with ADHD. Also for teenagers, there is *Starcraft* and *Starcraft II: Wings of Liberty*, which are also rated T. These "Real Time Strategy"

(RTS) games are built around maps or environments viewed from overhead. Players construct different types of units and harvest materials, all with the goal of defeating an enemy (either computer or human) in battle. Children need to devote maximum attention to ensure they are producing units at peak efficiency while anticipating attacks and planning assaults on the enemy. To be successful, players need to use metacognition, sustained attention, and working memory, all of which are difficult for children with ADHD. Another T rated game, which has been popular for many years, is *Guitar Hero* (www.guitarhero.com). This game is an exercise in focus and reflex. It offers teens an opportunity to fine-tune their ability to pay attention and to turn visual stimulation into physical reaction. This game relies heavily on working memory since the game requires repetition of complex patterns. Players use plastic guitar-shaped controllers to "play along".

While many video games may be violent or fast paced and arousing, children with ADHD gravitate towards video or computer games because of the reinforcement provided through the game. Using some of the aforementioned games can help this population realize more success in being able to know what focused attention and impulse control feels like. The following is a case where computer games were added to the treatment protocol for that exact reason.

Case Example

Joey is a 9-year-old boy diagnosed with ADHD at the age of 5. He had been in treatment with another specialist who used talk and cognitive-behavioral therapies. However, Joey was not participatory in the treatment and refused to go. His parents brought him to treatment for play therapy since they had very little success with other forms of treatment, including medication. During the intake with his parents, they provided the neurological report with Joey's diagnosis of ADHD. After review, the specialist also noted that Joey had a significant impairment in his working memory. He began to find learning too difficult in school, and he refused to go several days each week. Joey's parents had set limits about playing video games because he wasn't doing his homework or studying. This didn't result in positive actions on Joey's part. Instead, he just stopped doing his homework and/or studying.

His parents were given Conners' 3 Parenting Rating Scales (Conners, 2016), Barkley Home Situational Questionnaire (Barkley, 2013) to fill out separately. In addition, the teacher rating scales for the same inventories were given to his teacher so that a behavior baseline was established. By having multiple raters, it was more likely that the results would not be biased or based on only parental observation.

Joey's parents were then asked to bring him to the first session, where assessment was done through play to see specific skill sets. Joey immediately came into the playroom on his first visit, and he participated in all required tasks. He was asked to draw a person, which he did very impulsively. The specialist introduced a game with balloons. They both inflated several balloons and tied them off. Then Joey was asked what types of things he hated to do. Each comment was written on one of the balloons. He then would choose what he hated the most, and break that balloon and then all the rest of the balloons as well. This allowed him to freely express what he hated about school, friends, and family. While doing this, he said he hated how people always told him to "pay attention", and he was paying attention, so he didn't understand what they meant by repeating over and over to "pay attention". He hated long-term assignments. He had difficulty remembering where he was within an assignment when asked. He complained very specifically (without realizing it) about his weak, working memory. He was clearly angry at his parents because they took away his electronics when his grades went down. At the end of the intake, he told his parents he wanted to come back and play, so they set up the next appointments.

Each subsequent weekly session was structured so that Joey could let out his angry feelings. He worked with the specialist playing various board games that were used for self-control training. He was an eager participant in all of the techniques used. By the fifth session, it was clear that he would benefit from working with the specialist using one of the video games he loved to play. The specialist told him that added to his weekly therapy session would be playing *Minecraft*. He was very excited to hear that and asked if he could bring his computer. He was told that the computer would be in the playroom for this purpose, but since the specialist wasn't sure how to play it, Joey was asked to teach the specialist so that they could do it together. This additional piece of teaching was to begin helping with his working memory deficits and enhance his self-control. His planning and organization skills were very weak in other environments but within the game, he was the expert. He was very excited to try to teach it the following week and he commented several times that he had to wait and control how fast he was playing the game so that the specialist was able to learn. While the specialist had played the game on occasion, it was important to get the game's guide book *The Ultimate Player's Guide to Minecraft* (O'Brien, 2014), which instructed how to do each step of the game, so that when Joey was teaching, the specialist would know how to redirect him or reinforce him when he was correct. This ensured that the specialist could assist Joey in enhancing his working memory and gain the most from the game.

Joey's parents were asked to monitor the use of the game at home and allow 30 minutes for him to play it at home daily after dinner. The specialist recommended to the parents that rather than taking away all video games from Joey, it would be better to get proactive, get involved, and learn how to use these technologies to their benefit. The specialist also talked to the parents about understanding the importance of technology in the lives of their children. The reality is that if they restrict their children's access to technology too much, these children may fall behind in learning the vital 21st-century skills of information management and literacy in digital media and technology.

Furthermore, they may find themselves feeling that they are "different" from their peers and have less awareness of the latest games and technologies that their friends are always talking about. As these children get older, they may be left out of the social loop if they do not have access to a cell phone for texting or to Facebook for communicating with their peers. While this may be acceptable for some parents (and also appropriate for many ADHD children who may be a year or two less mature than their same-age peers), there can be serious repercussions for these choices.

One of the reasons that this issue is focused on so frequently is due to the increased level of engagement that ADHD children show while playing video games. This is particularly noticeable because of the easily observed difference in their level of attention and focus while they are playing video games when contrasted to many other activities. In fact, many parents feel that their child cannot have attention problems because he can spend hours playing video games. But in the case of Joey, this game play would actually help him develop and improve working memory skills so that learning could possibly become easier for him. They were agreeable to the conditions.

For the next three months, Joey was seen weekly and play therapy was used to work on impulse control for the first 15 minutes. The balance of the session (30 minutes) was with Joey playing and teaching *Minecraft*. He was the expert on this game, and while he taught the specialist how to do each step, he was able to remember where he had left off and what was next. He commented during one session saying, "See, I can focus". However, during another session within the first six weeks he said that he used to not remember things like this, when referring to sequential steps to take to reach a specific goal. After three months, the behavior rating scales were again given to his parents and teacher. It was easy to see the progress Joey was making in therapy sessions, with his ability to think, wait, and reconsider possibilities as he played the game. He was the one in charge, and he was an expert. His confidence and feelings of competency were acknowledged and his ability to communicate clearly was apparent since he was the teacher throughout the sessions. In addition to what was observed in session, both his parents

and the teacher had reported improved working memory skills. He was able to plan his homework better and follow through. While his attention span might have improved, it was more likely that he was now motivated to succeed since he could understand the benefits of completing tasks and feeling productive, which increased his self-esteem.

At the end of treatment after four months (twenty individual sessions), Joey was still playing *Minecraft*, but he also was showing interest in some of the other games that were popular within his age range (i.e., *Roblox*), and his parents were more likely to allow for the different games to be played. The specialist recommended that one of the parents join Joey in his play so that they could bond at the same time he was learning. In addition, they were to check in with the specialist once a month to see how things were going. When small difficulties arose, they were reassured that through joining and bonding with Joey through the use of video games, along with their own understanding of the games meeting his needs, Joey was able to strengthen his working memory and self-control. They now understood the need to keep the video games ongoing but also understood the importance of balance between allowing Joey to play video games for clinical and recreational reasons, and the need for time limits and appropriate boundaries around the play.

Conclusion

The value of the clinical use of video games for the treatment of children with ADHD has been demonstrated. These games can positively affect children with ADHD and help them gain skills to be more successful. There is growing evidence for the use of video games to help with self-control and working memory deficits as a valuable treatment module. While one must keep in mind that the example of Joey was a case study, and that findings for clinical use are different than empirical findings, it still begs to allow for more studies on the benefits of video games for children with ADHD. The research still explores the negative effects of playing video games, and yet that seems to have inconsistent findings overall.

In the future, more research studies which clearly outline the relationship between playing video games for remediation of ADHD symptoms (especially working memory) are warranted. Further, controlled studies are necessary to establish clinical efficacy and effectiveness and to learn more about the mechanisms underlying successful training and treatment. It is time for treatment plans to explore the use of video games as adjuncts to therapy to help children with ADHD take full advantage of advances in treatments.

References

- Acevedo-Polakovich, I. D., Lorch, E. P., & Milich, R. (2007). Comparing television use and reading in children with ADHD and non-referred children across two age groups. *Media Psychology*, 9, 447–472. doi:10.1080/15213260701291387.
- Akinbami, L. J., Liu, X., Pastor, P. N. & Reuben, C. A. (2011). *Attention Deficit Hyperactivity Disorder among children aged 5–17 years in the United States, 1998–2009* (NCHS Data Brief No. 70). Retrieved from the website of the National Center for Health Statistics, Centers for Disease Control and Prevention at www.cdc.gov/nchs/data/databriefs/db70.htm.
- Allen, J., Livingstone, S., & Reiner, R. (1998). True lies: Changing images of crime in British postwar cinema. *European Journal of Communication*, 13, 53–75.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: American Psychiatric Association.
- Anderson, C. A., Shibuya, A., Ihori, N., Swing, E. L., Bushman, B. J., Sakamoto, A., Rothstein, H. R., & Saleem, M. (2010). Violent video game effects on aggression, empathy, and prosocial behavior in eastern and western countries: A meta-analytic review. *Psychological Bulletin*, 136, 151–173.
- Barkley, R. A. (2012). *Executive functions: What they are, how they work, and why they evolved*. New York, NY: Guilford Press.
- Barkley, R. A. (2013). *Taking charge of ADHD: The complete authoritative guide for parents*. New York, NY: Guilford Press.
- Bioulac, S., Arfi, L., & Bouvard, M. P. (2008). Attention Deficit/Hyperactivity Disorder and video games: A comparative study of hyperactive and control children. *European Psychiatry*, 23, 134–141.
- Bushman, B. J., Jamieson, P. E., Weitz, I., & Romer, D. (2013). Gun violence trends in movies. *Pediatrics*. Advance online publication, doi:10.1542/peds.2013-1600.
- Center for Disease Control and Prevention. (2011). Attention-Deficit/Hyperactivity Disorder: Data and statistics. Retrieved from www.cdc.gov/ncbddd/adhd/diagnosis.html.
- Chan, P. A., & Rabinowitz, T. (2006). A cross-sectional analysis of video games and attention deficit hyperactivity disorder symptoms in adolescents. *Annals of General Psychiatry*, 5. Retrieved from www.annals-general-psychiatry.com/content/5/1/16.
- Christakis, D. A., Zimmerman, F. J., DiGiuseppe, D. L., & McCarty, C. A. (2004). Early television exposure and subsequent attentional problems in children. *Pediatrics*, 113, 708–713.
- Frank-Briggs, A. I. (2011). Attention deficit hyperactivity disorder (ADHD). *Journal of Pediatric Neurology*, 9(3), 291–298.
- Gentile, D. A., Swing, E. L., Lim, C. G., & Khoo, A. (2012). Video game playing, attention problems, and impulsiveness: Evidence of bidirectional causality. *Psychology of Popular Media Culture*, 1(1), 62–70.
- Goldstein, S. (2002). *Understanding, diagnosing, and treating ADHD through the lifespan*. Plantation, FL: Specialty Press.
- Green, C. S., & Bavelier, D. (2003). Action video game modifies visual selective attention. *Nature*, 423, 534–537.
- Hodges, R. (2017). Total score! Video games that train the brain to focus. Retrieved from www.additudemag.com/educational-video-games-for-adhd-kids-focus.
- Huizinga, M., Nikkelen, S. W. C., & Valkenburg, P. M. (2013). Children's media use and its relation to attention, hyperactivity, and impulsivity. In D. Lemish (Ed.), *The Routledge international handbook on children, adolescents and media* (pp. 179–185). London: Routledge.

- Imeraj, L., Antrop, I., Sonuga-Barke, E., Deboutte, D., Deschepper, E., Bal, S., & Roeyers, H. (2013) The impact of instructional context on classroom on task-behavior. *Journal of School Psychology, 51*, 487–498.
- Johnson, J. G., Cohen, P., Kasen, S., & Brook, J. S. (2007). Extensive television viewing and the development of attention and learning difficulties during adolescence. *Archives of Pediatrics and Adolescent Medicine, 161*, 480–486.
- Kaduson, H. G. (2001). Biofeedback racing car game for children with ADHD. In C. E. Schaefer and S. E. Reid (Eds.), *Game play: Therapeutic use of childhood games* (pp. 299–315). Hoboken, NJ: Wiley & Sons.
- Kollins, S. (2017). Digital treatment through a video game could improve attention. Retrieved from www.dcri.org/video-game-adhd.
- Kubey, R., & Csikszentmihalyi, M. (2002, February). Television addiction is no mere Metaphor. *Scientific American*. Retrieved from www.scientificamerican.com/article.cfm?id=television-addiction-is-n.
- Minecraft. (2017). www.minecraft.net.
- O'Brien, S. (2014). *The ultimate player's guide to Minecraft*. Indianapolis, IN: Que Publishing.
- Portal and Portal 2. (2016). www.thinkwithportals.com.
- Roblox. (2017). www.roblox.com.
- Schwarz, A., & Cohen, S. (2013). ADHD seen in 11% of U.S. children as diagnoses rise. *New York Times*. Retrieved from www.nytimes.com/2013/04/01/health/more-diagnoses-of-hyperactivity-causing-concern.html?_r=0.
- Starcraft and Starcraft II: Wings of Liberty. (2017). www.us.battle.net/sca/en.
- Swing, E. L., Gentile, D. A., Anderson, C. A., & Walsh, D. A. (2010). Television and video game exposure and the development of attention problems. *Pediatrics, 126*, 214–221.

Connecting with Gifted People

12

Utilizing Technology in Mental Health to Speak an Intellectually Gifted Person's Language

Jessica Stone

100 Words of Wisdom

Giftedness is not what you do or how hard you work. It is who you are. You think differently. You experience life intensely. You care about injustice. You seek meaning. You appreciate and strive for the exquisite. You are painfully sensitive. You are extremely complex. You cherish integrity. Your truth-telling has gotten you in trouble. Should 98% of the population find you odd, seek the company of those who love you just the way you are. You are not broken. You do not need to be fixed. You are utterly fascinating. Trust yourself!

(Linda Silverman, Ph.D., 2015, para. 1)

What does it mean to be gifted? For most people, an image of Albert Einstein is conjured when the word “gifted” or “genius” is uttered. However, as this chapter will provide, being gifted is much more intricate than a high Intelligence Quotient (IQ) score. As Dr. Linda Silverman’s quote above, entitled “100 Words of Wisdom” suggests, living life as a gifted person is complex. Navigating life at any age and stage as a gifted person, is complex. These complexities lie both within the person and his or her own thoughts, beliefs, concerns, etc., and within society in terms of assumptions, expectations, and judgements. How do we best incorporate the needs of our gifted clients? One powerful way is through the use of appropriate technological tools.

It is important for a mental health practitioner to understand some fundamentals about gifted people, how they might present in an office, what their concerns might be and/or how they might manifest, and ways to work with them therapeutically. This chapter intends to introduce the reader to these fundamentals and provide some exciting ways to connect with gifted clients and patients using technology. Understanding the complexities of gifted people and how to speak their language will create an environment of acceptance, appreciation, comprehension, and safety. It is from this perspective that gifted people will be able to work through their concerns and difficulties.

One current language that people in general, but gifted people commonly, speak is digital. What is meant by language is the common occurrence of digital languages being utilized to communicate, learn, express, create, document, explore, etc. As this chapter will present, people who are gifted commonly desire a depth and breadth to their chosen endeavors, which is not common in the general population. Digital tools, whether it be exploring and searching using the internet, using applications on a phone or tablet, or playing any number of the thousands of available games, allow people who are gifted and have interest to really delve into and satiate a number of their quests for information and connection. It is essential that a practitioner find ways to ethically, appropriately, and therapeutically incorporate such language into their work.

What Does It Mean to Be Gifted?

There are stereotypic assumptions made at all levels, particularly for (but not limited to) school-aged children. Frequently the traits of a person who is a “high achiever” are confused with a person who is “gifted”. Even the term “gifted” amounts to an umbrella hovering over other concepts and caveats. Just as one can frequently hear the adage: “if you’ve met one person with autism, you’ve met one person with autism”; the same can be said about a person who has been identified as “gifted”.

People who have been found to be gifted can be quite different in personality, abilities, and needs from others in the same designation (Stone, 2018a). There can also be common constellations among gifted people. Some of these qualities can be quite confusing for parents, caregivers, teachers, partners, friends, and practitioners (Webb, 2007). It is important to realize that many people are designated as gifted by their IQ score alone. While the IQ score is an important factor, it is lacking in components which encompass the gifted being.

Defining the Gifted

As stated, the most common way we currently have of identifying the gifted is through Intelligence Quotient (IQ) psychometrics. Practitioners and researchers alike have been searching for improved means of gifted identification, but psychometrics remain the most common method. People who work with the gifted frequently search for alternative ways to identify the gifted, with hope that future mechanisms will include the many other facets of giftedness, beyond the IQ.

Another obstacle to proper identification is the lack of an agreed upon definition of what “gifted” means; what does it really encompass? An expansion beyond the traditional IQ psychometrics is important as the gifted person is multi-layered and IQ tests are very limited, however, the difficulty of defining the population is exactly what makes the evaluation difficult.

IQ

IQ scores for the gifted population typically fall within the following categories, depending on the test given:

- Gifted (G: FSIQ 130–144) (including Mildly Gifted and Moderately Gifted);
- Highly Gifted (HG: 145–159);
- Exceptionally Gifted (EG: 160–174);
- Profoundly Gifted (PG: 175+) (GDC, n.d.)

One might ask why the IQ score matters. The importance is less about the Full Scale Intelligence Quotient Score (FSIQ, the score people quote when stating their IQ), and more about a general way to conceptualize a person’s potential differences. The higher the IQ score, the more propensity for special needs. The more different from the general population, they most likely understand, conceptualize, and have concerns with the topics and experiences of day to day life. This drastically affects a person’s existence, relationships, thought processes, self-concepts, self-worth, and abilities to connect with others. If a person feels they are not like others, their differences set them apart in ways which isolate them, that no one understands them, and others don’t speak their language; the effects can be profound. These factors affect the therapeutic process, and are critical for the practitioner to understand.

In addition to the compilation scores, the subtest scores of psychometrics are of great interest. It is not common for a gifted person to be “globally gifted”, which would mean the person excelled across each subtest

(Gladstar, 2015). More common is to find variability with areas of strength, areas of difficulty, and areas of *relative* difficulty. Areas of relative difficulty are important because a gifted person can easily score within a defined “average” range and not draw concern but when compared to their own other highly elevated scores, it becomes clear that the person has difficulty which is *relative* to the other scores. This discrepancy, or relative difficulty, is cause for attention by teachers, parents, and the gifted person. Accommodations and remediations may serve them well and help him or her understand why some subjects, tasks, or requirements are more difficult for them than others. It is quite common and quick for people’s self-worth and self-concepts to be affected by these discrepancies and the internal analysis that follows. Externally, people may believe the gifted person is lazy, aloof, or underachieving when these discrepancies are not understood. A sub-designation for many people who have these discrepancies, numerous underlying etiologic concerns, and co-morbid diagnoses is twice exceptionality, or 2e.

Difficulties in Defining the Gifted

As mentioned, attempts have been made for many years to define what “gifted” means. Of great concern is the absence of a standardized or agreed upon definition of giftedness. In 1972, a governmental task force attempted to identify and discuss many deficits in gifted education (Marland Report, 1972). The Marland report identified that many of the children included were performing below their intellectual potential. The identified issues are the same ones we are grappling with today: lack of proper identification, lack of proper education, and concerns for disadvantaged students, including those in lower SES groups (Marland, 1972; Stone, 2018b). One could also add a lack of education and skill sets for teachers, school administrators, school counselors, and school boards. It has been 47 years since this report was published, and understanding and educating the gifted population has not progressed significantly.

Hopefully it is beginning to become clear that many assumptions are commonly made about gifted people. These assumptions are frequently damaging and leave the gifted population vulnerable to mental health decline and to unmet needs interpersonally, educationally, and internally (Heylighen, 2014).

Day to Day Life, Misconceptions, and Distinctions

It is common for gifted individuals and families to feel judged negatively when the term “gifted” is associated with their family. External judgement

can include unrealistic and unfounded expectations, which, when unmet, equates to a failure on the part of the gifted individual. Others can perceive the gifted person and their family as elitist or expecting unwarranted special treatment. Internal judgement can be harsh as well. A gifted person's self-concept can be quite dictated by perfectionism and the unrealistic internal standards set. Expectations, both internal and external, can weigh heavily. Overexciteabilities (Dabrowski, 1972), asynchronicities, perfectionism, imposter syndrome, and twice-exceptionality (2e) can all muddy the waters for a gifted person.

First and foremost, a person who is gifted is not necessarily high achieving. A high achieving person works to achieve and has the achievement, and all that comes with it, as a primary goal. A gifted person may have very little interest or motivation to achieve. The reinforcing aspects of achieving, which others commonly respond to, do not have the same inherent meaning to many gifted people.

A person who is gifted will quite commonly have areas where they have amazing abilities, skills, and interests (both in breadth and depth), areas where they display a typical level of ability, and/or, at times, can even have learning disabilities in some areas. These components can put enormous pressure on a gifted person, which is typically compounded by their own internal critic, and the weight becomes exponential. If we add in some overexcitabilities, life can become quite overwhelming, and the gifted person frequently begins to experience symptoms of anxiety, depression, attention difficulties, social concerns, and at times, suicidality.

Overexciteabilities, Asynchronicities, Perfectionism, Imposter Syndrome, and Twice-Exceptionality (2e)

Overexcitabilities

Dr. Kazimierz Dabrowski identified five clusters of characteristics he termed "overexcitabilities" or OEs (Bainbridge, 2018; Lind, 2011). Lind states that OEs are "inborn intensities indicating a heightened ability to respond to stimuli. Found to a greater degree in creative and gifted individuals, overexcitabilities are expressed in increased sensitivity, awareness, and intensity, and represent a real difference in the fabric of life and quality of experience" (Lind, 2011, para. 2). In addition, Heylighen (2014, p. 5) states "Extreme overexcitabilities, or a strong imbalance between them, may reduce the individual's ability to function in society."

The five OEs identified by Dabrowski are: psychomotor, sensual, intellectual, imaginational, and emotional. Understanding which of the dominant

OEs a gifted person exhibits, and a person can exhibit more than one frequently, is of utmost importance. The intensities, interests, language, self-concept, self-worth, characteristics, experiences, and points-of-view of our clients inform our treatment and their progress (Fonseca, 2016). As both Lind and Heylighen state, the effects of the OEs on the gifted person can significantly influence their ability to function well within their society.

The general markers of each OE can be helpful when evaluating which OEs a person might exhibit, whether they be positive or negative attributes. Psychomotor OE includes the neuromuscular system. A love of movement, a surplus of energy, rapid speech, a need for action, and a zealous enthusiasm are a few of the Psychomotor OE attributes. Also included are impulsivity, intense drive, nervous habits, and constant talking (Lind, 2011).

Sensual OEs include experiencing pleasure or displeasure from any of the sensations of the senses: sight, smell, touch, taste and/or hearing. Commonly they have a heightened and increased appreciation for music, dance, art, and language. People with Sensual OEs can also experience an overstimulation from the senses. They can be very sensitive to tags on clothing and noises and smells can distract (Lind, 2011). Highly sensitive people can lead an existence which is both colorful, positive and fantastic; and dark, isolating and frightening (Aron, 2015; Daniels & Piechowski, 2009).

A person who has an intense need to seek information, knowledge, and truth fits the Intellectual OE category. Intellectual OEs include meta-thinking, or thinking about thinking, morality, and often have amazing visual recall. People who experience these OEs can seem obsessed about political concerns, existential crises, and death. They can be exuberant and interrupt and/or become hopeless and helpless with their frequent thoughts of heavy issues (Lind, 2011).

Imaginational OE can manifest as a rich, detailed world of images, fantasy, and metaphor. They can have intense and elaborate dreams. Truth and fiction and can be mixed to create intense imaginary worlds. Classroom work can be difficult due to "daydreaming" and other activities which are deemed non-compliance. They frequently utilize their imaginational abilities when bored (Lind, 2011).

Finally, Emotional OEs include intense feelings and reactions to stimuli. The emotions can be complex and intense, both how they are experienced internally and how they are demonstrated externally. People with Emotional OEs have an amazing capacity for deep relationships. They are acutely aware of their own feelings, the feelings of others, and are often accused of over-reacting to situations (Lind, 2011).

As you can see, any of these could be erroneously identified as symptoms of clinical diagnoses and of course, co-morbidity, or the simultaneous existence of two or more conditions, of different concerns can exist. However, it is important to explore the etiology of symptoms, how they manifest in a person's day to day

life, and what is or is not supported about a clinical diagnosis within their presentation. When learning about the OEs and realizing that 1) gifted people often possess one or more, 2) the exponential impact of multiple OEs on one's functioning, and 3) how these manifest clinically, a practitioner can really understand the importance of understanding more about the gifted population.

Asynchronicities

Asynchronous development is an incongruence between the rates of cognitive, emotional, and physical development (Morelock, 1992). A gifted child could be functioning well beyond their chronological age in a cognitive capacity but emotionally be functioning well below their chronological age. An example would be a person who would typically be placed in 4th grade due to their age (9yo) but is placed in 6th grade due to their cognitive abilities, when they get an answer incorrect they respond with the emotional maturity of a 4-year-old, and their physical body looks like an 8-year-old. If a 9-year-old child can think in more depth and breadth than most others regardless of age (but especially in age comparison), contemplate complicated endeavors, be expected to perform and do it correctly (internally and externally), and yet has made an error and responds with the emotional capacity of a 4-year-old (think crying, tantrum, desperation,) and physically looks like an 8-year-old (which is commonly a target point for teasing and bullying), how do we think this will affect the child emotionally? Socially? Academically? What if this was a common scenario for this child?

Perfectionism

Perfectionism is quite common in the gifted population, with approximately 20% of gifted people suffering with it to a degree which causes problems (NAGC, n.d., a). A person who is perfectionistic has an internal drive to meet internal or external criteria, or both. While this trait can propel a person forward in the pursuit of excellence, it can also be a source of stress and anxiety.

Imposter Syndrome

Imposter syndrome is a fear many gifted people, particularly Visual Spatial learners, experience when they do not believe their ideas or knowledge are legitimate (Silverman, 2002). Imposter syndrome belittles one's abilities and achievements by attributing both to external sources or circumstances.

For instance, “the only reason I got the winning shot in the basketball game is because Joey set it up perfectly” or “the only reason I got into the school was because someone dropped out and they needed another student”, etc. The more success, the more stressful the situation. A person with imposter syndrome constantly worries about being found a fraud. As a result, avoidance can come into play. “While attempting to maintain the illusion of perfection, they avoid situations that they might not be best at” (Byrd, n.d., para. 8).

Twice-Exceptional

Twice-exceptionality, or 2e as it is written, is a concept which builds upon the myth of global giftedness. A person who is designated as 2e is gifted in one or more area and has a significant co-morbid difficulty. These additional difficulties could be ADHD, learning differences, significant mental health diagnoses (depression, anxiety, bipolar, schizophrenia, etc.), Autism Spectrum Disorder, and much more. A person who is gifted is no less prone to co-morbid difficulties, and in some ways, a gifted person may even be more likely to have difficulties due to the asynchronicities and overexcitabilities associated with the gifted population.

Some characteristics of a twice-exceptional person which can lead to difficulties include: easily frustrated, stubborn, manipulative, opinionated, sensitive to criticism, and argumentativeness. Tendencies which can manifest in school and similar environments are: inconsistent performance, difficulty with written expression, lack of organizational skills, lack of study skills, and difficulty with social interactions (Trail, 2011).

2e people can struggle greatly with the discrepancies within their lives. This can lead to multi-faceted internal struggles which can manifest in difficult behaviors, lowered self-worth, imposter syndrome, withdrawal, anxiety, and depression. Externally, people often have expectations of 2e children (and adults) which include assumptions about the ease with which they will automatically achieve. When this does not happen, the attributes assigned are negative; such as, laziness, underachieving, inattentiveness, and more.

Mental Health

Fundamental desires of humans include to be heard and understood. This can be very difficult to achieve when your mind works differently than

most people. Gifted people, possibly even more so than others, need a practitioner to speak their language, understand the way they see the world, how they interact with others, and accept them for who and how they are.

When thinking about a mental health setting, it is important to consider a person's experience both within the therapeutic space and out in day to day life. How one conceptualizes his or her world view, perception of attachments, relationships, self-concepts, self-worth, and position in the world is critical to the therapeutic process. How does a person approach and interact in situations? We grapple with these concepts in mental health settings. In some ways, these concepts and struggles are similar for gifted and non-gifted people. In some ways, they are drastically different. The differences are critical for the practitioner to understand (Stone, 2018b).

Having a fundamental understanding of the gifted population at this point, it is important to apply that knowledge to mental health treatment, the therapeutic relationship, and the connection and understanding between the practitioner and the client. People within the gifted population are complex and their needs are great (Silverman, 1993). It is a group of individuals who are difficult to truly define (NAGC, n.d., b). As Stone (2018b, para. 7) stated, "this celebrates the differences and that is amazing! However, it also makes program creation and the inclusion criteria very difficult to manage."

Fundamentally, gifted people want to be heard, understood, seen, and related to like any other client. According to the National Center for Educational Statistics (NCES), it is estimated that gifted people make up approximately 6.7% of the US population (NCES, 2006). This number might be slightly larger due to the discrepancies in the definitions and how people are identified, however, the numbers are small either way. It is, by numbers alone, difficult for gifted people to find like-minded peers, educators, partners, and friends. It is therefore common for a gifted person to feel misunderstood even by well-meaning practitioners who are attempting to meet their needs. The more aware and understanding of the dynamic gifted constellation a practitioner is, the more successful the mental health treatment and other services will be. Everything from diagnosis to interventions will be impacted by these understandings.

If at least 6.7% of the population is some level of gifted, then it is likely that a practitioner will encounter a few within their career. If the person is not already designated, they should be referred for testing so the appropriate understandings and accommodations can be put into place through advocacy. If a person is designated, then the testing scores and the report

should provide information about their approaches to many aspects of life and their needs. This information informs mental health treatment as well.

Technology in the Mental Health Treatment of the Gifted

Technology

Given what is now understood about the gifted population, albeit a quick overview, a few concepts about their needs can be easily understood. When thinking about incorporating technology into treatment, some basics must also be understood. Technology can include phones, tablets, consoles, and computers. In mental health, any of these hardware choices can be used therapeutically. Phones and tablets can be easily incorporated within the therapeutic space. Use can include anything from sharing photographs, searching areas of interest, sharing music, etc., to utilizing applications which have been either 1) shared by the client or 2) vetted by the specialist for therapeutic appropriateness (Horne-Moyer et al., 2014; Altvater, 2017; Stone, 2016a). Consoles and computers can also be used but tend to take up a significant amount of space in the office and are not as portable as phones and tablets. Virtual Reality is also a fast-growing component of mental health treatment (Lamb & Etopio, 2018; Rizzo & Koenig, 2017). The use of VR therapeutically has expanded, and will continue to expand, the possibilities of mental health treatment. This is, in part, due to the immersive qualities of the sensory experience for the participant (Bean, 2018).

What Needs Can Technology Meet?

Socially there is an increased need for the gifted to find like-minded peers, to understand how they are both similar and different to other people, and to build skills for increased success in general. Technology can provide a plethora of information and experiences to assist with these needs. Since finding like-minded peers can be difficult within a local geographical area, it is fantastic that for the first time in history people can find each other through social media, groups, and gaming. Within these arenas, and utilizing proper safety precautions, a person can build social skills, practice skills, and work alone or within a group toward goals.

These interactions, particularly through commercial games, allow a person to work through dysregulation toward self-regulation. A player can disconnect, play a new game, join a new group (server, mod, etc.), and work at their own pace, which can be accelerated in some areas and approached more slowly in others, without judgement. There are many options within the gaming worlds which are not always possible in face to face interactions (Bean, 2018).

We have established that gifted people frequently have interest in topics with great breadth and depth. Technological tools have infinite ways to explore and expand interests, environments, and interactions. Mastery is an important concept in development and many technological, or digital, tools allow people to work toward and achieve mastery.

Gaming

Gaming has been discussed within this book in other chapters, however, for the sake of our topic it is important to highlight a few nuances. Games have been separated into two key categories within therapeutic discussions: serious or clinical games and commercial games. Serious/clinical games are those which have been created specifically to assist with therapeutic and/or educational goals (Ceranoglu, 2010). Commercial games are those which are readily available and created with a casual user in mind.

Both serious and commercial games can have therapeutic value. The important features of appropriateness for use in therapy include: identifying clinical needs, determining available apps and assessing the quality, reviewing security and ethical components, evaluating through use prior to introducing into therapy, and plan the use/develop protocols for use within therapy (Luxton, 2018). Utilizing apps and games within the therapeutic process can assist greatly with connection, relationship, allowing your client to be heard, seen, and understood, to assess for frustration tolerance, strategic skills, inter- and intra- personal skills, and many more (Stone, 2016b).

Two very popular digital tools in practice have been iPads and Nintendo Switch Consoles. iPads are portable and can perform many functions of a computer. They can run serious and commercial applications (apps), take photos, search the internet, play music, and more. The Nintendo Switch uses games specifically designed for the console, either in the form of a cartridge or purchased online through the Nintendo Game Store (Nintendo, n.d.). The fantastic things about the Switch for therapeutic use are the portability, it is a very small size yet it can also be projected through a larger screen such as a

television, and the controllers, or joy-cons, can be removed for individual use. Each participant can have a joy-con in their hand and control different functions of the game play. This creates a scenario within which the players need to communicate with each other what the goals and desires of the play will be. Multiple console sets can also be used together.

Case Example

Robert has been a long-term client, having received services with the same provider off and on for four years. He is now 9 years old. He lives with his mother and has visitation with his father every other weekend. He has had this stable schedule since he was less than a year old. Robert was initially referred for assistance with his angry, aggressive outbursts toward family members, and behavioral difficulties in his day care setting. His mother reported that Robert has a history of enuresis and repetitive behaviors. Treatment to date has consisted of a referral for psychological testing, a referral to the pediatrician for a medical clearance regarding the enuresis, and a treatment plan in accordance with the results of both. The enuresis was given a medical clearance, and the psychological testing revealed a multitude of concerns, including Autism Spectrum Disorder, unspecified Mood Disorder, and Profoundly Gifted (FSIQ=175+). He was placed on successful prescription medication regimens by the psychiatrist. The psychological treatment plan changed over the years according to his progress, his developmental level, his needs, and his difficulties.

At age 9 the treatment goals include increasing his interpersonal skills, increasing his frustration tolerance, increasing his ability to identify, integrate, and utilize coping strategies, increasing his abilities to recognize and integrate social cues (overt and nuanced), and decreasing his aggressive behavior. The practitioner has a fundamental theoretical foundation in Prescriptive Play Therapy, including a strong congruence with attachment theory and a primarily non-directive base. Prescriptive Play Therapy “incorporates a variety of theories and techniques in order to customize the play intervention to meet the specific and diverse needs of individual clients” (Schaefer, 2016, p. 227).

The playroom is clean and organized, with open shelves full of games, books, art supplies, Playmobil, legos, cars, puppets, dolls, a castle, a complete traditional Sandtray area, and an iPad leaning up against the bookshelf. Historically Robert is attracted to the cars and has spent a lot of time organizing them and lining them up. He also utilizes the Playmobil and Lego people and enjoys making paper airplanes. He has never been interested in

the traditional Sandtray. He is very sensitive to sensory stimuli and refuses to even entertain the idea of the traditional Sandtray when it has been offered as a potential activity.

Robert enjoys using items in unique ways. He challenges himself to discover how items can be used and employs a lot of “out of the box” thinking. He is very bright and creative and rigid and repetitive. Years of work, rapport building, and interactions have allowed him to tolerate the practitioner in his personal bubble, even if just a little bit. Progress is relative and Robert is doing quite well in therapy and in numerous other environments.

Robert noticed the new iPad against the bookshelf immediately. He is keen to recognize when something has changed in the playroom. He remarks that it is new. He does not elaborate or ask why it is there. He sits in his favorite spot and appears to be pondering what he would like to do this day. The practitioner explains that the iPad is now in the playroom because some children can really find amazing ways to communicate with certain apps. One serious app, the *Virtual Sandtray App*, is described to Robert as a version of the traditional Sandtray like in the office but on the iPad. It is explained that the person can dig and paint in the sand and place 3D models, along with many other features. Robert asks if he can see it. The practitioner assists him in setting up his own confidential account. He uses his school login for ease in remembering. The blank sandtray appears, and Robert is quite intrigued.

The practitioner asks Robert if he would like a quick tutorial lesson on the basics and Robert replies, “no, no, I got it”. He sits in his favorite spot and the practitioner sits next to him, careful not to speak as this would distract and annoy Robert. Robert begins to explore the features and occasionally asks how to do something, such as, “how do I make it bigger? How do I knock it over?” Once he has his answer, he returns to the tray. He is amazingly immersed in this creation and seems more passionate in his play than he has in some time. He smiles and states, without making eye contact, “I like this”.

He creates an amazing tray full of military planes, helicopters, and tanks. He places fire balls strategically up in the air where the planes are flying, and down on the ground where attacks have taken place. He does not use any people. He has dug down in the sand and changed the liquid to lava to create a very firm and dangerous boundary. He changes the skybox background to a dark and foreboding sky. There are no animals, no plants or trees placed, no apparent life.

After the tray was complete the practitioner asked if Robert would like to save it so he could revisit it or even just keep it. He states he would like to and the practitioner instructs him regarding the steps to do so. He names the tray file “War” then changes it to “1”. He declines the offer to tell the story of the tray and simply states “there is a lot of fighting”. Robert then chose to take

some screenshot photos of his tray. He zoomed in and out and rotated around until he achieved the perfect angles and took the photos. The tray is saved, the app is quit and closed, and Robert heads home for the day. The practitioner transferred the photos from the iPad into his file and deleted them from the iPad. They are safe and secure and kept in his confidential file in the office. The tray is saved within his own secure account in the app.

The next week Robert returned to his car play in session and the week after that he made paper airplanes, dozens of them. Two weeks later, Robert asked to see his saved tray. He makes a few changes and saves it with the name “2”. He begins a new tray. This time with some colorful plants and a foreboding spider lurking behind a treasure box. He has a new message and a new creation. The practitioner cannot wait to see what he has in store for today. This is the most Robert has ever allowed the practitioner to see into his “window” and it is very exciting.

After the session where Robert created the “1” tray, the practitioner could log in as an administrator and view and explore the tray. When zoomed out and looking at it as a whole, it becomes clear that there is a scene in “1” that has a sense of communication between the military vehicles. They are placed in a way where one of the airplanes is clearly isolated. The other planes are surrounding it and the lava is a boundary which seems to be protective for the solo plane. The other planes are on fire; they are being defeated. When the screenshot photos are viewed it appears they have been taken with the emphasis on this isolated plane’s victory and isolation. Since Robert chose the angles of the photos, it seems that they are from the plane’s point of view, which mirrors Robert’s reported position: he is isolated, powerful, alone, lonely, protected by boundaries, and wants to seem undamaged; unaffected by his social difficulties, his experience of imposter syndrome, and the expectations of others. Robert plays this out in his social interactions in school. He reports his strength and power with some grandiosity to the practitioner. He hurls insults and swear words when he feels threatened; yet, he is alone and he is saddened by this. He does not feel like he can do anything but protect himself as he doesn’t trust others. People typically do not understand him and he does not understand them. He is brilliant with social difficulties, periodically unstable moods, and a strong desire to avoid any type of emotional pain.

Robert had not ever expressed himself in this way before the use of the *Virtual Sandtray App*. He would show bits and pieces during interactions and the updates from his family and school helped fill in the gaps. It is a slow and careful process to piece together this complicated and important tapestry. However, here it is, in full color with animated flames and bright red lava with a foreboding sky – and it is amazing. This is the kind of session that leaves the practitioner with goosebumps and hopefulness.

The work Robert did with the *Virtual Sandtray App* allowed the therapeutic work to advance in ways that were not previously possible. The digital tool utilized a language he speaks, offered a comfortable, safe, and accessible environment, and allowed him to employ the amazing power of Sandtray work. He really entered an immersive zone where he was able to create a tray, and subsequent future trays as well, which allowed him to both communicate his experiences, fears, hopes, and whatever he can imagine, and work through the presented themes. He was then able to proceed with his personal journey of exploration and growth given the tools provided, both through the interaction of the practitioner and client and the client and the play item, which in this case was the *Virtual Sandtray App* on the iPad Pro.

Conclusion

It is critically important for practitioners to understand their clients and patients, the components which help in conceptualizing their needs and abilities, and to speak their language to provide the best possible therapeutic treatment. Responsibly utilizing a digital tool within the therapeutic environment was critical in Robert's treatment to allow him an environment where he was understood, heard, attended to, and connected with. These are not experiences Robert typically has in his life. The *Virtual Sandtray App* allowed Robert to create and express scenes, concepts, and themes which he has been previously unwilling and/or unable to share.

Responsible, ethical, thoughtful therapeutic use of technology will have phenomenal impacts on millions of people. Further research is necessary and imperative as we move forward in the field of mental health. Inclusion of such tools based on knowledge and sound clinical practice is powerful and of great importance.

References

- Aron, E. (2015). *The highly sensitive child: Helping our children thrive when the world overwhelms them*. New York, NY: Harmony Books.
- Bainbridge, C. (2018). *Dabrowski's 5 Overexcitabilities in Gifted Children*. Retrieved from www.verywellfamily.com/dabrowskis-overexcitabilities-in-gifted-children-1449118.
- Bean, A. M. (2018). *Working with video gamers and games in therapy: A clinician's guide*. New York, NY: Routledge.
- Byrd, I. (n.d.). *The curious case of Imposter Syndrome*. Retrieved from www.byrdseed.com/the-curious-case-of-impostor-syndrome/.

- Ceranoglu, T. A. (2010). Video games in psychotherapy. *American Psychological Association*, 14(2), 141–146. doi:10.1037/a0019439.
- Daniels, S., & Piechowski, M. M. (2009). *Living with intensity: Understanding the sensitivity, excitability, and emotional development of gifted children, adolescents, and adults*. Scottsdale, AZ: Great Potential Press.
- Fonseca, C. (2016). *Emotional intensity in gifted students: Helping kids cope with explosive feelings* (2nd ed.). Waco, TX: Prufrock Press Inc.
- Gifted Development Center (GDC). (n.d.). *Highly-Profoundly Gifted*. Retrieved from www.gifteddevelopment.com/about-our-center/our-services/k-12-educational-planning/highly%E2%80%9494profoundly-gifted.
- Gladstar. (2015). *Definition of globally gifted – what is*. Retrieved from www.gladstargtschool.wordpress.com/2015/01/05/definition-of-globally-gifted-what-is/.
- Heylighen, F. (2014). *Gifted people and their problems*. Retrieved from www.pespmc1.vub.ac.be/Papers/GiftedProblems.pdf.
- Horne-Moyer, H. L., Moyer, B. H., Messer, D. C., & Messer, E. S. (2014). The use of electronic games in therapy: A review with clinical implications. *Current Psychiatry Reports*, 16(12). doi:10.1007/s11920-014-0520-6.
- Lamb, R. & Etopio, E. (2018). Using virtual realty in play therapy. *Play Therapy*, 13(1), 22–25.
- Lind, S. (2011). *Overexcitabilities and the gifted*. Retrieved from www.sengifted.org/overexcitability-and-the-gifted/.
- Luxton, D. D. (2018). Behavioral and mental health apps. In *Using technology in mental health practice* (pp. 43–61). Washington, DC: American Psychological Association.
- Marland. (1972). *Marland Report*. Retrieved from www.files.eric.ed.gov/fulltext/ED056243.pdf.
- Morelock, (1992). *Giftedness: A view from within*. Retrieved from www.davidsongifted.org/Search-Database/entry/A10172.
- NAGC (n.d., a). *Perfectionism*. Retrieved from www.nagc.org/resources-publications/resources-parents/social-emotional-issues/perfectionism.
- NAGC (n.d., b). *What is giftedness?* Retrieved from www.nagc.org/resources-publications/resources/what-giftedness.
- NCES (2006). *Percentage of gifted and talented in public elementary and secondary schools, by sex, race/ethnicity, and state*. Retrieved from www.nces.ed.gov/programs/digest/d10/tables/dt10_049.asp.
- Nintendo (n.d.). *Nintendo Switch*. Retrieved from www.nintendo.com/switch/.
- Rizzo, A. & Koenig, S.T. (2017). Is clinical virtual reality ready for primetime? *Neuropsychology*, 31. Retrieved from www.researchgate.net/publication/319165844_Is_Clinical_Virtual_Reality_Ready_for_Prime-time.
- Schaefer, C. & Drewes, A. (2016). Prescriptive play therapy. In O'Connor, K. J., Schaefer, C. E., & Braverman, L. D. (Eds), *Handbook of play therapy* (pp, 227–240). Hoboken, NJ: John Wiley & Sons.
- Silverman, L. K. (1993). *Counseling the gifted and talented*. Denver, CO: Love Pub. Co.
- Silverman, L. K. (2002). *Upside-down brilliance: The visual spatial learner*. Denver, CO: DeLeon Publishing.
- Silverman, L. K. (2015). *100 words of wisdom*. Retrieved from www.gifteddevelopment.com/blogs/bobbie-and-lindas-blog/giftedness-is-who-you-are.

- Stone, J. (2016a). *The virtual Sandtray app*. Retrieved from www.sandtrayplay.com/Press/VirtualSandtrayArticle01.pdf.
- Stone, J. (2016b). Board games in play therapy. In O'Connor, K. J., Schaefer, C. E., & Braverman, L. D. (Eds), *Handbook of play therapy* (pp. 309–326). Hoboken, NJ: John Wiley & Sons.
- Stone, J. (2018a). *Working with gifted children in play therapy part 1*. Retrieved from www.jentaylorplaytherapy.com/working-gifted-children-part-1/.
- Stone, J. (2018b). *Working with gifted children in play therapy part 2*. In press.
- Trail, B. A. (2011). *Twice-exceptional gifted children: Understanding, teaching, and counseling gifted students*. Waco, TX: Prufrock Press.
- Webb, J. T. (2007). *A parent's guide to gifted children*. Scottsdale, AZ: Great Potential Press.

Introducing Technology-Delivered Mindfulness Interventions into the Therapeutic Process

13

Melissa Carris

Mindfulness is increasingly viewed as a beneficial practice and effective way in which to approach the management of daily life. To be mindful is to pay attention to the nuances of our experiences in a way that allows the acceptance of things “as they are, in this moment”; this moment being all that truly exists. This approach reduces our tendency to get hooked by past or future concerns, and improves clarity and trust in ourselves to implement the changes we desire.

Evidence suggests that Mindfulness-Based Interventions (MBIs) can improve physical and emotional functioning. Although typically presented in an in-person format, the pervasiveness of technology has opened the door for the evaluation of how it can be utilized to learn and sustain mindfulness practice. This chapter examines how clients could benefit from technology-delivered mindfulness interventions as part of the therapeutic process.

The Benefits of Mindfulness

In life, there will always be situations capable of provoking stress. The practice of mindfulness can be used as a way to improve coping and general well-being. Although rooted in Buddhist practices, over the past few decades mindfulness has been tailored for use in secular settings. It is defined as the practice of being present with our current experiences without judgment or attempting to alter them in any way (Kabat-Zinn, 2013). We so often run on auto-pilot that we are not afforded the opportunity to learn about ourselves in an intimate, experiential way. When we are mindful, we tune attention to

our thoughts, emotions, bodily sensations, and behaviors in a dispassionate way, like a scientist observing them. This process provides us healthy distance from an overwhelming immersion in our experience; improved awareness highlights how habitual ways of functioning can lead to struggles and creates the conditions for healing. We learn to disconnect from rehashing the past, rehearsing the future, or focusing on the discrepancy between what we want and reality (Stahl & Goldstein, 2010). We accept that life is a process of constant change, our experiences temporary, our thoughts not necessarily reflective of reality, and that there is a difference between our experiences and the meaning we tend to associate with them (Kabat-Zinn, 2013).

Mindfulness includes the consistent use of meditation to hone and maintain our skills. It can be done formally or informally, and focuses on things like breathing, sitting, walking, eating, body sensations, or movement. However, mindfulness instruction also includes education about the philosophy and concepts behind the practice. For example, commitment, self-discipline, and intention are essential to strengthening and solidifying mindfulness practice. Additionally, cultivating certain interdependent attitudes increases receptivity to the growth and healing that mindfulness can provide: these include non-judgment, patience, “beginner’s mind” (seeing the present moment as if for the first time, not making assumptions about it based on prior experiences), trust, non-striving, acceptance, and letting go (Jon Kabat-Zinn, 2013).

While meditating, attention is focused on whatever internal and external stimuli are occurring in the present moment. When distracted, the only “goal” is to return, over and over again, to the here and now. When practiced consistently and with intention, it becomes easier to notice when we are on autopilot and choose to return to being mindful once again. We learn to compassionately acknowledge things “as they are” and respond proactively instead of reactively. It is powerful to be reminded of the control we have in our lives; that even when we cannot change the symptoms or situations with which we are faced, we can change our responses to them.

The most well established and thoroughly evaluated MBIs are Mindfulness-Based Stress Reduction (MBSR) and Mindfulness-Based Cognitive Therapy (MBCT). In 1979, Jon Kabat-Zinn developed MBSR in a behavioral medicine setting to help improve coping for patients dealing with physical pain and stress-related illnesses (Kabat-Zinn, 2013). It is often credited with the vast increase in the accessibility of mindfulness for secular purposes. Participants meet once a week for eight weeks for about 2.5 hours, to learn about mindfulness, stress, and coping, and to practice mindfulness meditation skills. One intensive, full day of mindfulness meditation is required and participants are encouraged to practice independently for at least 45 minutes daily, six days per week (Kabat-Zinn, 2013).

MBCT was extrapolated from MBSR, using the same eight-week group process but incorporating elements of cognitive therapy. It encourages a focus on cognitive processes like attentional control that can increase vulnerability to a relapse of depression. MBCT teaches clients to “decenter”, or recognize and disengage, from habitual, ruminative thoughts. Clients change their relationship to their thoughts patterns and work towards acceptance of “what is”, instead of the traditional cognitive therapy approach of changing or restructuring the content of thoughts (Segal, Williams, & Teasdale, 2013). Following completion of these structured mindfulness-based programs, practices should be consistently maintained for maximum benefit.

Although research on the benefits of mindfulness has primarily focused on interventions in which mindfulness is the primary goal, two therapeutic techniques include mindfulness as one component of their theory and practice. These are Dialectical Behavioral Therapy (DBT; Linehan, 1993a; 1993b) and Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999). DBT was originally developed as a treatment for borderline personality disorder. A central focus is the relationship between acceptance and change; mindfulness skills are taught within the context of synthesizing the two. Clients are encouraged to accept themselves, their history, and current situations as they are, while also working to alter their behaviors and environment to effect positive change (Baer, 2003). ACT (Hayes et al., 1999) combines acceptance and mindfulness strategies with behavioral approaches to improve psychological flexibility. Clients are encouraged to experience their thoughts and emotions without judging or attempting to change or avoid them. They are taught to accept themselves and their experiences as they are, while changing behaviors to improve their lives (Baer, 2003). Even when mindfulness is a component of a therapeutic approach, it is important we address additional ways in which clients can hone those skills to improve outcomes.

A number of meta-analyses have validated diverse benefits of utilizing MBIs. They have been found to improve functioning in clinical and non-clinical samples (Bohlmeijer, Prenger, Taal, & Cuijpers, 2010; Grossman, Niemann, Schmidt, & Walach, 2004; Khoury, Sharma, Rush, & Fournier, 2015), as well as in people of different ages, including children and adolescents (Zoogman, Goldberg, Hoyt, & Miller, 2015). MBIs have been widely researched for their effects on pain and chronic illness, and have been shown to reduce symptoms and improve emotional functioning in those populations (Baer, 2003; Bohlmeijer et al. 2010; Goyal et al., 2014; Grossman et al., 2004; Hofmann, Sawyer, Witt, & Oh, 2010). Evidence also suggests that mindfulness reduces symptoms of depression and anxiety, improves coping with life stressors, and increases overall quality of life (Goyal et al., 2014; Grossman et al., 2004; Hofmann et al., 2010; Khoury et al., 2013; Khoury et al., 2015). It also reduces

the risk of recurrences of depression (Chiesa & Serretti, 2011; Piet & Hougaard, 2011; Kuyken et al., 2016). Although our scientific understanding of the mechanisms by which MBIs prove beneficial is still being clarified, a review of MBSR and MBCT research suggests that mindfulness interventions impact outcomes through their effect on mindfulness, cognitive and emotional reactivity, rumination, and worry (Gu, Strauss, Bond, & Cavanagh, 2015).

Research on therapies with mindfulness as a component, like DBT and ACT, suggest these therapies reduce detrimental physical, emotional, and behavioral symptoms (Hayes, Masuda, Bissett, Luoma, & Guerrero, 2004; Linehan et al., 2006). In addition to the possibility that the other components of these therapies provide mechanisms for change, mindfulness is also likely a contributing factor. For practitioners who use this approach, assisting clients with practicing mindfulness on their own time is important. In a meta-analysis of the research on the benefits of these therapies, evidence validated overall positive outcomes, but further investigation using rigorous, randomized controlled trials was encouraged (Öst, 2008).

Mindfulness has been found to have an impact on the structure and function of the brain. Systematic reviews evaluating the neural correlates of mindfulness meditation in clinical and non-clinical populations have shown evidence of changes in areas of the brain related to attention, emotional awareness, and regulation (Chiesa & Serretti, 2010; Gotink, Meijboom, Vernooij, Smits, & Hunink, 2016; Young et al., 2018), as well as in areas reflecting positive affect (Davidson et al., 2003). These findings are congruent with the aims of MBIs but further research is needed to specifically delineate the mechanisms and structures impacted by meditation.

As seen above, the research on MBI's impact on multiple areas of functioning is substantial. However, this field is no different than any other, in that there are areas for improvement. Although some of the studies mentioned above have conducted research utilizing some of the following methods, future studies should incorporate more of them to increase scientific rigor. Research could be improved by: utilizing a singular definition of mindfulness to improve clarity as to what is being measured and the ability to compare across studies; standardizing interventions with random assignment to treatment groups of equivalent length and core similarities; matching teacher training and experience among treatment groups; evaluating outcomes with a variety of measures, not only self-report, to avoid the possibility of demand characteristics; measuring differences in outcomes based on gender, age, race, ethnicity, socio-economic status, and cultural background; implementing controlled longitudinal studies; and evaluating causative pathways (Davidson & Kaszniak, 2015; Young et al., 2018). Lastly, potential negative side effects should be evaluated to mitigate risk.

As the research suggests, MBIs have the support necessary for practitioners to implement them for therapeutic purposes. Engaging in the practice once or less a week only when in therapy, though, is not the most efficient way for clients to reap benefits. Experts encourage people to practice almost daily and it is the practitioner's role to assist with improving practice consistency and quality. Given technology's ever-expanding role in our lives, mindfulness delivered in this fashion is an interesting direction for the field.

Technology-Delivered Mindfulness Interventions as Part of the Therapy Process

In the therapy setting, clients learn that although they cannot control all the stressors they face, they can manage them. Practitioners can teach clients how to implement mindfulness using either a structured approach or teaching components of it as an adjunct to other treatments. It is their job to assist the client in learning new skills and building the foundation for practice outside of session. The goal for clients is to maintain their progress through practice; having access to methods that stimulate their interests and keep them motivated is key to reinforcing their new way of approaching the world. The technology field could offer exactly that – methods to assist with learning and change, both in and outside of the therapy session.

Mindfulness Apps

Technology is a pervasive part of our daily lives and could play an important role in increasing the reach of mindfulness interventions. Technological applications are available in the form of online programs, Virtual Reality (VR), and mobile apps. A tech-based delivery system may be a good fit because mindfulness philosophy, education, and exercise guidance can be presented in a straightforward way and the repetitive practice involved is something a person can implement independently. Rigorous research on technology's effectiveness in helping people learn, practice, and maintain mindfulness is lacking. However, the well documented benefits of in-person MBIs inspires evaluation of technology-delivered MBIs in supporting clients in their practice.

Technology-based delivery methods may be a beneficial adjunct to the work done in in-person therapeutic settings. MBIs can be delivered online, which is helpful when structured programs like MBSR or MBCT

are desired but not accessible in person. Mindfulness VR uses a specifically designed headset that includes a screen on which to view a simulated experience that mimics reality; three-dimensional images with which a person can interact in a seemingly “real” way are presented. In the field of mental health, this type of tech has been utilized for various forms of exposure therapy but has not been overly accessible due to the cost. Mobile apps are widely popular and could help mitigate issues related to accessibility, cost, and efficiency, allowing the consumer the ability to control the when, where, and how of use. The primary focus of this chapter is on mindfulness apps due to the ease with which they can be incorporated into the therapeutic process.

Clients may show interest in testing out mindfulness apps because mindfulness is already part of their therapy, or because media exposure or research has piqued their interest. It may be assumed that apps are not a good fit for the practice of mindfulness; that the present-oriented focus and calm, peaceful outlook associated with mindfulness does not coincide with technology. Of course technology can become overwhelming in general situations but, when used to maintain a beneficial practice like mindfulness, it could be a valuable vehicle. The use of apps could be particularly beneficial for beginners seeking ways in which to easily introduce mindfulness into their lives. Constant access to the educational components, guided practices, and reminders to practice would be useful in developing new routines. Additionally, apps allow for shorter time commitments, the ability to tailor a practice to specific needs, and could serve as a method for sustaining practice and keeping it fresh.

There has been an explosion of mindfulness and meditation apps. Some are free or inexpensive, some offer in-app purchases, and others offer subscriptions of varying lengths. They offer resources that range from basic to detailed: most provide guided meditations of different lengths and are tailored to your desired focus; examples are meditations on breathing, sleep, mood, or compassion. Other offerings include timers, reminders to practice, progress tracking, and the ability for users to share their experiences on social networks or within built-in communities. Apps that are more thorough include progressive multiple day training that is more reflective of in-person MBI trainings. Lastly, a few offer advanced technology like biosensors, “wearable” components like headbands that translate biological output into informational feedback on changing brain states and other areas that may influence a person’s practice. Those advanced offerings are not yet part of the mainstream but offer an interesting look into the future of apps.

Research on Technology-Delivered Mindfulness Interventions

Although using technology-delivered mindfulness interventions as part of the therapeutic process is an interesting development, scientific evidence on the benefits is scarce. However, interest is increasing among consumers and researchers, and preliminary evidence suggests positive outcomes. A recent meta-analytic review found that MBIs delivered online had a beneficial impact on depression, anxiety, well-being, mindfulness, and stress for both healthy samples and those with mental or physical symptoms (Spijkerman, Pots & Bohlmeijer, 2016). Another meta-analysis on online preventative mindfulness interventions in non-clinical populations found a reduction in perceived stress and an increase in mindfulness skills (Jayawardene, Lohrmann, Erbe & Torabi, 2017). No empirical outcome data was found on the benefits of using VR to deliver mindfulness interventions. However, current VR applications for mindfulness present simple imagery with little complex action involved and could work well with inexpensive, mobile headsets; this would make them a good candidate for inclusion in the therapeutic process.

Mobile apps offer the greatest possibility for technology-delivered MBIs as part of the therapeutic process. Miller (2012) suggested that Smartphones offer significant promise for research in psychology that would be precise, objective, sustained, and ecologically valid. Unfortunately, some app developers competitively rush apps to market and may allude to the research on the benefit of in-person MBIs as an endorsement of the apps; the two are dissimilar enough, though, that caution should be taken with comparisons. Research on apps to date, although scarce and much less rigorous than needed, shows promise and should encourage the acceleration of quality outcome investigations.

Small randomized controlled trials of mindfulness apps have shown positive outcomes compared to active and wait list control groups. Two that used non-clinical samples with an active control group found that a 10-day mindfulness app intervention resulted in improvement in positive affect (Economides, Martman, Bell, & Sanderson, 2018; Howells, Ivtzan, & Eiroa-Orosa, 2016), and reduced depressive symptoms (Howells et al., 2016), irritability, and a component of stress (Economides et al., 2018). In a five-week mindfulness app intervention, general psychiatric symptoms, mindfulness, and quality of life improved (van Emmerik, Berings, & Lancee, 2017). Patients with Major Depressive Disorder who completed an eight-week app-based program teaching either Mindfulness (MF) or Behavioral Activation (BA) showed improvement in symptoms; those with more severe depression experienced greater benefit from the BA app but those with less severe depression benefited more from the MF app (Ly et al., 2014).

In addition to the positive impacts found on emotional symptoms, mindfulness, and quality of life from these apps, the acceptance component of mindfulness was found to impact stress biology. In research on non-clinical samples, a “monitoring and acceptance” group showed evidence of reduced salivary cortisol and systolic blood pressure reactivity whereas “monitoring only” and active control groups did not (Lindsay, Young, Smyth, Brown, & Creswell, 2018). This informs future research on which components of mindfulness may be particularly beneficial to cultivate.

Despite the initial research and its positive outcomes, methodologically sound research studies are a priority for multiple reasons. In addition to the areas of focus for future research that were mentioned above on in-person MBIs, future research on tech-delivered mindfulness training should also: 1) clarify, validate and expand upon the minimal data to date showing improvement in symptoms; 2) investigate benefits on the multitude of symptoms that have been shown to improve in the substantial research on in-person MBIs; 3) gather information about what parts of the components, content and process of the apps are most effective, so that re-design and future app developments are directed by science; and 4) collect data on the ways in which user engagement, feedback loops, and other potential technological mediators affect outcomes. Another concern is that current psychological research processes can be lengthy, which is potentially incompatible with the field of technology, where advancement and consumer expectations rapidly change. Mohr, Cheung, Schueller, Brown & Duan (2013) suggest using systematic prospective analyses through the use of technology itself; data could be collected in real time and continuously evaluated. This is an interesting approach and should be considered, even as an addition to current methods.

Practitioner Involvement

Practitioners need to support clients in utilizing what improves functioning outside of therapy, where healthier habits are formed through practice. Although mindfulness delivered via online interventions and VR technology can be administered in the practitioner’s office and encouraged between sessions, there is minimal research on these approaches. The availability, popularity, and frequently unguided use of apps suggests that the primary focus, at this time, be on those interventions.

Clients may be experimenting with mindfulness apps on their own, due to discomfort practicing mindfulness exercises without guidance from their practitioner or interest in using something structured to help them effectively establish their routine. To serve as intermediaries in this process, practitioners

need to stay apprised of what apps are available and the research on effectiveness. Even if research is scarce, practitioners should empower clients with information as well as reminders to trust themselves as to what is “right” for them; this mitigates risk.

When a practitioner’s therapeutic approach is to utilize a structured mindfulness intervention, the necessary education about mindfulness is provided in session. If instead their approach is one that includes a mindfulness component (like DBT or ACT), the assumption is that basic education around mindfulness would be included as part of treatment. In both cases, the foundation would be set so a client could utilize a simpler app with guided meditations and minimal education. However, if a client who wants to use an app to learn mindfulness has a practitioner with an approach that does not implement that philosophy, it would be prudent to only encourage apps that include a thorough approach to mindfulness training. Future research should dictate what components of apps are truly beneficial but, in the meantime, due diligence on the part of practitioners is important.

If clients are going to experiment with apps, it is important that practitioners support their use only to the extent that they are a good fit. A beneficial app will help deepen clients’ understanding of mindfulness and increase the consistency of daily practices; it will not distract a client by shifting their attention away from direct experience or elicit negative side effects. Also, clients may be experiencing symptoms that the practitioner, with their knowledge of mindfulness and the caveats to unguided immersion in practice, believes may preclude the use of apps. For example, Zindel Segal, a developer and founder of MBCT, suggests that someone recovering from depression should utilize an app that provides gradual and sequential skill building, and thorough education about mindfulness and the cognitive processes involved in a depressive experience, like rumination (Tlalka, 2016). If clients were not informed of caveats such as this, there may be detrimental effects.

Case Example

The following includes sanitized information about a middle-aged client who chose to download mindfulness apps independently in the course of treatment. She initiated therapy for assistance with managing undiagnosed physical symptoms, work stress, and consequent periodic mild anxiety and sadness; home life was positive overall and produced minimal distress. Although she continued to seek medical clarity about the cause of her physical symptoms, she acknowledged the possibility that they could be psychologically driven or at least exacerbated by stress. She was contemplating a career change to allow

her to engage in other areas of life with more energy and focus. However, due to the satisfaction derived from work in terms of relationships and feelings of personal competence, decision-making was somewhat paralyzing. Due to her busy schedule, overall positive functioning, and her established comfort level with me due to our prior therapeutic relationship, she requested once monthly sessions.

Historically we discussed the concepts of mindfulness, so we practiced a similar approach this round. Over time, she increased the use of informal and formal mindfulness practices outside of session, and then chose to download various apps to evaluate personal “goodness of fit” and help her stay on track with her practice. After finding one that offered brief education and guided meditations of differing varieties, she used that exclusively and subsequently purchased a subscription to gain access to additional practices. After a few months of utilizing the app and attending therapy consistently, she reported improved focus on the “present”, better management of work stress, periodic reduction of symptoms, and an improvement in the consistency and experience of meditation compared to her experience prior to therapy. However, she noted frustration that despite the benefits, she would use the app consistently for weeks and then slow down or even discontinue use altogether. She expressed little clarity as to “why” that happened but it seemed to parallel times when work stress increased; physical and emotional symptoms often exacerbated during those times as well. She expressed sadness at how easy it is, despite “knowing better”, to subvert her needs to her busy schedule and responsibilities. During times of infrequent practice, we discussed how to compassionately and mindfully get back on track. She verbalized awareness that it would be a “journey” to remain consistent. Over time in therapy, career decisions were made to improve work–life balance and initial, mild reductions in physical and emotional symptoms were experienced. However, given that the actual implementation of career changes will occur in the future, only time will tell if symptoms continue to dissipate. Overall, she reported a benefit from the combination of the therapeutic intervention and use of the app outside of therapy; both increased her focus on implementing mindfulness practices into her daily routine, which correlated with a reduction in symptoms over time.

Conclusion

Mindfulness is an approach to life that cultivates awareness of internal and external experiences through focused attention, specific attitudes, and a commitment to practice the skills that, over time, create the conditions for healing.

Mindfulness meditation is an important component, and is utilized in various ways to deepen practice. Research that has evaluated in-person mindfulness-based interventions shows evidence of positive impacts on various areas of cognitive, emotional, physical, and neural functioning.

The therapeutic process includes the time spent in and out of session. Practitioners who use either thorough mindfulness interventions or approaches with mindfulness as one component provide the educational foundation and guidance for these practices during therapy. They also encourage practice between sessions. Those who do not approach clients with a perspective that includes a mindfulness component may have clients who express an interest in these concepts and are looking ways to assist practice outside of therapy.

Technology has become so pervasive that clients may already be experimenting with apps purporting to teach mindfulness skills. Although technology offerings include online and VR-based interventions, mobile apps are so widely available and easy to use that they are the most promising tech option to date. Research on the effectiveness of mindfulness apps is scarce but shows initial promise. Clearly, future research is critical to establish the benefits of this approach. In the meantime, however, if clients are using apps as part of their practice, practitioners should serve as a resource to mitigate risk. They can inform clients as to the state of current evidence related to mindfulness apps, discuss possibilities for practicing with them, and implement them with clients in session or at least guide usage between sessions. It is also important to make suggestions as to which apps may prove most beneficial; this may be based on the extent to which mindfulness is part of the therapeutic approach in session. Empowering clients with information and support, as well as reminders to trust themselves in the evaluation of what is “right” for them in this process is key.

References

- Baer, A. R. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical Psychology: Science and Practice*, 10, 125–143.
- Bohlmeijer, E., Prenger, R., Taal, E., & Cuijpers, P. (2010). The effects of mindfulness-based stress reduction therapy on mental health of adults with a chronic medical disease: A meta-analysis. *Journal of Psychosomatic Research*, 68, 539–544.
- Chiesa, A., & Serretti, A. (2010). A systematic review of neurobiological and clinical features of mindfulness meditations. *Psychological Medicine*, 40(8), 1239–1252.
- Chiesa, A., & Serretti, A. (2011). Mindfulness-based cognitive therapy for psychiatric disorders: A systematic review and meta-analysis. *Psychiatry Research*, 187(3), 441–453.
- Davidson, R.J., Kabat-Zinn, J., Schumacher, J., Rosenkranz, M., Muller, D., Santorelli, S.F., Urbanowksi, F., Harrington, A., Bonus, K., & Sheridan, J. (2003). Alterations in brain and immune function produced by mindfulness meditation. *Psychosomatic Medicine*, 65, 564–570.

- Davidson, R. J., & Kaszniak, A. W. (2015). Conceptual and methodological issues in research on mindfulness and meditation. *American Psychologist*, 70(7), 581–592.
- Economides, M., Martman, J., Bell, M.J., & Sanderson, B. (2018). Improvements in stress, affect, and irritability following brief use of a mindfulness-based smartphone app: A randomized controlled trial. *Mindfulness*. <https://doi.org/10.1007/s12671-018-0905-4>.
- Gotink, R.A., Meijboom, R., Vernooij, M.W., Smits, M., & Hunink, M.G.M. (2016). 8-week Mindfulness Based Stress Reduction induces brain changes similar to traditional long-term meditation practice – A systematic review. *Brain and Cognition*, 108, 32–41.
- Goyal, M., Singh, S., Sibinga, E.M.S., Gould, N.F., Rowland-Seymour, A., Sharma, R., Berger, Z., Sleicher, D., Maron, D.D., Shihab, H.M., Ranasinghe, P.D., Linn, S., Saha, S., Bass, E.B., & Haythornthwaite, J.A. (2014). Meditation programs for psychological stress and well-being: A systematic review and meta-analysis. *JAMA Internal Medicine*, 174(3), 357–368.
- Grossman, P., Niemann, L., Schmidt, S., & Walach, H. (2004). Mindfulness-based stress reduction and health benefits: A meta-analysis. *Journal of Psychosomatic Research*, 57, 35–43.
- Gu, J., Strauss, C., Bond, R., & Cavanagh, K. (2015). How do mindfulness-based cognitive therapy and mindfulness-based stress reduction improve mental health and well-being? A systematic review and meta-analysis of mediation studies. *Clinical Psychology Review*, 37, 1–12.
- Hayes, S. C., Strosahl, K., & Wilson, K. G. (1999). *Acceptance and commitment therapy*. New York, NY: Guilford Press.
- Hayes, S.C., Masuda, A., Bissett, R., Luoma, J., & Guerrero, L.F. (2004). DBT, FAP, and ACT: How empirically oriented are the new behavior therapy technologies? *Behavior Therapy*, 35(1), 35–54.
- Hofmann, S. G., Sawyer, A. T., Witt, A. A., & Oh, D. (2010). The effect of mindfulness-based therapy on anxiety and depression: A meta-analytic review. *Journal of Consulting and Clinical Psychology*, 78, 169–183.
- Howells, A., Ivtzan, I., & Eiroa-Orosa, F. J. (2016). Putting the “app” in happiness: A randomised controlled trial of a smartphone-based mindfulness intervention to enhance wellbeing. *Journal of Happiness Studies*, 17(1), 163–185.
- Jayawardene, W.P., Lohrmann, D.K., Erbe, R.G., & Torabi, M.R. (2017). Effects of preventative online mindfulness interventions on stress and mindfulness: A meta-analysis of randomized controlled trials. *Preventative Medicine Reports*, 5, 150–159.
- Kabat-Zinn, J. (2013). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain, and illness*. New York, NY: Bantam Books.
- Khoury, B., Lecomte, T., Fortin, G., Masse, M., Therien, P., Bouchard, V., Chapleau, M.A., Paquin, K., & Hofman, S.G. (2013). Mindfulness-based therapy: A comprehensive meta-analysis. *Clinical Psychology Review*, 33, 763–771.
- Khoury, B., Sharma, M., Rush, S.E., & Fournier, C. (2015). Mindfulness-based stress reduction for healthy individuals: a meta-analysis. *Journal of Psychosomatic Research*, 78, 519–528.
- Kuyken, W., Warren, F.C., Taylor, R.S., Whalley, B., Crane, C., Bondolfi, G., Hayes, R., Huijbers, M., Ma, H., Schweitzer, S., Segal, Z., Speckens, A., Teasdale, J.D., VanHeeringen, K., Williams, M., Byford, S., Byng, R., & Dalgleish, T. (2016). Efficacy of mindfulness-based cognitive therapy in prevention of depressive relapse: an individual patient data meta-analysis from randomized trials. *JAMA Psychiatry*, 73(6), 565–574.
- Lindsay, E.K., Young, S., Smyth, J.M., Brown, K.W., & Creswell, J.D. (2018). Acceptance lowers stress reactivity: Dismantling mindfulness training in a randomized controlled trial. *Psychoneuroendocrinology*, 87, 63–73. www.ncbi.nlm.nih.gov/pubmed/29040891.

- Linehan, M. M. (1993a). *Cognitive-behavioral treatment of borderline personality disorder*. New York, NY: Guilford Press.
- Linehan, M. M. (1993b). *Skills training manual for treating borderline personality disorder*. New York, NY: Guilford Press.
- Linehan, M.M., Comtois, K.A., Murray, A.M., Brown, M.Z., Gallop, R.J., Heard, H.L., Korslund, K.E., Tutek, D.A., Reynolds, S.K., & Lindenboim, N. (2006). Two-year randomized controlled trial and follow-up of Dialectical Behavior Therapy vs therapy by experts for suicidal behaviors and Borderline Personality Disorder. *Archives of General Psychiatry*, 63(7), 757–766.
- Ly, K. H., Trüschel, A., Jarl, L., Magnusson, S., Windahl, T., Johansson, R., Carlbring, P., & Andersson, G. (2014). Behavioural activation versus mindfulness-based guided self-help treatment administered through a smartphone application: A randomised controlled trial. *BMJ Open*, 4(1), e003440. doi: 10.1136/bmjopen-2013-003440.
- Miller, G. (2012). The smartphone psychology manifesto. *Perspectives on Psychological Science*, 7(3), 221–237.
- Mohr, D.C., Cheung, K., Schueller, S.M., Brown, C.H., & Duan, N. (2013). Continuous evaluation of evolving behavioral intervention technologies. *American Journal of Preventative Medicine*, 45(4), 517–523.
- Öst, L.G. (2008). Efficacy of the third wave of behavioral therapies: A systematic review and meta-analysis. *Behaviour Research and Therapy*, 46, 296–321.
- Piet, J., & Hougaard, E. (2011). The effect of mindfulness-based cognitive therapy for prevention of relapse in recurrent major depressive disorder: A systematic review and meta-analysis. *Clinical Psychology Review*, 31, 1032–1040.
- Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2013). *Mindfulness based cognitive therapy for depression: A new approach to preventing relapse* (2nd ed.). New York, NY: Guilford Press.
- Spijkerman, M.P.J., Pots, W.T.M., & Bohlmeijer, E.T. (2016). Effectiveness of online mindfulness-based interventions in improving mental health: A review and meta-analysis of randomised controlled trials. *Clinical Psychology Review*, 45, 102–114.
- Stahl, B. & Goldstein, E. (2010). *A mindfulness-based stress reduction workbook*. Oakland, CA: New Harbinger Publications.
- Tlalka, S. (2016, August 24). *The trouble with mindfulness apps*. Retrieved from www.greatergood.berkeley.edu/article/item/the_trouble_with_mindfulness_apps.
- van Emmerik, A. A. P., Berings, F., & Lancee, J. (2017). Efficacy of a mindfulness-based mobile application: A randomized waiting-list controlled trial. *Mindfulness*, 6(1), 189–112.
- Young, K.S., Majvan der Velden, A., Craske, M.G., Pallesen, K.J., Fjorback, L., Roepstorff, A., & Parsons, C. (2018). The impact of mindfulness-based interventions on brain activity: A systematic review of functional magnetic resonance imaging studies. *Neuroscience & Biobehavioral Reviews*, 84, 424–433.
- Zoogman, S., Goldberg, S.B., Hoyt, W.T., & Miller, L. (2015). Mindfulness interventions with youth: A meta-analysis. *Mindfulness*, 6(2), 290–302.

Part 4

Technological Interventions in Diverse Settings



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Technological Tools for Supporting Pediatric Patients through Procedures

14

Sherwood Burns-Nader

Children experience healthcare procedures every day, ranging from a short and simple injection to a longer, more complex surgery. For pediatric patients, healthcare procedures are associated with increased fear, pain, anxiety, and forced compliance (Burns-Nader, Atencio, & Chavez, 2016; Ford, 2011; Salmela, Salantera, & Aronen, 2010). The potential for increased distress is elevated in children because of limitations in cognition (i.e., ability to understand what is happening), self-coping (i.e., ability to calm oneself without support by parent), and language (i.e., ability to express emotions). Such distress increases the potential for longer procedures, non-compliance by patients, and negative responses to future healthcare experiences (Noel, McMurtry, Chambers, & McGrath, 2010). With this being said, additional sources of support are needed for pediatric patients undergoing healthcare procedures.

Distraction is a form of support offered to pediatric patients during healthcare procedures. Distraction uses a cognitive-behavioral approach to modify children's responses and behaviors during a healthcare procedure by engaging a child's attention and focusing it away from the procedure, pain, or distress to something more neutral (Chambers, Taddio, Uman, & McMurtry, 2009; Sparks, 2001). For distraction to be effective, a person has to cognitively engage in the activity, and inhibit their impulses to focus on the procedure and/or pain (Katrien et al., 2011). For children, an adult, such as a parent or child life specialist, often assists in actively engaging children in the distraction activity during a procedure. Distraction activities, such as bubbles, I Spy, and videos, are effective in minimizing pain and distress in pediatric patients who

are undergoing a procedure (Fanurik, Koh, & Schmitz, 2000; Sparks, 2001; Windich-Biermeier, Sjoberg, Dale, Eshelman, & Guzzetta, 2007).

Recently, advancements in technology have provided healthcare providers and parents new options for distraction tools for pediatric patients. In past decades, the options of computer tablets, smart phones, augmented reality, virtual reality, and interactive video game consoles were not easily assessable or affordable to most. In the last decade, this has changed. Technology has improved the accessibility and affordability of such items. Although these tools were not created to serve as distraction tools, healthcare professionals quickly recognized their ability to positively change the healthcare experience of pediatric patients undergoing procedures. In this chapter, two popular technology centered distraction tools, computer tablets and virtual reality, will be discussed regarding their ability to support pediatric patients through healthcare procedures.

Computer Tablets

Computer tablets (i.e., tablets) provide many possible distraction activities in one place. For example, on a tablet, a person has applications, movies, television shows, music, breathing exercises, and so much more available simply at the touch of the screen. Furthermore, all of these options can be catered to an individual (e.g., age, interests), increasing the potential for cognitive engagement. Because of a tablet's flexibility, many care providers (i.e., parents, child life specialists, nurses) consider tablets to be an effective option for a distraction tool, and research in the last 10 years has begun to support the use of tablets as a distraction tool for pediatric patients undergoing healthcare procedures. Benefits of tablet distraction are noted in burn units (Burns-Nader, Joe, & Pinion, 2017), emergency rooms (McQueen, Cress, & Tothy, 2012), operating rooms (Seiden et al., 2014), and general pediatric units (Shahid, Benedict, Mishra, Mulye, & Guo, 2015).

In a recent study by Burns-Nader et al. (2017), the effectiveness of tablet distraction provided by a Certified Child Life Specialist to minimize pain and distress in pediatric burn patients undergoing hydrotherapy was examined. Hydrotherapy is the use of water to soften and remove dead tissue so that new, healthy tissue can form. It can be a very painful procedure which patients may endure repeatedly as their skin heals from the burns. In the clinical trial study, pediatric patients were randomly assigned to either a treatment-as-usual group or a child-life-tablet-distraction group. In the treatment-as-usual group, patients received standard care including the presence of a child life specialist to support the patient through the procedure. In the

child-life-tablet-distraction group, a child life specialist selected a developmentally appropriate application based on age and interest. The child life specialist engaged the child in the application while providing procedure support (i.e., information about what is happening, opportunities for rest). Children in the tablet-distraction group displayed significantly less pain and distress behaviors than those in the treatment-as-usual group. Furthermore, children in the tablet-distraction group returned to baseline emotions post procedure while those in the treatment-as-usual group displayed higher anxiety post procedure, compared to baseline (Burns-Nader et al., 2017). Such findings suggest distraction activities using a tablet may minimize pain and distress in pediatric burn patients undergoing hydrotherapy and continue to benefit pediatric patients post-procedure. It is important to note that procedure pain is identified by pediatric burn patients as the most severe type of pain related to burns (Brown, Rodger, Ware, Kimble, & Cuttle, 2012), further highlighting the implications of these findings.

Computer tablets have also been found to be effective in the emergency room (McQueen et al., 2012). If visiting an emergency room, pediatric patients are likely to be confronted with procedures that may cause anxiety and pain, such as laceration repairs or IV insertions. In a case series of children, McQueen et al. (2012) highlight the usefulness of an iPad to help children, who were showing signs of visible distress and anxiety, successfully undergo laceration procedures without sedation or restraint. One patient described was a 10-year-old admitted to the emergency room for a laceration on her finger. The child was so apprehensive she noted the desire “to be put to bed”. A child life specialist engaged the child in an iPad application, and the 30-minute procedure was completed without any further anxiety noted by the child (McQueen et al., 2012). McQueen et al. (2012) state, “With support and interaction from an appropriate adult such as a parent or child life specialist, the iPad or similar handheld computer tablet has the potential to reduce patient anxiety and create positive experiences during potentially stressful procedures” (p. 714).

The benefits of tablet distraction have also been explored in the general pediatric unit for immunizations. In one study by Shahid et al. (2015), 103 children, between the ages 2 and 6 years, were randomly assigned to a tablet distraction or no distraction group. Parents’ perception of the child’s anxiety, need for being held down, and crying was assessed. Parents whose children took part in tablet distraction reported their children to display less anxiety, decreased need to be held down, and less crying (Shahid et al., 2015). In another clinical trial study by Burns-Nader et al. (2016), the effectiveness of tablet distraction to minimize pain (both self-reported and researcher observations) and distress (researcher observations) in 41 children between

4 and 11 years of age receiving an injection was examined. There was no difference found between the tablet distraction group and the no distraction group (Burns-Nader et al., 2016). The two studies were examining different outcomes (parental reports versus self-reports and researcher observations), and the second study had a small sample size. For immunizations, the findings on tablet distraction are mixed and suggest parents observe benefits but children may not. Such mixed findings suggest the need for future studies to continue to examine the topic.

An important benefit of tablets to note, is that tablets may help minimize children's anxiety before, during, and after the procedure. One common experience children have to encounter during a healthcare procedure is separation from parents. In a randomized clinical trial study, tablet distraction was found to decrease anxiety during separation from parents prior to an ambulatory surgery, in 108 children, ages 1–11 years (Seiden et al., 2014). As previously noted, one study found children who engaged in tablet distraction during hydrotherapy returned to baseline emotions post-procedure while those in treatment as usual did not (Burns-Nader et al., 2017). Another found the post-procedure outcome of decreased time-to-discharge (Seiden et al., 2014). Such findings suggest tablet distraction has benefits across the procedure, not just during it.

In addition to pediatric patients, tablet distraction has benefits to the healthcare team. For one, tablet distraction has the ability to decrease pain and anxiety during procedures (Burns-Nader et al., 2017; Shahid et al., 2015). Decreased patient pain and anxiety leads to increased compliance during a procedure which allows the healthcare team to have more effective use of their time (Lerwick, 2016). Secondly, tablets can help decrease the need for additional healthcare resources, such as medications or staff support (McQueen et al., 2012; Seiden et al., 2014). In the case series previously described, tablet distraction decreased the need for sedation and restraint (i.e., staff support) in the emergency room (McQueen et al., 2012). Other units have experienced similar results. For example, tablet distraction has been found to decrease emergence delirium and time-to discharge for pediatric patients post-operation (Seiden et al., 2014). As a point of reference, emergence delirium often includes combative behavior as a person emerges from sedation. In this agitated state, a child may injure the surgical site, dislodge healthcare equipment (i.e., drains, intravenous cannulae), harm the healthcare team members, and/or accidentally remove surgical dressings (Wong & Bailey, 2015). Emergence delirium can increase costs through the need for additional drugs, healthcare team support, and time in the Post Anesthesia Care Unit (Vlajkovic & Sindjelic, 2007). Interestingly, tablet distraction was found to be more effective than the procedure sedation medication of midazolam in reducing anxiety, emergence delirium, and time-to-discharge in pediatric

patients undergoing a surgery (Seiden et al., 2014). Finally, tablet distraction could be a beneficial tool for healthcare team members as they strive towards patient centered care, as the use of tablet distraction has been shown to increase parental satisfaction (Seiden et al., 2014; Shahid et al., 2015).

What makes tablets effective as a procedure support method? For pediatric patients, tablets require an interactive component that helps to engage children in the focused-attention activity. The touch screen allows children to control what is happening, and for children experiencing a healthcare procedure, control is desired and it enhances coping. With each touch, the children are controlling what happens next, and this helps them to continue to be focused on the activity at hand rather than the procedure. Furthermore, a tablet caters to a diverse population of users. There is an appropriate activity for a 3-year-old little girl who loves horses, the 10-year-old boy who likes cooking, and the 15-year-old with language barriers. Options for these children are available in one device. Also, tablets are easy to use. The amount of time it takes to learn how to use the device and/or application to sufficient performance in it is very short (McQueen et al., 2012). Finally, tablets allow for adults to assist in the engagement of the activity on the tablet. For example, adults, such as parents or child life specialists, can play alongside children and offer further support (i.e., breathing activities, verbal re-engagement). All of these things increase the likelihood of engagement in the distraction activity. Cognitive engagement allows children to focus on the tablet activity and inhibit stimulation from the procedure, thus decreasing the processing of pain and/or anxiety stimuli (Katrien et al., 2011).

In summary, there is building evidence that tablet distraction is beneficial as a distraction tool for pediatric patients undergoing healthcare procedures. Healthcare providers and caregivers should consider adding this tool to their list of distraction items. It is important to note that previous studies on tablet distraction have examined their effectiveness with children, school age (12) or younger. Therefore, implications of such findings should generalize to children of these ages. Future studies should continue to examine the effectiveness of tablet distraction during healthcare procedures. For example, the effectiveness of tablets during immunizations should continue to be examined as previous studies have shown mixed results. In addition, additional studies on adolescents' use of tablets during healthcare procedures is needed.

Virtual Reality

In the past decade, virtual reality (VR) has become more popular, available, and affordable due to advancements in technology. For this chapter,

virtual reality (VR) will be defined as an immersive, multi-sensory, medium in which participants interact with a world of three dimensions using a head set and/or other body tracking devices (Craig, Sherman, & Will, 2009; Piskorz & Czub, 2018). In other words, VR is a computer program in which a participant becomes immersed as a participant in a simulated environment. Immersion into the virtual world takes place through visual and audio stimuli. Through a head mounted display, a person views a scene and hears sounds related to the scene. For some VR, additional technology allows for a head mounted display which includes a head tracker system that allows the person to move around the virtual world. Additional body tracking devices may be included that allow for the sensing of other movements by the person participating in VR. This allows for changes to the virtual reality scene in real time by the player and active or immersed participation (Gershon, Zimland, Pickering, Rothbaum, & Hodges, 2004). For example, a person puts on a VR headset while sitting in a procedure room. When the simulated environment is turned on, the person is now in a jungle. When they move to the left, the jungle environment moves to the left. They hear jungle animals. Animals come towards them. It is a multisensory experience that engages the participant's attention.

Because virtual reality has the ability to make a person feel like they are somewhere other than where they are, it has the potential to be a very effective distraction activity for children undergoing a healthcare procedure. In the healthcare setting, VR could be used to take a patient to someplace other than a needle poke or hydrotherapy bath. Therefore, VR has become increasingly more common in the pediatric healthcare setting. The effectiveness of VR distraction in pediatric patients undergoing procedures have been examined in the hematology/oncology unit (Gershon et al., 2004; Schneider & Workman, 1999), dentist office (Aminabadi, Erfanparast, Sohrabi, Oskouei, & Naghili, 2012), and burn unit (Chan, Chung, Wong, Lien, & Yang, 2007; Schmitt et al., 2011). In summary, VR has been found to decrease pain (Chan et al., 2007; Gershon et al., 2004), decrease stress (Gershon et al., 2004; Piskorz & Czub, 2018; Wolitzky, Fivush, Zimand, Hodges, & Rothbaum, 2005), and increase fun (Schmitt et al., 2011) during healthcare procedures for pediatric patients.

VR works as an effective distraction tool when children are immersed in the virtual environment. In order for a VR program to immerse a person into the game, realism of the virtual world and the ability for presence in the virtual world is needed (Schmitt et al., 2011). Immersion in the virtual reality uses a large amount of a person's attention. This is important because pain requires attention (Eccleston, 2001). When a person's attention is focused on the VR, there is limited attention available to perceive

pain (Hoffman et al., 2011). In fact, according to fMRI brain scans, during VR, there is a reduction in activity in areas of the brain that control pain (Hoffman et al., 2011). Humans have a limited capacity for attention, and VR limits the amount of attention a person can allot to perceiving pain, thus acts as a pain reliever (Hoffman et al., 2011).

For pediatric patients, fear of needles causes anxiety (Meltzer et al., 2009) and children's level of anxiety is related to the level of pain they report feeling (Gatchel, Peng, Peters, Fuchs, & Turk, 2007). Therefore, it is common for pediatric patients to report a lot of anxiety, fear, and pain when undergoing procedures involving needles. Recently, Piskorz and Czub (2018) examined the effectiveness of a multiple object tracking game for a virtual reality headset to minimize pain and stress in 38 pediatric patients, ages 7–17, undergoing a blood draw. In multiple object tracking, players have to track more than one object in the virtual environment using only head movement. The game was adjustable by developmental age of each participant. The use of only head movement allowed for the children's arms to be accessible for the blood draw procedure. Furthermore, the multiple object tracking was chosen because it is known in cognitive psychology for its ability to gain and sustain attention of participants. Compared to a control group who did not receive VR distraction, children in the VR distraction group reported significantly less pain and stress (Piskorz & Czub, 2018). From this study, the flexibility of VR is demonstrated. VR can be adjusted to the child's development and the procedure at hand. This flexibility allows for the distraction tool to be fitted to the pediatric patient's needs as well as the healthcare procedure at hand, increasing the potential for sustain attention in the virtual world and less experienced pain and stress.

In a clinical trial study, Gold, Kim, Kant, Joseph, and Rizzo (2006) examined the effectiveness of VR to reduce pain during an IV placement. In this study, 20 children were randomly assigned to either a VR distraction group or a control group and pain was assessed through self-reports and observations. In the VR distraction group, children participated in a virtual reality scene of a *Street Luge* game, using a head mount with tracking, audio, and tactile stimulation. Although there were no differences in observable pain or distress noted, children in the control group self-reported a four-fold increase in pain, while those in the VR distraction group did not (Gold et al., 2006). Due to a small sample size, the findings need to be interpreted with caution and suggest the need for replication with a larger sample size to continue to build support for VR distraction during IV insertions.

Pediatric patients in hematology/oncology units undergo frequent procedures that are associated with pain. Such procedures are needed for their survival but often cause distress. Therefore, there is a need for procedure

support, such as distraction, to help pediatric cancer patients cope with the frequent procedures. There is some beginning evidence that VR distraction is one tool healthcare providers should consider for this population. VR distraction has been found to decrease pain and anxiety in patients having their port accessed (Gershon et al., 2004; Windich-Biermeier et al., 2007; Wolitzky et al., 2005) and decrease symptom distress following chemotherapy (Schneider & Workman, 1999). For example, in a clinical trial study, Wolitzky et al. (2005) randomly assigned 23 children, between the ages of 7 and 14 years, who were undergoing a port access (i.e., procedure in which medicine is injected or blood is drawn) to either a VR distraction group or a no VR control group. In the VR distraction group, children wore a head mount with tracking, wore headphones for audio, and used a joystick to navigate a virtual gorilla habitat. The joy stick allowed the children to move around the habitat, while the tracking allowed them to look around. Children's distress was assessed through observations and self-reports. Those children in the VR distraction activity reported significantly less distress on all assessments. Also, children's comments suggested they really enjoyed the activity. The results suggest VR is an effective and enjoyable distraction tool for this population (Wolitzky et al., 2005). There is growing evidence for the use of VR distraction in the pediatric cancer population. However, there is a need to continue to examine this topic in future studies, as each of the studies discussed utilized a small sample.

The burn unit is another area of healthcare that has noted the benefits of VR for pediatric patients. As stated earlier in the chapter, for pediatric burn patients, procedure pain is described as the worst pain (Brown, Rodger, Ware, Kimble, & Cuttle, 2012); therefore, distraction techniques used in burn treatment procedures must really gain and sustain pediatric patients' attention. Multiple studies have demonstrated the effectiveness of VR distraction to minimize pain in pediatric burn patients (Chan et al., 2007; Kipping, Rodger, Miller, & Kimble, 2012; Schmitt et al., 2011). For this population, VR has been found to decrease pain (Chan et al., 2007; Won et al., 2017), decrease the need for pain medicine after a wound change (Kipping et al., 2012), and enhance positive moods during procedures (Schmitt et al., 2011). Chan et al. (2007) used a crossover design in which the same participants underwent the wound change procedure without VR and with VR. In the VR distraction intervention, children wore a headset that provided visual and audio stimuli of an ice cream factory. The children were asked to patrol the ice cream factory and use the mouse to hit any invaders with ice cream. The children reported significantly less pain during and after the procedure when they participated in VR distraction. Through anecdotal observations the nurses consistently noticed the ability of VR to help distract patients from pre-to post procedure. Here is one nurse observation:

Initially, he was very immersed in the game. However, when I started to cut his gauze, he began to stop moving the mouse. With encouragement, he resumed playing. During the process, he was able to play and co-operated with me in terms of changing position. After I had completed the changing of his dressings, he verbalized that he would like to play some more. He played for another 10 minutes, then his parents took him out for a walk. Without the VR, this child would focus on the wound, his facial expression would be tense, his body stiff, and he would need to lie down in bed for 15 minutes until he felt less anxious.

(Chan et al., 2007, p. 791)

Some may be concerned with the feasibility of VR distraction in the pediatric healthcare setting. However, VR comes in many different forms, such as gaming consoles, computer programs, headsets, or applications on a smartphone, to name a few. VR can be adjusted to children's development and the procedure (Piskorz & Czub, 2018). If a procedure requires the pediatric patient to not move their arm, then an option that just involves a headset is appropriate. Whereas, if a procedure allows for more movement, a joystick or mouse could be included. Furthermore, there may be wireless options for mice and joysticks that would further prevent the complication of additional wires. Also, communication between the patient and healthcare professionals is not impacted, allowing the professionals and patients to communicate during the procedure if applicable (Chan et al., 2017; Das, Grimmer, Sparnon, McRae, & Thomas, 2005). Beneficial options range from off-the-shelf VR systems (Aminabadi et al., 2012; Kipping et al., 2012) to prototypes created for specific procedures (Chan et al., 2007; Piskorz & Czub, 2018).

There are a few limitations for using VR during pediatric healthcare procedures to note. For one, some people who utilize VR experience motion sickness, or simulation sickness. Therefore, it may not be ideal for children who are experiencing nausea as a side effect of their condition or procedure. Also, VR disconnects users from reality, including occupying the complete visual field. This means that safety is important to remember. It is necessary to provide an adequate space and minimize risks when offering children VR.

In summary, VR is now a more feasible and effective option for many healthcare providers to use as a distraction tool in pediatric patients undergoing a procedure. There is evidence VR reduces pain and anxiety during procedures (Aminabadi et al., 2012), improves recovery post-procedure (Chan et al., 2007; Kipping et al., 2012; Schneider & Workman, 1999), and increases positive moods during a procedure (Schmitt et al., 2011). Also, the effectiveness of VR does not seem to wear off after repeated uses (Faber, Patterson, & Bremer, 2013; Schmitt et al., 2011). Furthermore, there is flexibility in VR design for different ages and procedures.

Case Example

Kim, an 8-year-old female, is a pediatric patient in the burn unit. Six percent of her body is burned, in the lower body area. The burn occurred during a recent fire in her family's home. Kim is undergoing hydrotherapy, a special bath to clean the burns. This is a painful procedure in which the burned skin is softened and removed using water. The Certified Child Life Specialist, Chris, is accompanying Kim to the procedure to offer support and distraction. Kim appears nervous, as she is softly crying and drawing her body in close. Chris explains to Kim what will happen and offers her a distraction activity on a computer tablet. Chris engages Kim on the tablet in an application of Kim's choice. Kim's nerves begin to lessen, and she engages with the tablet.

Chris keeps her engaged by asking questions or encouraging her participation in the game. Kim's behaviors and emotions are relaxed for the most part; she even celebrates when she scores on the game she is playing. During the procedure, Kim does experience some discomfort, observed as she vocalizes, "Ouch". The child life specialist reminds her to breathe and reengages Kim in the tablet when needed. The hydrotherapy procedure lasts about 12 minutes. Overall, with the support of the child life specialist, the tablet occupies most of Kim's attention. The child life specialist felt Kim coped well during the procedure as she was able to remain still and utilize breathing and the tablet distraction. Kim continued to play on the tablet after the procedure, and Chris noticed her emotions returned to baseline (neutral) quickly. As they were leaving the procedure room, Kim said, "When I get my bath tomorrow, can I try to play that new game on the tablet?"

In this scenario, Kim was able to be distracted with a game on a tablet by a child life specialist. The child life specialist helped Kim select an application on the tablet that was developmentally appropriate and something she was interested in. The child life specialist offered options that required active engagement (i.e., participation of some sort). The developmental appropriateness, level of interest, and active engagement helped grab Kim's focus and keep her engaged, decreasing the attention she focused on the procedure. With decreased focus on the procedure, Kim appeared to display less anxiety and cope with the pain she did experience as part of the procedure.

Conclusion

Healthcare procedures can be a difficult experience for children. There is the potential for distress related to fear of the unknown, pain, and loss of control. As professionals providing care to patients, the healthcare team strives

to minimize as much of this distress as possible, and distraction is a procedure support that does just that. Distraction requires the active engagement of a child in a stimulus so that thoughts are focused into the stimulus rather than pain, fear, or distress. Adults, such as parents or child life specialists, are needed to help children engage in distraction activities. Technology in the form of computer tablets and virtual reality have demonstrated the ability to help patients disengage from the reality of a procedure and successfully complete it with less pain and distress and the experience of more fun. The Nobel Peace Prize winner, Muhammad Yunus, once said, “While technology is important, it’s what we do with it that truly matters.” The goal of patient centered care is to treat the whole child, not just the condition. Technology in the form of distraction tools, including tablets and VR, is one method of support health-care professionals can use to address the psychosocial variables of pediatric patients. In other words, technology can be another tool for putting the pediatric patient at the center of care.

References

- Aminabadi, N., Erfanparast, L., Sohrabi, A., Oskouei, S., & Naghili, A. (2012). The impact of virtual reality distraction on pain and anxiety during dental treatment in 4–6 year-old children: A randomized controlled clinical trial. *Journal of Dental Research, Dental Clinics and Dental Prospects*, 6(4), 117–124.
- Brown, N., Rodger, S., Ware, R., Kimble, R., & Cuttle, L. (2012). Efficacy of a children’s procedural preparation and distraction device on healing in acute burn wound care procedures: Study protocol for a randomized controlled trial. *Trials*, 16(4), 238–249.
- Burns-Nader, S., Atencio, S., & Chavez, M. (2016). Computer tablet distraction in children receiving an injection. *Pain Medicine*, 17(3), 590–595.
- Burns-Nader, S., Joe, L., & Pinion, K. (2017). Computer tablet distraction reduces pain and anxiety in pediatric burn patients undergoing hydrotherapy: A randomized trial. *Burns*, 43(6), 1203–1211.
- Chambers, C., Taddio, A., Uman, L., & McMurtry, M. (2009). Psychological interventions for reducing pain and distress during routine childhood immunizations: A systematic review. *Clinical Therapeutics*, 31(2), S77-S-103. doi:<https://doi.org/10.1016/j.clinthera.2009.07.023>.
- Chan, E., Chung, J., Wong, T., Lien, A., & Yang, J. (2007). Application of a virtual reality prototype for pain relief of pediatric burn in Taiwan. *Journal of Clinical Nursing*, 16(4), 786–793.
- Craig, A., Sherman, W., & Will, J. (2009). Introduction to virtual reality. In *Developing Virtual Reality Applications: Foundations of Effective Design* (pp. 1–32). Burlington, MA: Elsevier.
- Das, D., Grimmer, K., Sparnon, A., McRae, S., & Thomas, B. (2005). The efficacy of playing a virtual reality game in modulating pain for children with acute burn injuries: A randomized control trial. *BMC Pediatrics*, 5(1). doi:10.1186/1471-2431-5-1.
- Eccleston, C. (2001). Role of psychology in pain management. *Journal of Anesthesia*, 87(1), 144–152.

- Faber, A., Patterson, D., & Bremer, M. (2013). Repeated use of immersive virtual reality therapy to control pain during wound dressing changes in pediatric and adult burn patients. *Journal of Burn Care & Research*, 34(5), 563–568.
- Fanurik, D., Koh, J., & Schmitz, M. (2000). Distraction techniques combined with EMLA: Effects on IV insertion pain and distress in children. *Children's Health Care*, 29(2), 87–101.
- Ford, K. (2011). 'I didn't really like it, but it sounded exciting': Admission to hospital for surgery from the perspective of children. *Journal of Child Health Care*, 15(4), 250–260.
- Gatchel, R., Peng, Y., Peters, M., Fuchs, P., & Turk, D. (2007). The biopsychosocial approach to chronic pain: Scientific advances and future directions. *Psychological Bulletin*, 133(4), 581–624.
- Gershon, J., Zimand, E., Pickering, M., Rothbaum, B., & Hodges, L. (2004). A pilot and feasibility study of virtual reality as a distraction for children with cancer. *Journal of American Academy of Child and Adolescent Psychiatry*, 43(10), 1243–1249.
- Gold, J., Kim, S., Kant, A., Joseph, M., & Rizzo, A. (2006). Effectiveness of virtual reality for pediatric pain distraction during IV placement. *CyberPsychology & Behavior*, 9(2), 207–212.
- Hoffman, H., Chambers, G., Meyer, W., Arceneaux, L., Russell, W., Seibel, E., Patterson, D. (2011). Virtual reality as an adjunctive non-pharmacologic analgesic for acute burn pain during medical procedures. *Annals of Behavioral Medicine*, 41(2), 183–191.
- Katrien, V., Dtefaan, V.D., Christopher, E., Dimitri, V.R., Valery, L., & Geert, C. (2011). Distraction from pain and executive functioning: An experimental investigation of the role of inhibition, task switching, and working memory. *European Journal of Pain*, 15(8), 866–873.
- Kipping, B., Rodger, S., Miller, K., & Kimble, R. (2012). Virtual reality for acute pain reduction in adolescents undergoing burn wound care: A prospective randomized controlled trial. *Burns*, 38(5), 650–657.
- Lerwick, J. (2016). Minimizing pediatric healthcare-induced anxiety and trauma. *World Journal of Clinical Pediatrics*, 5(2), 143–150. doi: 10.5409/wjcp.v5.i2.143.
- McQueen, A., Cress, C., & Tothy, A. (2012). Using a tablet computer during pediatric procedures: A case series and review of the "Apps". *Pediatric Emergency Care*, 28(7), 712–714.
- Meltzer, H., Vostanis, P., Dogra, N., Doos, L., Ford, T., & Goodman, R. (2009). Children's specific fears. *Child: Care, Health and Development*, 35(6), 781–789.
- Noel, M., McMurtry, M., Chambers, C., & McGrath, P. (2010). Children's memory for painful procedures: The relationship of pain intensity, anxiety, and adult behaviors to subsequent recall. *Journal of Pediatric Psychology*, 35(6), 626–636. doi:10.1093/jpepsy/jsp096.
- Piskorz, J. & Czub, M. (2018). Effectiveness of a virtual reality intervention to minimize pediatric stress and pain intensity during venipuncture. *Journal of Specialist in Pediatric Nursing*, 23(1), e12201. doi: 10.1111/jspn.12201.
- Salmela, M., Salanterä, S., Aronen, E. (2010). Coping with hospital-related fears: Experiences of preschool-aged children. *Journal of Advanced Nursing*, 66(6), 1222–1231. doi:10.1111/j.1365-2648.2010.05287.x.
- Schmitt, Y., Hoffman, H., Blough, D., Patterson, D., Jensen, M., Soltani, M., Sharar, S. (2011). A randomized, controlled trial of immersive virtual reality analgesia, during physical therapy for pediatric burns. *Burns*, 37(1), 61–68.
- Schneider, S. & Workman, M. (1999). Effects of virtual reality on symptom distress in children receiving chemotherapy. *Cyberpsychology and Behavior*, 2(2), 125–134.
- Seiden, S., McMullan, S., Sequera-Ramos, L., De Oliveira, G., Roth, A., Rosenblatt, A., Jesdale, B., & Suresh, S. (2014). Tablet-based interactive distraction (TBID) vs oral midazolam to minimize perioperative anxiety in pediatric patients: A noninferiority randomized trial. *Pediatric Anesthesia*, 24(12), 1217–1223.

- Shahid, R., Benedict, C., Mishra, S., Mulye, M., & Guo, R. (2015). Using iPads for distraction to reduce pain during immunizations. *Clinical Pediatrics*, 54(2), 145–148.
- Sparks, L. (2001). Taking the “ouch” out of injections for children: Using distraction to decrease pain. *American Journal of Maternal and Child Nursing*, 26(2), 72–78.
- Vlajkovic, G. & Sindjelic, R. (2007). Emergence delirium in children: Many questions, few answers. *International Anesthesia Research Society*, 104(1), 94–91.
- Windich-Biermeier, A., Sjoberg, I., Dale, J., Eshelman, D., & Guzzetta, C. (2007). Effects of distraction on pain, fear, and distress during venous port access and venipuncture in children and adolescents with cancer. *Journal of Pediatric Oncology Nursing*, 24(1), 8–19.
- Wolitzky, K., Fivush, R., Zimand, E., Hodges, L., & Rothbaum, B. (2005). Effectiveness of virtual reality distraction during a painful medical procedure in pediatric oncology patients. *Psychology and Health*, 20(6), 817–824.
- Won, A., Bailey, J., Bailenson, J., Tataru, C., Yoon, I., & Golianu, B. (2017). Immersive virtual reality for pediatric pain. *Children*, 4(7), 52.
- Wong, D. & Bailey, C. (2015). Emergence delirium in children. *Anesthesia*, 70(4), 375–392.

Assistive Technology in 15 Speech Therapy

Melanie Stinnett

Introduction

Speech-language pathologists, often called SLPs, are professionals who help to assess, diagnose, prevent, and treat speech, language, communication, cognitive, and swallowing disorders in children and adults. It has been reported that nearly one in 12 children ages 3–17 has had a disorder related to voice, speech, language, or swallowing in the past 12 months (Black, 2015). Due to the broad scope of practice for an SLP, it is common for individuals within this profession to choose an area of specialty within the field. Augmentative and alternative communication (AAC) is one of these specialty areas which addresses complex communication disorders involving speech-language production and/or comprehension, including verbal and written modes of communication (ASHA, 2016).

AAC falls under the broader scope of assistive technology (AT) in the practice of speech-language pathology and may or may not be technology-based. While some systems are considered high-tech (i.e. special purpose computers or tablets), some individuals may respond better to implementation of low-tech options (i.e. communication boards, picture cards). Regardless of the level of technology used, AAC is geared toward increasing effective communication when a child or adult has demonstrated some level of difficulty, often severe impairment, in making their wants, needs, and/or thoughts known through verbal communication. It is not necessary to have profound impairment in verbal communication to benefit from this type of assistive technology. An individual may even have skills in verbal communication that wax and wane for various reasons but limit them significantly enough

during times of weakness or exhaustion that augmentation is needed. For individuals with a diagnosis known to cause muscle fatigue, such as Cerebral Palsy (Russchen, 2014), it is possible to have some verbal communication skills in the morning but then have more significant difficulties in communication after a full day at school or involvement in daily activities. If a person who struggles with fatigue late in the day has their evaluation in the morning and performs well in verbal tasks, the SLP may come to the conclusion that there is no need for an AAC device. For this reason, it is important to complete a thorough case history, as well as discuss communication needs with the family and other staff who work with the individual.

The term assistive technology (AT) encompasses any item, piece of equipment, software program, or product system that is used to increase, maintain, or improve the functional capabilities of individuals with disabilities. The table below shows various categories of AT and examples that would fall under those categories. AAC is augmentative when used to supplement existing speech, and alternative when used in place of speech that is absent or not functional. The use of AAC may be a temporary solution or permanent fixture in a person's life. Functional communication skills are not only necessary for face-to-face conversation but also distance communication involving email, video conferencing, or other methods. As our society as a whole leans

Table 15.1 Assistive technology options

<i>Assistive Technology Categories</i>	<i>Examples</i>
Low tech	Communication boards made of cardboard or plexi-glass
High tech	Special purpose computers and communication devices
Hardware	Mounting systems, prosthetics, and/or positioning devices
Computer hardware	Eye gaze, switches, keyboards, pointing devices
Computer software	Screen readers, communication programs
Inclusive learning materials	Tactile systems for individuals with visual impairments
Mobility related	Electronic devices, wheelchairs, walkers, braces, power lifts, pencil holders

into the use of social media platforms and other distance communication as the preferred method of interaction, it becomes more and more important that individuals with disabilities be provided with tools that allow this type of access to communication.

While a low-tech or high-tech option may be chosen to help the individual succeed in communication, often these devices are paired with the use of technology, hardware, and/or other mounting and positioning devices to gain better access to communication. An individual struggling with speech production after a stroke may use a low-tech communication board but this may need to be paired with a mounting or positioning device if they also have difficulty with mobility or range of motion for their upper extremities while attempting to point. A child with Cerebral Palsy may be able to utilize a high-tech dynamic display device but may not be able to directly select a button with their finger. In this situation, a switch plugged into the high-tech device and mounted to their wheelchair could make the device more easily accessible. SLPs often work together with Occupational Therapists (OTs) and Physical Therapists (PT) to determine the best options when mobility and access are a concern.

Congenital Disabilities and the Use of Assistive Technology

The range of individuals who may benefit from the use of AAC systems is wide and includes those with congenital and acquired disabilities. Congenital disabilities are present prior to or at birth and indicate that a person has some level of defect impacting their health, development and/or survival (DeSilva, 2016). For individuals who could benefit from the use of AAC systems, a congenital disability would most likely mean that the skill of functional verbal communication had never been developed. For instance, a child with the diagnosis of Childhood Apraxia of Speech (CAS) does not develop speech and subsequently acquire difficulty with speech production. Instead, a marked deficit in speech production is noted and after a full diagnostic evaluation, it is determined that this child has not gained speech skills due to CAS. Conversely, an acquired disability like Apraxia of Speech (AOS) occurs after a person has developed functional communication skills. These skills are then lost as a result of impairment in brain function for motor control and speech.

Beukelman and Mirenda (2013) estimated that approximately 1.3% of people (or roughly 4 million Americans) are unable to reliably communicate using natural speech to accomplish daily communication needs. According to the National Survey of Children with Special Health Care Needs, the estimated

prevalence of children with special health care needs who have a speech difficulty is 2.9% among U.S. children. Of these children, 7.6% were estimated to require a communication aid or device, however, an estimated 2% did not receive one (Kenney & Kogan, 2011). While it is difficult to determine the prevalence of those individuals who may need assistive technology to help aid in communication, many children and adults who could benefit from these interventions are likely unidentified. This lack of identification may be in part due to a need for more formal training in the area of AAC for SLPs (Koul, 1994; Costigan, 2010). In addition, many myths regarding the effectiveness of AAC system use, particularly in early intervention, have caused some professionals to shy away from considering their use (Ronski, 2005).

Congenital disabilities may include: Autism Spectrum Disorder (ASD), Cerebral Palsy (CP), intellectual disabilities, Childhood Apraxia of Speech, and other genetic disorders. While it might be assumed that a person must be non-verbal to benefit from the use of a communication device, many of these diagnoses do not always result in a person being unable to speak but instead result in limited functional verbal speech productions. This limitation can result in frustration, negative behaviors, and/or decreased attempts to initiate communication. All of these outcomes are the reason that AAC interventions should be considered *as early as possible*. Introducing AAC prior to 12 months of age can improve outcomes significantly (Davidoff, 2017). When parents and caregivers are coached to utilize AAC systems to improve communication options, the positive outcomes can include: decreases in frustration through developing social closeness and engaging in social play, decreases in negative behaviors by allowing the child an option for providing information about their wants and needs, and increases in attempts at communication as a result of giving a more effective way for the child to initiate speech production (Light, 2002).

Binger and Light (2006) reported that approximately 12% of preschoolers who were enrolled in special education services in Pennsylvania required AAC. For various reasons (i.e. the number of SLPs that did not return the survey, potential lack of training for SLPs in the area of AAC, and misconceptions about the use of AAC as a last resort), they felt that this was an underestimate of the true need. Diagnoses within this study included primary diagnoses of developmental delay, Autism Spectrum Disorder (ASD), Pervasive Developmental Disorder (PDD), and Traumatic Brain Injury (TBI), with some secondary diagnoses of Cerebral Palsy (CP), hearing impairment, or visual impairment. The types of AAC systems utilized included: gestures (62%), sign language (35%), objects (31%), picture boards/books (63%), and voice output systems (15%).

Gesturing involves a movement of a part of the body that is utilized to communicate an idea or meaning. Many young children use gestures like pointing

to indicate that they want a particular item or shaking their head to indicate disagreement or rejection. Sign language can be utilized by teaching manual signs to represent wants and needs in the child's environment. While some signs are complex, requiring motor acuity, children with various developmental disabilities can learn modified sign language to help them gain skills in communication (Salvin, 1977; Dunst, 2011). Objects and picture boards/books can be used in a similar way to encourage communication. A teacher or therapist may provide an object or a picture to represent a task. An object may be a small baby doll which the child brings to the teacher to indicate they are ready for nap time or a picture of a child jumping on a trampoline may be taken out of a picture book and given to the therapist to show that the child is requesting play time outside. Success of both the object and picture boards/books may hinge on the child's ability to connect the item or picture with the task they are wanting to request. If the object or picture symbol is not closely related to the item or task being requested, a child may not succeed in making the connection that this AAC system can be used to communicate their wants and needs.

Voice output systems also known as Speech Generating Devices (SGDs) are electronic systems that generate speech. This speech is either pre-programmed for the device or recorded as needed by a caregiver or staff member for the individual. Some SGDs are created by downloading software onto tablets or computers while maintaining the original functions of those devices. Other SGDs are considered dedicated devices because the functions of the tablet are restricted to only communication software capabilities, meaning that access to the internet and other applications is not possible. Families may choose a dedicated device for young children who are impulsive or tempted to use other functions of the device instead of focus on the communication aspects of the software. However, older children or adults may wish to consider a non-dedicated device so that they don't have a need for multiple pieces of electronic equipment. SGDs can be button or icon driven, meaning that a child can touch the button/icon with the word and/or image on it and the word, phrase, or sentence would then be spoken. SGDs can also be text-to-speech devices that allow an individual to type a word on a keyboard and then have the device speak what they have typed. Many SGDs are a combination of these two options and often have a function that allows for the user to type a word and search for where the button or icon is located so that functional use of the device can become quicker with less need for typing. While personal preference should be considered when choosing the type of SGD, some insurance companies do place restrictions on whether they will fund non-dedicated devices.

Various types of AAC systems, as mentioned above, should always be considered, as well as the ability of the system to grow with the child as their skill level improves. While a 2-year-old may only be able to functionally communicate

their wants and needs with four button choices and will likely only use one- to two-word utterances, the hope would be that they would gain more vocabulary and language skills on a daily basis. Research has discussed the use of AAC systems for facilitating the development of these language skills (Ronski, 1996; Black, 2013). With a goal of improved skills in the area of language development, it is important to make sure that the choices made regarding their AAC system can grow with them (Beukelman & Mirenda, 2005). Gesturing and object use for communication would be limited in this capability while sign language, picture boards/books, communication programs/apps and voice output systems would be more equipped to meet the growing needs presented by increased language development. Total communication, or the use of various forms of AAC systems along with verbal speech production, may also benefit the child as it allows the child to choose their most successful method in whatever setting they are attempting to communicate.

Concerns Related to the Use of SGDs with Children

The rapid growth and changes in technology have broadened the use of SGDs due to lighter weight devices making portability an option, opportunity for internal updates to devices so that a device can grow with the individual's changing needs, and many more accessibility options built into more commonly owned devices like tablets and smartphones. Even with these gains in portability and familiarity, some families still have concerns with introducing an SGD to their young child. Families often feel like they are giving up on verbal speech when they introduce a speech generating device (SGD). However, research is indicating that the use of AAC systems can help to replace negative behaviors, decrease the child's stress, and complement the child's natural speech skills while providing access to language and technology (Oommen, 2015).

When considering use of AAC systems for children with disabilities it is important to take into account the child's strengths and weaknesses, as well as the necessary buy in from not only the parents but other members of the therapy and educational teams serving the child. Addressing any concerns that the family and other team members have prior to initiation of a trial or purchase of a device is paramount for positive outcomes. If team members are reluctant to use the device because of lack of training or understanding, then taking the time to make them more comfortable is essential. Before the child arrives in their care with the device, they should be at least as knowledgeable as the child, if not a step ahead, so that they can effectively help the child grow with the device.

Case Example

Aden: Basic Information

Aden, a 4-year-old male, was initially referred for speech therapy due to poor speech intelligibility, limited verbal expression, difficulty following directions, thought organization concerns, and social interaction concerns. He attended preschool in a public early childhood education setting and lived with his mother and father. Prior to our assessment, Aden had been diagnosed with Autism Spectrum Disorder and Sensory Processing Disorder. He had previously participated in speech therapy, occupational, therapy, physical therapy, applied behavior analysis treatment, and music therapy.

Presenting Concerns and Initial Evaluation

Aden's mother reported that a Picture Exchange Communication System (PECS) had been attempted with previous speech therapists. PECS is a picture-based AAC system that begins with the exchange of a single picture of a desired item or action with the communication partner who immediately responds to the request. This type of system is often used as a precursor to more complex AAC systems but Aden's mother reported that the use of PECS had been unsuccessful. She reported that Aden babbled frequently both at home and outside the home but was unintelligible even to familiar listeners. He did not generally attempt to initiate speech or play with peers, but his mother did indicate that he would babble back and forth with her and his father. He frequently demonstrated visual stimming behaviors such as holding spinning options to close to his eyes.

Aden participated in a speech and language evaluation with the following results:

In the area of speech production, he demonstrated a severe impairment with errors for these consonants and consonant clusters: /h/, /d/, /p/, /k/, /t/, /f/, /n/, 'sh', /g/, /s/, prevocalic /r/, voiceless 'th', /z/, 'j', /l/, 'ch', /v/, voiced 'th', /b/, 'ng', vocalic /r/, 'kw', 'sp', 'dr', 'pl', 'sl', 'sw', 'gl', 'br', 'bl', 'fr', 'pr', 'kr', 'tr', and 'st'. In addition, he demonstrated vowel shifting which is sometimes associated with a diagnosis of childhood apraxia of speech. His errors were inconsistent throughout the evaluation.

For the area of receptive language, Aden achieved a standard score of 83 which indicated a mild impairment. However, in the area of expressive language, Aden achieved a standard score of 66, indicating a severe impairment.

This 17-point difference between standard scores was considered significant based on the normative sample (Zimmerman, 2011) and was another possible indicator of Childhood Apraxia of Speech (CAS). CAS is a neurologically-based motor speech disorder that results in a child having difficulty with speaking.

The speech therapist recommended speech therapy three to four times per week targeting production of bilabial sounds (/p/, /b/), various word shapes (Consonant-Vowel, Vowel-Consonant), receptive identification of objects/pictures, increased imitation of single word utterances, and improved one-step command following. Limits in his speech production, receptive language and expressive language skills had made it difficult for Aden to communicate with his parents, teachers, and peers. His mother worried that these challenges would begin to impact him in negative ways as he grew older and his peers became more aware of his challenges.

Number of Sessions

Aden participated in speech therapy for approximately four and half months and completed 52 sessions. During this time, based on his progress and ongoing level of difficulty with speech sound production and expressive language skills, it was determined that Aden would benefit from an AAC evaluation. His treating therapist in the outpatient clinic contacted the therapist in his school to discuss this recommendation, and both therapists, along with the parents, were in agreement with the AAC evaluation. The use of an assistive communication device was recommended due to the positive impact on both language learning and development, as well as the potential positive influence of speech sound production.

Assistive Communication Device Evaluation

During the evaluation, it was again noted that Aden's receptive language skills were higher than his expressive language skills. For example, although he was able to point to a picture of a frog, he was unable to label the frog verbally. In addition, Aden was observed to be a fluent reader even at his young age. Following introduction of several dynamic display devices, the speech-language pathologist found that Aden was appropriate for a speech generating device (SGD). Following one model by the therapist, Aden was able to select the appropriate buttons and state "I want to play with the iPad"

six times. He demonstrated strong memory skills, recalling icon location, and was consistently able to imitate icon selection.

The NovaChat 8 DPLUS programmed with the Word Power 42 Basic PCS vocabulary file was chosen by the team which included the parent, school-based speech-language pathologist, occupational therapist, and speech-language pathologist/evaluator. This vocabulary file presents up to 42 buttons/icons on each page and was chosen due to Aden's visual acuity with the button size this allowed, as well as the increased vocabulary available on each page with this number of buttons present. This increased vocabulary allowed for him to have more options for creating sentences using quick phrases. During the evaluation, Aden was shown devices that were different sizes and contained different types of picture symbols. Aden's preferences were determined based on his eagerness to interact, as well as ease of access with each device trialed.

Assistive Communication Device Training and Setup

Eight initial training sessions were set up for the parent and for school-based personnel to build awareness of the functions within the device and to ensure appropriate use of the device. At first, no buttons were hidden so that Aden would have adequate flexibility to explore the language available. When a child is first learning how to use an SGD, it is common to not hide any buttons so that they can explore the vocabulary available. These buttons, when touched or pushed, give auditory feedback as the child begins to learn the language that is accessible on the device. However, if a child later begins to push buttons inappropriately or push the same button many times for no communicative purpose, then a button can be hidden. Hiding buttons is often discouraged by SLPs because it limits the child's vocabulary, taking away their choice to use certain words. For this reason, hiding buttons should be a consideration with the entire team, including the parents or caregivers. Goals were developed during the AAC Evaluation and were then implemented in Aden's regular speech therapy sessions in the outpatient clinic. These goals targeted requesting, commenting, and labeling items, independently requesting a new action, and sharing personal information (e.g. name, age, interests).

Technology Interventions in Therapy

During Aden's regularly scheduled speech therapy sessions, the SLP implemented use of the SGD to target the goals mentioned above, while still working toward general speech and language goals as previously noted. Aden took to the device very quickly and only occasionally needed reminders to

take the device out of his backpack and bring it into his speech therapy sessions. Aden was able to independently turn on his device and place the stand out on the back of the device so that it could sit on the table.

Initially, Aden demonstrated perseverative behaviors with the SGD based on his known preferences for knowing the time, weather, and other details each day. These behaviors included Aden repeatedly finding and touching buttons related to the time, date, weather, and battery life of the device. He would go to these button options even during structured activities that were unrelated to this information. In addition, Aden frequently went to the keyboard screen with word prediction icons and pushed predicted words that did not create complete sentences or convey meaning to the therapist. During sessions, the therapist prompted Aden to return to the home page of the device at least 10–12 times per session. This level of inappropriate use of the device interrupted the flow of therapy and made it difficult to progress with goals.

The treating speech therapist contacted the school-based SLP and was informed that the classroom teacher and SLP had chosen to limit utilization of the device in the classroom and speech therapy sessions due to the inappropriate nature of Aden's current device use. The treating therapist then spent the next two sessions watching and evaluating the unwanted behaviors that were present when Aden attempted to use the device independently. Based on these behaviors the following modifications were made to the device (see Table 15.2).

Table 15.2 Device modifications based on unwanted behaviors

<i>Unwanted Behaviors</i>	<i>Device Modification</i>
Persistently finding and touching battery life indicator button	Device battery life indicator button was hidden
Using word prediction to make sentences that were not complete thoughts and not on topic	Word prediction was disabled and the word prediction buttons were hidden
Frequently touching and holding the text bar to bring up a menu and then exit out of the menu	Touch and hold was disabled for options on the text bar
Running finger across screen to watch the highlighting of each button as it was touched	Highlighting feature was disabled
Touching buttons repeatedly, very quickly with no intent to communicate – a beep sound was produced by the device with every touch	Beep function was disabled so that no sound was produced with button selection

Once these changes were made to the device, a significant improvement was noted immediately. During the next speech therapy session in the outpatient clinic, Aden was able to appropriately label common objects/pictures with 90% accuracy with minimal verbal cues provided. When an item was presented, and he was unsure of the location of the button to label this item, he went directly to the keyboard screen (described earlier in this chapter) to attempt to spell the word and use the “find word” option to locate it. With cueing for spelling, Aden was able to locate the button with minimal verbal cues. Within only two more sessions, Aden was labeling well known common objects/pictures with 100% accuracy provided on occasional verbal cues and was independently going to the keyboard when he was unsure of a button’s location multiple times during a session.

With these changes in place, Aden’s strengths with the device became more apparent. Aden demonstrated strong skills in direct selection and memory for planning sequences to make short phrases or to find specific words that were placed deeper than the first or second page sets. When given a model, he was able to recall the sequence of up to five buttons easily and was able to functionally use this sequence to communicate within the sessions.

Outcomes

After approximately ten months of treatment, four and half months of which was with his SGD, Aden demonstrated significant gains in both speech sound production and expressive language skills. Below are tables showing the skill deficits noted during his initial evaluation compared to his current deficits.

While there are still areas of concern to be addressed in skilled speech therapy sessions, Aden’s outcomes were positively impacted by the presence of assistive technology in the form of an SGD. When speech production and expressive communication were not viable options for communication, his SGD was present as an option to improve his skills in these areas, as well as provide a model of the verbal speech production goal target. Without the option of an AAC system and appropriate implementation with the entire team, it is possible that Aden would have become frustrated with his lack of communication skills and demonstrated increased negative behaviors. Thankfully, the introduction of his SGD helped him gain the necessary skills to become an effective communicator in his daily living environments.

Table 15.3 Speech sound production

	<i>Initial Areas of Concern</i>	<i>Concerns after Therapy and SGD Use</i>
Speech Sounds		
Stop consonants	/p/, /b/, /t/, /d/, /k/, /g/	No errors
Nasals	/n/, 'ng'	'ng'
Fricatives	/f/, /v/, voiceless 'th', voiced 'th', /s/, /z/, 'sh'	voiceless 'th', voiced 'th', 'sh'
Affricates	'ch', 'j'	'ch'
Liquids	/l/, prevocalic /r/, vocalic /r/	/l/, prevocalic /r/, vocalic /r/
Glides/glottals	/h/	No errors
Consonant clusters	'bl', 'br', 'dr', 'fr', 'gl', 'gr', 'kr', 'kw', 'pl', 'sl', 'sp', 'st', 'sw', 'tr'	'bl', 'br', 'dr', 'fr', 'gl', 'kr', pl', 'sl', 'st', 'tr'
Phonological Processes		
Initial consonant deletion	Present	Not present
Cluster reduction	Present	<i>Present</i>
Cluster deletion	Present	Not present
Gliding of liquids	Present	<i>Present</i>
Final consonant deletion	Present	Not present
Prevocalic voicing	Present	Not present

Notes: *Concerns after therapy in bold with italics represent errors or skills that would be considered age appropriate at the time information was gathered. Concerns after therapy in italics indicate errors or skills that would not be considered age appropriate and would warrant continued treatment (Sander, 1972; Templin, 1957; Wellman, 1931; Bowen, 2011).

Table 15.4 Receptive and expressive language

	<i>Initial Areas of Concern</i>	<i>Concerns after Therapy and SGD Use</i>
Receptive Language		
Understanding negatives in sentences	Not present	Present
Understanding spatial concepts (under, behind, next to, in front of)	Not present	Present
Understanding pronouns (his, her, he, she, they)	Not present	Present
Understanding quantitative concepts (more, most)	Not present	<i>Not present*</i>
Identifying advanced body parts	Not present	Present
Understanding complex sentences	Not present	<i>Not present*</i>
Expressive Language		
Using words more often than gestures to communicate	Not present	Present
Using words for a variety of pragmatic functions	Not present	Present
Using different word combinations	Not present	Present
Combining three to five words in spontaneous speech	Not present	Present
Using a variety of nouns, verbs, modifiers, and pronouns	Not present	Present
Answering what and where questions	Not present	<i>Emerging*</i>
Naming described objects	Not present	<i>Emerging*</i>
Answering questions logically	Not present	<i>Emerging*</i>

Notes: *Concerns after therapy in bold with italics represent errors or skills that would be considered age appropriate at the time information was gathered. Concerns after therapy in italics indicate errors or skills that would not be considered age appropriate and would warrant continued treatment (Sander, 1972; Templin, 1957; Wellman, 1931; Bowen, 2011).

Conclusion

Research related to the use of AAC systems which include voice output options for children with congenital disabilities has shown some positive outcomes. However, while the importance of early intervention for children with speech and language concerns is widely accepted, this idea is not often applied to the use of AAC systems. Further research regarding the early use and benefits of these systems, especially in early intervention, is necessary. In addition, ongoing research regarding the most effective ways to help families implement these AAC systems could help SLPs to ensure carryover and generalization for improved outcomes. Research should also target improved learning options for SLPs so that professionals are more prepared and comfortable with the AAC system options available.

Addressing the impact of SGD use on speech sound development through research could help to support the additional cost of a device when a child is verbal but not functional with their speech. Also, if research is found to support short-term use of an SGD to gain speech and language skills for some individuals, then payors may be willing to cover device rentals and become more creative about finding lower cost ways to get AAC system options in the hands of the user. Increased research regarding the use of total communication options and their effectiveness may help both professionals and families make better decisions regarding the best AT options for both children and adults.

As professionals, when we grasp the magnitude of benefits that assistive technology use can provide and begin to implement treatment protocols that pull on the strengths of the child, barriers in therapy caused by frustration and stress will melt away allowing for positive outcomes. These outcomes will overflow not only to our target goals but to the lives of these children beyond the four walls of our sessions. Increased success in communication will lead to decreases in negative behaviors and allow the opportunity for these individuals to participate more fully within their community and with their loved ones.

References

- American Speech-Language-Hearing Association. (2016). *Scope of practice in speech-language pathology* [AAC]
- Assistive Technology Industry Association. (2018). *What is AT?* Chicago, IL: Assistive Technology Industry Association.
- Barker, R. M., Akaba, S., Brady, N. C., & Thiemann-Bourque, K. (2013). Support for AAC use in preschool, and growth in language skills, for young children with developmental disabilities. *Augmentative and Alternative Communication*, 29(4), 334–346.

- Beukelman, D., & Mirenda, P. (2005). *Augmentative and alternative communication: Management of severe communication impairments*. 3rd ed. Baltimore, MD: Brookes Publishing Co.
- Beukelman, D., & Mirenda, P. (2013). *Augmentative and alternative communication: Supporting children and adults with complex communication needs*. 4th ed. Baltimore, MD: Paul H. Brookes Publishing Co.
- Binger, C., & Light, J. (2006). Demographics of preschoolers who require AAC. *Language, Speech, and Hearing Services in Schools*, 37, 200–208.
- Black, L.L., Vahratian, A., & Hoffman, H.J. (2015). Communication disorders and use of intervention services among children aged 3–17 years: United States, 2012. *NCHS data brief, no 205*. Hyattsville, MD: National Center for Health Statistics.
- Bowen, C. (2011). Table 3: *Elimination of phonological processes*. Retrieved from www.speech-language-therapy.com on April 10, 2018.
- Costigan, A., & Light, J. (2010). A review of preservice training in augmentative and alternative communication for speech-language pathologists, special education teachers, and occupational therapists. *Assistive Technology*, 22, 200–212.
- Davidoff, B. E. (2017). AAC With energy – earlier. *The ASHA Leader*, 22(1), 48–53.
- DeSilva, M., Munoz, F. M., Mcmillan, M., et al. (2016). Congenital anomalies: Case definition and guidelines for data collection, analysis, and presentation of immunization safety data. *Vaccine*, 34(49), 6015–6026.
- Dunst, C. J., Meter, D., & Hamby, D. (2011). Influences of sign and oral language interventions on the speech and oral language production of young children with disabilities. *Center for Early Learning Literacy Learning Reviews*, 4(4), 1–20.
- Kenney, M. K., & Kogan, M. D. (2011). Special needs children with speech and hearing difficulties: Prevalence and unmet needs. *Academic Pediatrics*, 11(2), 152–60.
- Koul, R. K., & Lloyd, L. L. (1994). Survey of professional preparation in augmentative and alternative communication in speech-language pathology and special education programs. *American Journal of Speech-Language Pathology*, 3, 13–22.
- Light, J. C., Parsons, A. R., & Drager, K. (2002). “There’s more to life than cookies”: Developing interactions for social closeness with beginning communicators who use AAC. In J. Reichle, D. R. Beukelman, & J. C. Light (Eds.) *Exemplary practices for beginning communicators: Implications for AAC* (pp. 187–218). Baltimore, MD: Paul H. Brookes Publishing Co.
- Oommen, E. R., & McCarthy, J. W. (2015). Simultaneous natural speech and AAC interventions for children with childhood apraxia of speech: Lessons from a speech-language pathologist focus group. *Augmentative and Alternative Communication*, 31(1), 63–76.
- Romski, M. A., & Sevcik, R. A. (1996). *Breaking the speech barrier: Language development through aug-mented means*. Baltimore, MD: Brookes Publishing Co.
- Romski, M., & Sevcik, R. (2005). Augmentative communication and early intervention: Myths and realities. *Infants and Young Children*, 18, 174–185.
- Russchen, H. A., Slaman, J., Stam, H. J., van Markus-Doornbosch, F., van den Berg-Emons, R. J., Roebroek, M. E., & LEARN 2 MOVE Research Group. (2014). Focus on fatigue amongst young adults with spastic cerebral palsy. *Journal of NeuroEngineering and Rehabilitation*, 11, 161.
- Salvin, A., Routh, D. K., Foster, R. E. et al. (1977). Acquisition of modified American Sign Language by a mute autistic child. *Journal of Autism and Childhood Schizophrenia*, 7(4), 359–371.

- Sander, E. K. (1972). When are speech sounds learned? *Journal of Speech and Hearing Disorders*, 37(1), 55–63.
- Templin, M. (1957). *Certain language skills in children: Their development and interrelationships*. Minneapolis, MN: University of Minnesota Press.
- Wellman, B., Case, I., Mengert, I., & Bradbury, D. (1931). Speech sounds of young children. University of Iowa Study. *Child Welfare*, 5(2), 1–82.
- Zimmerman, I. L., Steiner, V. G., & Pond, R. E. (2011). *Preschool Language Scales, Fifth Edition* [normative data]. New York, NY: Pearson Education.

Videoconferencing in Psychotherapy

16

Removing Barriers to Mental Health Care for Vulnerable and Underserved Populations

Julie Nash

The use of videoconferencing to provide mental health services is a viable and effective modality. This technology is a solid addition when working with members of vulnerable and underserved populations including low-income families, the homeless, immigrants, migrant populations, refugees, rural residents, post-disaster survivors, people without health insurance, and people with chronic medical and/or mental health conditions. In many cases, it is the best way to provide face-to-face clinical services to a particular client or population.

Telepsychology

Connecting with clients to conduct therapy sessions via technology typically includes telephone or videoconferencing sessions. For the purposes of this chapter, videoconferencing will be the focus. Telepsychology, also seen in the literature as telehealth, telemedicine, or online counseling, will be defined here using Rochlen, Zack, and Speyer's (2004, p. 270) definition of a "professional therapeutic interaction that makes use of the Internet to connect qualified mental health professionals and their clients." In videoconferencing, clients and practitioners utilize combined audio and video systems. The attraction of videoconferencing is that it allows the client and practitioner to be virtually in the same location at the same time, allowing

for a synchronous meeting and intervention, complete with face to face interactions. There are various videoconferencing programs available now to support such interactions. Confidentiality and privacy should always be considered when choosing a software. Many now offer business agreements for this purpose that are HIPPA compliant.

There are a couple of considerations to be aware of when videoconferencing. When covering terms, including payment, with the client, providers are encouraged to carefully read their contracts with insurance companies if they are seeking reimbursement. Some insurance companies may not authorize payments unless the clients and provider are physically in the same space. Another important consideration has to do with physical position and the meta-messages the provider could inadvertently convey. It is important to note that some computer cameras are not positioned at the eye level of the person in the image. It often appears that the client or provider is looking slightly down, unless specifically looking into the camera. This can be important when addressing a sensitive topic or when a provider would want to make eye contact.

Videoconferencing

Videoconferencing is a useful and effective addition to psychotherapeutic work for many reasons. In general, practitioners have been reluctant to branch into provision of service via distance technology. However, videoconferencing is quickly becoming more understood, acceptable, and sought after by providers and clients alike. There are multiple online counseling companies available that encourage e-communications such as texting or emailing between a client and practitioner, or video chats. There are many benefits to the use of this technology including convenience for both practitioners and clients, expanding the scope and availability of providers and types of available treatments, and cost reduction. Overall, the use of videoconferencing leads to reduction of clinical symptoms, good patient satisfaction, and therapeutic relationship factors and quality of therapy that are apparent, as seen in typical face-to-face sessions (e.g. O'Reilly et al., 2007; Ruskin et al., 2004; Singh, Arya, & Peters, 2007; Dunstan & Tooth, 2012; Greene et al., 2010; Richardson et al., 2015).

In terms of therapeutic relationship factors, research indicates that telepsychology does not negatively impact the development of therapeutic alliance (Richardson, Reid, & Dziurawiec, 2015). This is an important point as it is an oft cited reason that practitioners are reluctant to utilize the technology. While there may be difficulties with digital connectivity including

distortion of picture or sound (including delayed sound transmission), low bandwidth, or other issues that can make a video transmission seem artificial or distant, clients and practitioners reported being only minimally impacted (Richardson et al., 2015; Bischoff, Hollist, Smith, & Flack, 2004). The signal delay piece seemed to be mildly disruptive in the joining stages of building a therapeutic alliance, and over time both the client and clinician learned to adapt their rate of speaking and responding to account for this (Bischoff et al., 2004). In general, clients reported an overall increase in positive therapeutic alliance and comfort with the clinician over the course of treatment, much like in traditional therapy settings (Richardson et al., 2015).

Another concern about therapeutic relationships is non-verbal communications. When clients and clinicians are in the same physical space, the entire body is usually visible which allows a clinician to observe total non-verbal communication more easily, immediately, consistently, and discreetly. This is an important factor as “research has consistently found non-verbal communication to be more instrumental in conveying a message than verbal communication” (Bischoff et al., 2004, p. 192). Practitioners can choose to structure their sessions so that the entire body is visible for both parties, or can make other accommodations as suggested by Bischoff and colleagues (2004). These include clinicians exaggerating non-verbal communication and becoming more deliberate in vocal inflections or postures, thus modeling for the client who can adopt those exaggerations as well (Bischoff et al., 2004; Springer, Farero, Bischoff, & Taylor, 2016). Clinicians can also ask more direct questions to clarify non-verbal cues and note changes in tone or emotional expressions or body positioning (i.e. fidgeting or looking away consistently; Bischoff et al., 2004).

A second common concern about utilizing video technology is that clients will not be as satisfied with services as compared to in person sessions. Research indicates that this is simply not true. Satisfaction has been found to be high with clients utilizing videoconferencing (O'Reilly et al., 2007; Ruskin et al., 2004). Across multiple studies, clients indicated that they would choose technology enhanced therapy such as videoconferencing again, especially if it meant they would receive treatment rather than going without, and even instead of other options (Bischoff et al., 2004; Richardson et al., 2015). Some clients prefer to have distance between themselves and the providers for various reasons (i.e. significant social anxiety or personal shame) and thus telepsychology allows for a greater comfort and ease in participating in psychotherapy (Richardson et al., 2015).

A third common concern is that telepsychology cannot be as good as in person, face-to-face counseling in terms of reducing clinical symptoms. Research

indicates that video sessions are as accurate as in-person sessions with regard to diagnostic assessment and intervention (Singh, Arya, & Peters, 2007). Videoconferencing is equally as effective as in person sessions for reducing clinical symptoms (Dunstan & Tooth, 2012) for a range of presenting issues including anger, anxiety, depression, PTSD, and overall functioning (Dunstan & Tooth, 2012; Greene et al., 2010; Ruskin et al., 2004; De Las Cuevas, Arredondo, Cabrera, Sulzenbacher, & Meise, 2006; O'Reilly et al., 2007).

Telepsychology can also bridge gaps that seemed impossible in previous years—such as providing couples counseling with deployed military members and their spouses at home (Farero, Springer, Hollist, & Bischoff, 2015). Videoconferencing can be used as a standalone treatment or could be used to supplement or enhance traditional counseling. For example, utilizing mid-week video sessions to check in with families who are implementing behavioral parent training has been found to be effective (Jones et al., 2014).

One consideration is that there is a need to be “planfully creative” when utilizing distance technology like videoconferencing (Springer et al., 2016, p. 151). When the counselor and client are in the same physical space, it is easy enough to rearrange seating arrangements between multiple clients (as in couples or family work), use a technique designed to highlight play or art, or engage in other experiential activities. Telepsychology brings a new challenge to these concepts as the provider must be aware of the physical location the client is using as well as any materials which may or may not be available, or any foreseeable limitations, but this challenge can be overcome with careful planning (Springer et al., 2016).

Vulnerable and Underserved Population Care

Vulnerable and underserved populations include those who have trouble accessing medical or mental health care. The term “vulnerable populations” has traditionally defined those who are particularly vulnerable during times of disaster or are incapable in some way of making their own healthcare decisions. Over time this definition has changed to include those who are in need of extra support and services, and those who may have trouble accessing quality and convenient services (typically, the underserved). This includes people of lower socioeconomic status (both adults and children), the homeless, those of minority backgrounds, rural residents without easy access to providers, those without medical insurance, and the elderly (American Journal of Managed Care [AJMC], 2006). Immigrants, refugees, and people with chronic medical or mental health illnesses are also considered vulnerable populations (AJMC, 2006), as are those in post-disaster or crisis settings.

When looking specifically at child and adolescent populations, additional groups are identified. Those who are in foster care are considered a socially vulnerable population, as are immigrant children, those in juvenile justice systems, and those who experience violence (UCLA, 2018). The risks for children in these populations include increased health risks, worse health outcomes, and health conditions that are harder to address because of inconsistent medical care and ongoing treatment (UCLA, 2018).

Being in a vulnerable population can heighten the likelihood of and ongoing problems resulting from medical or mental health needs. Those with chronic conditions are specifically impacted by these factors. The combination of greater risk for health conditions and lower ability to access treatment service typically leads to more complex problems physically as well as socially, emotionally, and interpersonally (AJMC, 2006). The vulnerable populations are growing, in some cases exponentially (AJMC, 2006). Statistics indicate that 564.4 million people across the world were impacted by natural disasters in 2016, which was the greatest number in ten years (Guha-Sapir, Hoyois, Wallemacq, & Below, 2016). This is well more than twice the average number of people impacted between 2006 and 2015. The number of refugees and forcibly displaced people in the world surpassed 65 million as of 2017 (UNHCR, 2017).

People living as part of vulnerable populations do not typically have consistent access to routine, ongoing, or specialized treatment for physical or mental health conditions. Given this, they are likely to experience urgent or crisis-based needs. This can lead to conditions that become more debilitating and harder to treat, thus becoming more chronic and costly (AJMC, 2006), which impacts overall functioning of the individual, family, and society. Unfortunately, people who are part of vulnerable populations also possess more risk factors for dropping out of psychotherapeutic treatment which can indicate a higher likelihood of not maintaining or completing treatment (Wierzbicki & Pekanik, 1993).

Another challenge with treating people in vulnerable populations with mental health conditions is that there are simply not enough mental health providers in all locations. Every state in the United States has Mental Health Professional Shortage Areas which means there are not enough mental health professionals available to meet the needs of the populations (Health Resources & Services Administration [HRSA], 2018). Using telepsychology to provide care for these populations allows for a client to receive treatment wherever he or she is, with the practitioner providing care from his or her own location. This opens a world of possibilities for many clients living as part of vulnerable populations for routine and specialized care. Given the far-reaching impacts of leaving mental health

conditions untreated, providing videoconferencing sessions for people in vulnerable populations can begin to alleviate many small problems as well as those that are more extensive and have a larger overall impact for individuals and societies.

There are personal economic impacts that range from higher insurance and healthcare costs to decreases in income due to missing work, as well as larger overall economic impacts. In particular, the World Health Organization has strongly linked poverty, mental health disorders, and life-long financial implications. They have found that “almost three quarters of the global burden of neuropsychiatric disorders occurs in low- and middle-income countries” (World Health Organization [WHO], 2018, para. 1). The costs to support and treat these conditions impact individuals and families as well as governments and global economies. It is clear that mental health care needs to be available across the lifespan in affordable and accessible ways.

The Benefits of Videoconferencing

Videoconferencing to reach vulnerable populations with both ongoing and crisis-oriented mental health care is a crucial addition to the field. There are many benefits to the use of this technology including convenience, expanding the scope and availability of providers and treatments, and reducing costs of treatment and travel for both practitioners and clients. The use of videoconferencing brings mental health treatment directly to the client, and research indicates that video sessions are effective in reducing clinical symptoms with members of vulnerable populations (Richardson et al., 2015) in much the same way as traditional in-person sessions (Springer et al., 2016).

A common misperception is that vulnerable populations do not have ready access to computers with reliable internet or smartphones to access video sessions. In fact, traditional landlines are quickly becoming a thing of the past and people of lower socioeconomic status are likely to experience a cost savings with smartphones (Jones et al., 2014). Smartphones allow for a variety of options to reach clients for therapeutic interactions including the Internet (email, chat features, etc.), various apps and games, and the like, all of which create an environment of “therapeutic gold” (Aguilera & Muench, 2012, p. 70). Many phones are available on pre-pay or “pay as you go” plans, or can be supplied as part of governmental assistance programs, making them readily available tools.

In rural or crisis-based counseling, it can be beneficial for providers to set up a videoconferencing location to be used by clients. This can alleviate any concern about having the necessary equipment available for clients to use, and can also secure a stronger, more consistent digital connection than a

smartphone provides. In some studies, providers have contracted with local schools or other agencies to set up and leave videoconferencing equipment in place in their space. Clients reported this to be helpful, though scheduling needs were taken into account as someone on site needed to be available to permit access to the location. This created a confidentiality issue that was addressed but, overall, clients were pleased to have the access to providers through this technology (Bischoff et al., 2004).

Of interest is that perceived ease of use of the technology materials can influence whether certain populations seek out or utilize video counseling. In particular, one study suggests that in a Filipino migrant worker population, the ease of use as well as problem severity influenced how willing participants were to access online counseling. Cultural reluctance often influences whether people in the Filipino community seek services, often because of a sense of personal and familial shame or shame associated with not being able to work through the presenting problems with family members. When workers were separated from their families due to working in other countries, they were willing to seek online counseling if they perceived their concerns to be severe. When they perceived their problems to be lower in severity, the ease of access to the Internet mediated whether they sought treatment or not. If workers had consistent access to the Internet and felt supported in their use of the technology, they were more willing to seek video counseling (Hechanova, Tulliao, Teh, Alianan, & Acosta, 2013). Thus, it can be beneficial to instruct clients in the use of the technology being offered as part of the initial referral, or include a training session.

There are many reasons people in vulnerable populations choose to utilize videoconferencing for therapeutic sessions. For rural residents, these reasons primarily include barriers to traditional services such as distance from providers which translates into financial, time and access barriers, trouble maintaining confidentiality due to being in a small town setting, and reduction of stigma. In terms of distance and finances, services are often quite a distance from a client's home (perhaps 50 to 100 miles or more). The client must then account for hours of driving, gas, time off from work, explanations to work supervisors, cost of childcare, and so on. In rural communities, farming and labor-focused work is heavily impacted by such time off, and is related to stigma and lack of confidentiality, as reasons must be given for multiple days off from work and information passes quickly between residents of small communities (Bischoff et al., 2004). These difficulties can also be seen in urban communities when clients utilize public transportation that includes multiple transit changes or walking miles in difficult weather. Research indicates that given the access to videoconferencing, clients are able to obtain treatment with a significantly lower time and financial investment (Bischoff et al., 2004).

This allows for more consistent continuity of care, as when a client does not need to take a full day off to attend one appointment but instead an hour to join a video session, they are more likely to be able to attend regular sessions.

These financial savings can be significant—approximately 10% per client and 16% per visit were noted to be simply due to decreased travel expenses by the practitioner (O'Reilly et al., 2007). Driving or traveling to and from remote or otherwise underserved locations, as well as setting up and maintaining a treatment location, incurs additional expenses in both time and resources for the practitioner. Minimizing travel by providers can be crucial in post-disaster areas when it may not be advisable or possible for clinicians to reach people in need, and can also help lessen a surge of volunteers to a location. Workers on the ground are also able to access providers for specialized trauma, cultural, or other modalities (Ng, 2011).

In addition, videoconferencing can be utilized when multiple members of a family want to participate in a session from different locations. For example, videoconferencing has been found effective when working with a deployed military member and his or her spouse who is at home (Farero et al., 2015). Adaptations must be made depending on the service member's location and needs, but this modality has been shown to be beneficial for military couples to receive and maintain treatment and supports the family structure.

Case Example

Natalie is in her early 20s and is of mixed ethnic background. She is a high school graduate who has ambitious plans for her future but is uncertain if these dreams can become reality for genuine reasons. Natalie has one sibling, and her mother left the family when Natalie was a teenager. Her father is involved in her life but not a strong support figure. She has extended family members who live both in the United States near Natalie, and in their home country of Puerto Rico. Natalie and her sibling have good relationships with their extended family members and feel supported by them. She is also in a relatively new and stable relationship. Natalie and her family are of low socioeconomic status, and this impacts decisions she is able to make such as when she can move out on her own and where she can go, as they receive government subsidized housing and other assistance due to physical disabilities. She is able to work sporadically and is saving as much money as she can but this is taking longer than she hoped and expected.

Natalie presents with a history of anxiety and depression, and reports multiple stressful life events mostly related to her family's limited income and experiences with government-provided assistance programs. Some of

these programs are related to various disadvantages she and her parents have experienced, which also limit the amount and type of employment she can seek. Natalie has dealt with a pain disorder for most of her life that flares up at various times of the year and lasts for at least a week per episode (often related to stress or the weather turning colder). She is currently seeking treatment because her symptoms of anxiety and depression are significantly impacting her ability to function and maintain her limited employment. Natalie does not own a car and is restricted to using public transportation or walking to appointments.

She has been in and out of psychotherapy throughout her lifetime. She tends to attach strongly to clinicians and felt hurt and betrayed when previous clinicians moved into other positions. Sessions with this clinician were initially held face-to-face in a therapy office. A working relationship was established within the first few sessions and Natalie reported feeling comfortable with this clinician. It quickly became clear that Natalie would not be able to maintain ongoing office visits with the consistency and regularity that would be beneficial for her presenting concerns. Her symptoms tend to worsen in the winter months, exactly when she would need to either walk over a mile to attend an in-person session or spend at least an hour outside waiting for transportation or walking to and from the stations, in addition to the time spent on the bus. At these times, she often calls to cancel the day of her appointments, stating that it was too cold to make it in, and that she would be in too much pain to walk. Her work schedule also makes it challenging to maintain consistent appointments as her schedule changes often and she is unable to take multiple hours off during a shift to attend appointments (including travel and session times).

Given the challenges Natalie faces with getting to the physical location of therapy, we chose to try videoconferencing to alleviate some of her barriers to treatment. We each downloaded a program that includes a HIPPA compliant business agreement and is free for the client to use. Natalie has a smartphone that has an unlimited data plan on a monthly pre-pay option. This allows her access to the Internet and a variety of apps and programs that encourage her therapeutic progress.

Videoconferencing was used in this case for multiple reasons. Given Natalie's inability to maintain a consistent treatment schedule due to her pain condition, work hours and transportation limitations, videoconferencing was a cost-effective and convenient way to provide consistent treatment while building a therapeutic relationship and working on interventions for anxiety reduction. We were able to maintain visual connections which allows access to her nonverbal communication during sessions. This, in particular, is necessary when working with clients dealing with anxiety and depression, in my

opinion. Many clients develop certain movements or eye shifts that share a lot of information about their comfort level. Having access to this information in real time allows for a deeper exploration of the client's verbalizations, internal processes, and coping styles and skills.

Videoconferencing also allowed for continuity of care as Natalie moved to a different home that was even farther from the provider's office and thus a greater challenge to meet in person. She was not willing to change providers. Had the provider required that Natalie continue to travel to the physical office to meet, she would have lost income in excess of three hours' worth of work per session, plus the costs of transportation (bus fare or taxi). If she had children, she would also need to pay for at least three hours of childcare per session.

While the practitioner set up in a corner of her office, Natalie often used a quiet area of her home to connect. This was at times a challenge for her. When her significant other was home, she was not ensured total privacy for our sessions, and she occasionally had to leave some topics to discuss at a later date. In traditional in-person therapy, the provider is in charge of creating a private and confidential space in which to meet and talk openly. In videoconferencing, the client must create that space for himself or herself, and that can become challenging. The provider must have a specific and detailed conversation about this with clients and problem-solve how this space will be created. Some clients are very open about their therapy time, and have taken me on virtual tours of their homes to meet other family members. Others, such as Natalie, prefer to have dedicated private time in which to meet.

The videoconferencing sessions were used in lieu of traditional in-person therapy. The sessions focused on symptoms of anxiety and depression, and coping skills within Natalie's home environment were explored. Natalie reported that this was a benefit for her, as she was able to try out different skills in different ways, and find what would work more quickly than in previous in-person therapy experiences. For example, she no longer had to wait to get home to see how it would feel to adjust a routine at home or change some lighting to help with her mood in the winter. She would try these things out during our actual session and then modifications could be made instantly depending upon her results. Natalie reported feeling successful when she was able to implement these skills and modify them herself, which led to a greater hope about the interventions working and a more lasting impact per her report.

Natalie also reported that the convenience of videoconferencing was a huge benefit for her, and a main reason for being able to continue with therapy. She said that she felt a higher level of commitment to making actual changes in her life because she knew that she could fully utilize services on a regular basis. In previous therapeutic experiences, she was not able to get

to the office consistently. Thus, she felt that she was wasting the provider's time as well as her own, and never really felt motivated to change because "It didn't really matter in some ways. I would forget what I was supposed to work on by the time I got home, and then feel frustrated that things would never actually get better." By being able to meet Natalie where she is, the therapy took on new meaning for her. Natalie said that by allowing a therapist to see her actual circumstances, treatment felt more applicable to her life, and that the provider was more attuned to her needs. This feeling that the provider was taking an interest in helping her succeed felt like more of a personal connection than she had experienced previously, and improved the therapeutic alliance.

Overall, this was a successful case in which to utilize videoconferencing instead of in-person therapy. Natalie's risk factors and inclusion in multiple vulnerable and underserved populations made her a prime candidate to drop out of treatment when it became challenging to make it into the office. Instead, she experienced a reduction in symptoms of anxiety and depression to the point where she was able to function consistently at home and work, even in light of her pain condition. Natalie reported and showed good use of a variety of new coping skills, an overall sense of hope that she could do well for herself, and an improved sense of flexibility—that she could adapt more easily with less anxiety to changes in her environment.

Conclusion

In conclusion, there are many reasons to choose videoconferencing with vulnerable and underserved populations. Factors like reduction in travel for both clients and practitioners lead to increased access, continuity of care, and financial benefits (Lexcen et al., 2006; Ruskin et al., 2004). Clients are more likely to seek services because the stigma related to mental health treatment is lessened, and they feel more confident that their attendance at therapy will not be known by the entire community and their confidentiality is upheld. Patients report good satisfaction with this delivery system for therapy, and videoconferencing is as effective as face-to-face counseling for symptom reduction and functional improvements. Videoconferencing can also be used in challenging treatment settings such as with military members, homeless shelters, and in post-disaster areas. The use of tablets should be explored to increase portability of and access to services for these populations.

Some stigma remains regarding the use of videoconferencing for counseling sessions, particularly by practitioners. The general public and clients are beginning to seek out this type of service, and practitioners are making the

jump to join them. As Richardson, Reid, and Dziurawiec (2015, p. 256) state, "If telepsychology is not treated apologetically or defensively, like face-to-face therapy's 'poor cousin,' it can achieve positive therapeutic results." We as clinicians need to meet our clients where they are, and often, that is on the other side of the screen.

References

- Aguilera, A., & Muench, F. (2012). There's an app for that: Information technology applications for cognitive behavioral practitioners. *The Behavior Therapist*, 35, 65–73.
- American Journal of Managed Care. (2006). *Reports. Vulnerable populations: Who are they?* pp. S348–S352. Retrieved from www.ajmc.com/journals/supplement/2006/2006-11-vol12-n13suppl/nov06-2390ps348-s352?p=1.
- Bischoff, R. J., Hollist, C. S., Smith, C. W., & Flack, P. (2004). Addressing the mental health needs of the rural underserved: Findings from a multiple case study of a behavioral telehealth project. *Contemporary Family Therapy*, 26(2), 179–198. Doi: 10.1023/B:C OFT.0000031242.83259.fa.
- De Las Cuevas, C., Arredondo M., Cabrera, M., Sulzenbacher, H., & Meise, U. (2006). Randomized clinical trial of telepsychiatry through video conference versus face-to-face conventional psychiatric treatment. *Telemedicine and e-Health*, 12, 341–350. Doi: 10.1089/tmj.2006.12.341.
- Dunstan, D. A., & Tooth, S. (2012). Treatment via videoconferencing: A pilot study using clinical psychology students. *Australian Journal of Rural Health*, 20, 88–94. Doi: 10.1111/j.1440-1584.2012.01260.x.
- Farero, A. M., Springer, P., Hollist, C., & Bischoff, R. (2015). Crisis management and conflict resolution: Using technology to support couples throughout deployment. *Contemporary Family Therapy*, 37, 281–290. Doi: 10.1007/s10591-015-9343-9.
- Greene, C. J., Morland, L. A., Macdonald, A., Frueh, B. C., Grubbs, K. M., & Rosen, C. S. (2010). How does tele-mental health affect group therapy process? Secondary analysis of noninferiority trial. *Journal of Consulting and Clinical Psychology*, 78, 746–750. Doi: 10.1037/a0020158.
- Guha-Sapir, D., Hoyois, P., Wallemacq, P. & Below, R. (2016). *Annual disaster statistical review 2016: The numbers and trends*. Brussels: CRED.
- Health Resources & Services Administration. (2018). *HRSA Data warehouse*. Retrieved from www.datawarehouse.hrsa.gov/topics/shortageAreas.aspx.
- Hechanova, M. R. M., Tuliao, A. P., Teh, L. A., Alianan, A. S., & Acosta, A. (2013). Problem severity, technology adoption, and intent to seek online counseling among overseas Filipino workers. *Cyberpsychology, Behavior, and Social Networking*, 16(8), 613–617. Doi: 10.1089/cyber.2012.0648.
- Jones, D. J., Forehand, R., Cuellar, J., Parent, J., Honeycutt, A., Khavjou, O., Gonzalez, M., Anton, M., & Newey, G. A. (2014). Technology-enhanced program for child disruptive behavior disorders: Development and pilot randomized control trial. *Journal of Clinical Child & Adolescent Psychology*, 43(1), 88–101. Doi: 10.1080/15374416.2013.822308.
- Lexcen, F. J., Hawk, G. L., Herrick, S., et al. (2006). Use of video conferencing for psychiatric and forensic evaluations. *Psychiatric Services (Washington, D.C.)*, 57, 713–715. Doi: 10.1176/ps.2006.57.5.713.

- Ng, A. T. (2011). Telepsychiatry in disasters and public health emergencies. In F. J. Stoddard, A. Pandya, & C. L. Katz (Eds.), *Disaster psychiatry: Readiness, evaluation, and treatment* (pp. 359–366). Arlington, VA: American Psychiatric Publishing, Inc.
- O'Reilly, R., Bishop, J., Maddox, K., Hutchinson, L., Fisman, M., & Takhar, J. (2007). Is telepsychiatry equivalent to face-to-face psychiatry? Results from a randomized controlled equivalence trial. *Psychiatric Services*, 58, 836–843. Doi: 10.1176/ps.2007.58.6.836.
- Richardson, L., Reid, C., & Dziurawiec, S. (2015). "Going the extra mile": Satisfaction and alliance findings from an evaluation of videoconferencing telepsychology in rural western Australia. *Australian Psychologist*, 50, 252–258. 10.1111/ap.12126.
- Rochlen, A. B., Zack, J. S., & Speyer, C. (2004). Online therapy: Review of relevant definitions, debates and current empirical support. *Journal of Clinical Psychology*, 60, 269–283. Doi: 10.1002/jclp.10263.
- Ruskin, P. E., Silver-Aylaian, M., Kling, M. A., et al. (2004). Treatment outcomes in depression: Comparison of remote treatment through telepsychiatry to in-person treatment. *The American Journal of Psychiatry*, 161, 147–1476. Doi: 10.1176/appi.ajp.161.8.1471.
- Singh, S. P., Arya, D., & Peters, T. (2007). Accuracy of telepsychiatric assessment of new routine outpatient referrals. *BMC Psychiatry*, 7, 55–68. doi: 10.1186/1471-244X-7-55.
- Springer, P. R., Farero, A., Bischoff, R. J., & Taylor, N. C. (2016). Using experiential interventions with distance technology: Overcoming traditional barriers. *Journal of Family Psychotherapy*, 27(2), 148–153. Doi: 10.1080/08975353.2016.1169028.
- UCLA Health Services Research Program. (2018). *Vulnerable populations*. Retrieved from www.uclahealth.org/mattel/cdi/vulnerable-populations.
- UNHCR: The United Nations Refugee Agency. (2017). *Figures at a glance*. Retrieved from www.unhcr.org/en-us/figures-at-a-glance.html.
- Wierzbicki, M. & Pekanik, G. (1993). A meta-analysis of psychotherapy dropout. *Professional Psychology: Research & Practice*, 24(2), 190–195.
- World Health Organization. (2018). *Policy brief: Mental health and development*. Retrieved from www.who.int/entity/mental_health/policy/development/mh_devel_targeting_summary_2010_en.pdf?ua=1.

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