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Research to Practice

Focusing on individuals with
autism, intellectual disability and other developmental disabilities

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The *DADD Online Journal* integrates research and practice, reflecting the need for evidence-based and practice informed strategies and interventions within this diverse field. Topics include: Autism Spectrum Disorder, Assistive & Adaptive Technology, Early Childhood, Intellectual Disability, Mental Health, Multiple Disabilities, Paraprofessionals, Employment, Post-Secondary, and Transitions.

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Research Informed Practice in Autism, Intellectual Disability, and Developmental Disabilities

Stanley H. Zucker
Arizona State University

Veronica Fleury
Florida State University

Karina Soto
Nova Southeastern University

Leah Wood
California Polytechnic State University

On January 18 – 20, 2023, the Council for Exceptional Children Division on Autism and Developmental Disabilities (DADD) sponsored its Twenty-fourth International Conference: Research Informed Practice in Autism, Intellectual Disability and Developmental Disabilities. The conference was held at the Sheraton Sand Key Resort in Clearwater, Florida. The DADD Board of Directors decided to devote this issue of the *DADD Online Journal* to conference papers. The conference brought together educators from school and college classrooms from all over the world. The conference included pre-conference training institutes and strands on assistive and adaptive technology, autism spectrum disorder, intellectual disability, mental health, paraprofessionals, parental engagement, post-secondary transitions, multiple disabilities and applied behavior analysis. The conference provided many parents, teacher educators, researchers, teachers, and other practitioners an opportunity to gather to learn the most current information related to providing services for individuals with autism, intellectual disability, and developmental disabilities.

This issue of the *DADD Online Journal* can enable those who attended the conference to see expanded papers, prepared by presenters, and also give those who were unable to attend an opportunity to benefit from the thoughtful work done by conference participants. Presenters were asked to submit papers based

on their conference presentations. Papers submitted went under a blind review process by the Guest Reviewers who selected the papers for publication. We think the selection of papers represents an interesting assortment of topics and formats ranging from discussion papers to data based research to descriptions of classroom techniques. The papers selected do not necessarily represent all the topics covered at the conference but they do give a good idea of the variety and quality of the presentations. We would like to thank those authors who submitted papers for their efforts in making this issue of the *DADD Online Journal* possible.

In the first article, “Children with Disabilities in Grief Themed Picture Books: Absence of Representation and Inclusion,” Elizabeth A. Cutrer-Párraga, Erjola Gjini, Erica Ellsworth Miller, Tina M. Taylor, Melissa A. Heath, Jordan Robertson, Megan Squires, and Barbara M. Smith address the sensitive topic of grief. One strategy to help children cope with grief is called bibliotherapy which relies on stories to facilitate healthy conversations about death. Their descriptive study of grief-themed children’s books revealed an underrepresentation of characters with disabilities. Moreover, literacy devices used in stories may be difficult for many children with disabilities to understand. The authors provide their recommendations for improving inclusivity in bibliotherapy practices.

As the school-age population becomes increasingly diverse, educators and behaviorists have an opportunity to identify students' sociocultural strengths to better engage all students and provide equitable opportunities for success. In their article, "Addressing Intersectionality and Critical Consciousness: Socioculturally Competent Behavioral-Analytical and Educational Support for Learners with Autism," Jonte' C. Taylor, L. Lynn Stansberry Brusnahan, Marcus C. Fuller, and Erin F. Farrell describe and discuss two theoretical paradigms, "identifying" and "analyzing". Through an illustrative vignette, the authors provide a detailed description of applying intersectionality theory and the critical consciousness framework in both behavioral and educational practices.

In "Disability and Social Media: An Evaluation of How People with Disabilities Are Portrayed," Addie McConomy, Mark Chin-Lenn, Denise Dennis, Alice Williams, and Taryn Wade used content analysis to evaluate how individuals with disabilities are represented on social media sites that support individuals with disabilities. The authors uncovered several themes across social media platforms. The accounts evaluated provided research, training, information, brand marketing, and evidence of disability representation. The authors found that a majority of posts, 97%, were related to supporting people with disabilities while a minority of posts addressed, 47%, had some evidence of representation. The results indicate that media sites, in general, though aligned with the support and education related to disability, vaguely represent people with disabilities as individuals.

In the next article, Jill Allor, Charlotte Gregor, and Stephanie Al Otaiba use our knowledge about the science of reading to

support struggling readers who require explicit instruction. In "How to Implement Evidence-Based Literacy Practices with Students with Intellectual and Developmental Disabilities: Examples from a Text-Centered Literacy Intervention," they identify six evidence-based practices that educators can use to teach literacy skills for students with IDD, including students with autism. The authors highlight empirical evidence for each practice and provide guidance on how to implement the practice using examples from their literacy intervention called *Friends on the Block* (FOTB). They conclude their article by presenting potential avenues for their future work on FOTB.

Heather Coleman, Annemarie L. Horn, Selena J. Layden, and Christian Coogle acknowledge that many educators and families do not have equitable access to evidence-based practices (EBPs). In their article, "Let's Count the Ways we can Utilize Technology to Improve Instructional Practices for Individuals with Autism," they introduce methods of embedding technology during coaching to connect qualified professionals with individuals from historically underserved communities. They specifically describe three models—self-coaching, technology-enabled delayed feedback, and eCoaching with Bug-in-Ear technology—to improve the implementation of EBPs for learners with autism.

Receptive language and listener responding are critical foundational skills that can be difficult for students with autism or other developmental disabilities. In "Evaluating the Role of Instructional Array Size When Teaching Auditory-Visual Conditional Discrimination Skills," Sara M. Snyder and Megan Barnes examined the effects of constant time delay on the picture discrimination skills of a young child with

autism. Specifically, the authors were interested in understanding if the size of the array (2, 3, or 4 images) has an impact on a child's ability to accurately identify a stimulus (e.g., picture of a banana) when told its class (e.g., "Touch the fruit").

Julie A. Sears and Alaina Satterly collaborated to write "Reflections on Our Experience: A Postsecondary Self-Advocate and Her Mentor" to share a first-hand perspective of a mentor-mentee self-advocacy training program. The Vanderbilt Consortium LEND (VCL) certificate program is intended to train graduate-level adults who seek to improve the lives of people with disabilities through leadership roles in their communities, including self-advocates. This article describes the experiences of a self-advocate with an intellectual disability and her mentor. Both participants describe their experiences working and learning together through this program. Sears, the mentor, reflects specifically on building a trusting relationship, removing assumptions, maintaining high expectations, and embedding research and evidence-based practices for teaching the module content.

"Using Disney Films to Create Trauma-Informed Classrooms for Students with Autism" states trauma can affect all people, but there is limited research examining interventions designed to support students with autism or other developmental disabilities. Through a case-study of an 8-yr-old student with ASD, Kristina Scott and Laurie Dickstein-Fischer describe a trauma-informed approach that integrates clips from Disney movies with video modeling (an established evidence-based practice). The authors suggest Disney movies that depict traumatic events, like the death of a father in *The Lion King*, also depict processes for coping with trauma and grief. Finally, the

authors conclude with a discussion about the importance of collaboration with school counselors.

In "Teaching Behavioral Intervention Strategies to Parents of a Child with Autism Spectrum Disorder: Effects on the Child's Behavior," Myriam Rousseau, Jacinthe Bourassa, Béatrice Balmy, Mathieu Mireault, Suzie McKinnon, and Julien Lafleur found that the maladaptive behaviors (i.e., withdrawal, crying, agitation, and irritability) of children with autism are significantly reduced when parents are trained to adapt the child's immediate environment via the use of the ABC-ASD 6-12 program. The participants included 17 parents and 16 children with autism. The study was conducted across three public institutions in Quebec over the span of a year (2018-2019). The study aimed to support parents in their efforts to reduce maladaptive behaviors, teach skills acquisition, and improve interactions with children based on the child's specific needs.

In the next article, "Neurodiversity in Graduate School: An Exploration of Perspective," Amanda Mazin, Jessica Riccio, Jordin Luxenberg, and Allison Tearney define neurodiversity and differentiate models for intervention used in the mid-20th century to address the needs of neurodiverse individuals from the interventions used currently. The authors completed a literature review and a qualitative analysis using an interpretive phenomenological analysis to evaluate available supports provided to individuals who identify as neurodiverse. The authors reviewed 78 different articles within 10 different themes. The authors concluded that individuals who identify themselves as neurodiverse might benefit from parental involvement and self-efficacy during their higher education years. The authors also found that disability services and

other support provided to students at higher education institutions can be ineffective to student well-being.

Jacqueline Lubin, Jerrie Brooks, and Marsha Simon in their article “Students with Autism Quality of Life and Satisfaction with College Life,” describe the impact of Autism Spectrum Disorder (ASD) on the quality and life satisfaction of students diagnosed with this condition. The authors used a survey to collect the perceptions of students diagnosed with ASD about their experiences regarding life as a college student. The survey addressed the participants’ physical health, psychological health, and social relationships. The authors used convenience sampling and collected surveys from 56 students including women, men, and non-binary individuals of varied ethnicities and comorbidities. The authors found that first and second-year college students diagnosed with ASD reported a higher quality of life. The authors provided data that colleges and universities can use to develop the appropriate support services to enhance the quality of life of individuals diagnosed with ASD.

In “Effects of a Special Olympics College Course on Attitudes Toward Intellectual Disability,” Dennis Garland used a repeated measures study to evaluate the attitudes of undergraduate students toward individuals with a diagnosis of Intellectual and Developmental Disabilities (IDD). Garland used a survey, and the participants, 33 in total, completed a subsequent questionnaire addressing their beliefs toward individuals with IDD. All participants were undergraduate students of varied races and ethnicities at a Catholic university enrolled in eight different academic programs. Garland found that the percentage of negative attitudes decreased as the percentage of positive attitudes increased toward

individuals with IDD after a 14-week semester where training and information on the target diagnosis were provided to the participants. Garland’s findings morphed into an annual spring semester on inclusivity.

Sarah Dunkel-Jackson, Atikah Bagawan, Emily Jensen, and Sarah N. Douglas’ article, “Baseball is for Everyone! Evaluation of an Inclusive, Community-Based, *Baseball Challenge League* Pilot Program,” is a wonderful example of an inclusive sports program. The league is the result of a collaborative effort between families of children with and without disabilities, program board of directors, and community members to create a baseball program that is accessible for children with unique medical and/or learning needs. The authors describe the structure of the league and how members successfully used evidence-based practices to support meaningful participation for all players. The league was well received by stakeholders and had a positive impact on players’ baseball skill development and sportsmanship behaviors. The authors conclude their article with suggestions for making future sports programs accessible and inclusive for athletes with disabilities.

The rationale for Christine M. Drew, Betty Patten, Isabelle Matthews, Madeline Howard, Carli Rossi, and Claire Hebert’s study “Preparing Students with Intellectual Disability for Inclusive Higher Education: Email Skills,” is that individuals who possess prerequisite skills will be better able to participate and experience success in inclusive postsecondary education (IPSE) programs. One such skill is email communication. The authors designed a parent-mediated intervention to teach basic email behaviors to six students with intellectual disability who were enrolled in IPSE. Though treatment integrity varied across parents, all students demonstrated

improvements in their email communication skills.

The conference provided educators and researchers with the opportunity to explore current research, topical issues, and best

practices relating to autism, intellectual disability, and development disabilities. We hope readers of this research to practice issue of the *DADD Online Journal* find the information valuable and timely.

Correspondence concerning this article should be addressed to Stanley H. Zucker, Special Education Program, Mary Lou Fulton Teachers College, Box 871811, Arizona State University, Tempe, AZ 85287-1811. Email: stan@asu.edu

Children With Disabilities in Grief Themed Picture Books: Absence of Representation and Inclusion

Elizabeth A. Cutrer-Párraga
Brigham Young University

Erica Ellsworth Miller
Brigham Young University

Melissa A. Heath
Brigham Young University

Megan Squires
Brigham Young University

Erjola Gjini
Brigham Young University

Tina M. Taylor
Brigham Young University

Jordan Robertson
Brigham Young University

Barbara M. Smith
Brigham Young University

Abstract: Even though today's children's literature provides a wide range of topics, including books on death and grief, and much has been done to represent children with disabilities accurately and positively, there is still room for improvement. This descriptive study sought to understand how individuals with disabilities were represented in 177 grief-themed children's books. Only seven books included representations of individuals with disabilities. Additionally, the literary devices utilized in the books may inadvertently perpetuate inaccessibility to resources about grief (Berns, 2004). When choosing books about grief and death, parents, caregivers, and educators should incorporate concrete and unambiguous language. Taking time to listen and answer questions can provide ongoing support and reassurance for those experiencing the death of a loved one.

Ironically, death is a part of life—a tough lesson we all learn. Each of us will experience the death of loved ones. Each of us will experience grief, albeit in different ways. Grief is defined as one's personal thoughts and feelings of vulnerability, helplessness, and powerlessness associated with a loss of a loved one (Heath et al., 2008), such as a parent, sibling, friend, or even a pet. Although the grieving period is different in intensity, pace, or timing for everyone, most people navigating grief fear the unknown of life without the loved one (Cohen & Mannarino, 2011).

When a loved one dies, children also grieve. Children experience both primary and secondary losses. The primary loss is that

children lose their loved one. However, children suffer secondary losses. Secondary losses include losing the small everyday activities such as laughs, chats, or play time with the deceased loved one (Ducy & Stough, 2018). Secondary losses also include big events such as moving houses, changing schools, or experiencing decreased financial support (Werner-Lin et al., 2010).

Though we may attempt to shield children from the harsh reality of death and the pain of grief, we cannot, and we should not. Research suggests some children may lack the necessary preparation to grieve because such issues as death and grieving are typically not addressed at home or at school (Ducy & Stough, 2018). The maturity,

developmental level, and age at the time of the loss can also impact a child's ability to grieve. Children need loving support as they cope with the harsh reality of death (Lancaster, 2011). Children benefit from the support of caring adults. Adults play an important role in nurturing children and helping them cope with strong emotions associated with grief.

Tasks of Grief

Based on his work with bereaved children, Worden's (2001) identified four basic tasks of grief: (a) accepting that death is real; (b) facing the emotional pain after the death of a loved one—not alone, but with others' support; (c) adjusting to changes following the death of a loved one; and (d) remembering and honoring the deceased loved one's life. Worden explained that these tasks are never fully mastered. Across the lifespan, we repeatedly face and recycle these tasks of grief. However, over time and with loving guidance and support, we learn how to talk about, understand, and live with our grief. We can also learn compassion for others who grieve.

Children with Disabilities and Grief

One group of individuals who experience intense feelings when confronted with death are children with disabilities (Sormanti & Ballan, 2011). With life expectancies of individuals with disabilities expanding, more are outliving parents and witnessing more deaths of loved ones (McEvoy & Smith, 2005). Children with developmental disabilities may have a harder time understanding death. They may struggle more with abstract ideas such as grief and loss. These students benefit from the assistance of their parents, teachers, and caregivers in coming to terms with death and adjusting to its aftermath. Children with disabilities experience the intensity, pace, or timing of grief differently than adults. For

children with disabilities, the grieving process can be much more complex (Kirwin & Hamrin, 2005). Children with disabilities experience feelings and emotions such as anger, loneliness, or pain when a loved one dies. Similar to those of typically developing children, these complex emotions can be internalized or externalized (Ener & Ray, 2018).

These internalized or externalized behaviors may be underestimated or go unnoticed and treated as something that is caused by their disability (Brickell & Munir, 2008; Ducey & Stough, 2018). Also, children with disabilities may have more difficulty in finding meaning and making sense of the loss. The grief of children with disabilities may not be publicly acknowledged or socially supported. Further, children with disabilities may not have opportunities to mourn the passing of loved ones (Doka, 1989). Often, this group of people are seen as if they do not experience emotions, do not have the ability to balance the information, or do not have the ability to understand and verbalize their thoughts (Clements et al., 2004). This idea assumes that children with disabilities suffering the loss of a loved one may only have a partial understanding of what is happening and have fewer verbal skills to express the accompanying emotions related to the loss (Hume et al., 2016).

Researchers have labeled this type of unnoticed grief as "disenfranchised" grief (Doka, 2008; Shalev et al., 2022). Disenfranchised grief leads to longer-lasting sadness, loneliness, or anger and results in children becoming socially withdrawn or initiating self-injurious behaviors (Dodd et al., 2005; Hatton & Emerson, 2004; Sormanti & Ballan, 2011). When children with disabilities do not experience the opportunity to grieve or mourn, they may present with more aggressive behaviors at home, at

school, or in other settings. These children may also display behavior such as impatience, lethargy, or even hyperactivity (Brickel & Munir, 2008). Children with disabilities who experience disenfranchised grief may also be vulnerable to more complicated or pathological grief as well. Grief is typically considered complicated or pathological when the symptoms last for at least 6 months after the death and is associated with behavior such as avoiding reminders of those who have passed on; experiencing numbness and disconnection; having difficulties accepting the death; feeling notably irritated, bitter, and angry; and longing daily for the deceased (Brickel & Munir, 2008).

Children with Disabilities Experiencing Grief in Schools

When a child with disabilities experiences the loss of a loved one, the child will most often display developmental and other more dramatic changes at school. Research suggests that teachers and other support staff in schools feel ill equipped and unqualified to support grieving children (Ducy & Stough, 2018). Teachers report they lack training to know how to help children experiencing the loss of a loved one. In addition, teachers report that when experiencing grief, a child with disabilities often regresses in their school performance, has a hard time facing change, experiences lower self-esteem or efficacy, refuses activities, and throws objects or yells (Ducy & Stough, 2018).

Different strategies that seem to work with grieving children with disabilities are maintaining familiar routines, providing comfort when needed, engaging these students in motivating activities, and talking openly about death using stories and visual aids with simple terminology (Koehler, 2016). The language should be clear and concrete when explaining the death process

and avoid unclear sentences such as “The person has gone to heaven” or “The person is with God.” Other strategies would be to prepare beforehand about the rituals or use a visual feelings chart to identify the emotions (Hume et al., 2016; Sormanti & Ballan, 2011).

Another approach to support the children would be to minimize secondary losses such as those that come from moving from one location to another, receiving less attention from the surviving parent or relatives, experiencing changes in the financial situation, and experiencing reduced sense of safety or social interactions (Schonfeld et al., 2016). Another key element is to provide training and scaffolding to those who are supporting the child through grief. These individuals could include family members, teaching assistants, principals, school psychologists, or speech pathologists (Costelloe et al., 2020; Worden & Silverman, 1996). It is crucial for educators to understand the need to work as a team, which means in collaboration with the parents, the school psychologist, or the therapist (Cohen & Mannarino, 2011).

Children’s Grief-Themed Books Bibliotherapy

School personnel might choose bibliotherapy to support grieving students. Bibliotherapy is a child-friendly intervention strategy that relies on stories to help open communication about death (Regehr et al., 2021). Children often have a difficult time talking about grief because they lack the vocabulary to describe their feelings. Stories help children identify their emotions and build emotional language. Reading carefully selected books with children helps caring adults explain difficult topics. Good stories serve as models of problem solving and adaptive coping (Heath et al., 2005). Stories help us understand that we are not alone in our grief, that others have

experienced similar loss. Stories show us how to cope with tough challenges and how to survive, and even thrive after the death of a loved one. Although we will always miss our deceased loved one, we learn to live with our grief (Cutrer-Párraga et al., 2022; Watson et al., 2021). Bibliotherapy books are chosen according to the children's needs, personality, emotional condition, developmental level, or culture (Cutrer-Párraga et al., 2022).

Bibliotherapy can be an effective strategy for teaching children with disabilities about death and grief because it offers them a safe and structured way to explore these difficult topics. Reading books about death and grieving can help children with disabilities grasp the concept of death, the feelings involved with loss, and ideas about how to cope with the death. Bibliotherapy can also aid in the development of empathy, which could help the child with a disability navigate this challenging situation (Hume, 2016). In addition, bibliotherapy can offer children with disabilities a sense of comfort and validation. Children might feel less isolated and more understood when they read (or are read to) about characters with comparable difficulties and feelings. Bibliotherapy should be adapted to match the specific needs and abilities of individual children with disabilities. For instance, children with developmental disabilities may better benefit from books with simple language, clear illustrations, concrete examples and less complex texts (Koehler, 2016).

When applying bibliotherapy for children with disabilities, picture books would be helpful because they use illustrations and simple words to narrate a story, convey a message and expose the reader to different situations. Picture books provide more information through illustrations which facilitate the story's main idea and meaning,

offer the opportunity for the characters, especially characters with disabilities, to be accurately and positively described as well as expose children to notions such as self-concept or self-esteem (Dyches et al., 2009; Penell et al., 2018; Taylor et al., 2020).

Statement of the Problem

In recent years, pressure has increased for authors and publishing houses to become more inclusive with people with disabilities as main characters, as people who contribute to their communities, and as people who experience feelings of loss and grief (Leininger et al., 2010). Progress has been made in this direction, but more work needs to be done to ensure proportionate representation of children with disabilities in children's literature (Dyches et al., 2018).

Even though today's children's literature provides a wide range of topics, including books on death and grief, and much has been done to represent children with disabilities accurately and positively, there is still room for improvement (Grow et al., 2019). For example, one important component of bibliotherapy includes a child identifying with the character of a story. This identification process can be more complicated for children with disabilities because they may need support with processing language and abstract concepts (Hume et al., 2016). More specifically, this can also be difficult if children with disabilities cannot connect to characters like themselves in children's books. Finding grief-themed books that are accessible to and representative of individuals with disabilities would represent a significant step toward ensuring grief resources are available to all.

Method

Even though there is extensive literature on the importance of children with disabilities grieving (Ener & Ray, 2018; Sormanti &

Ballan, 2011), and evaluations completed on representation of characters with disabilities in children's literature (Ayala, 1999; Taylor et al., 2020), the way children with disabilities are portrayed in children's books relative to grieving is an area that needs further exploration. Therefore, based upon the extant literature, we proposed the following research questions:

1. How are children with disabilities represented in children's picture books on grief (if at all)?
2. Is death is represented in the books in ways that provide access for children with developmental disabilities to understand?

Book Selection

We first identified children's stories focused on grief. The books were selected from a wide range of children's books where the protagonist or the supporting character is learning about a death and/or grieving. Inclusionary criteria included (a) a main or supporting character learning about death and/or grieving, (b) an intended audience of children, (c) initial publication in English, and (d) a commercial publisher (Dyches et al., 2018). We reviewed books sold on Amazon.com using keywords such as "death" and "grief," as well as books included on several library- recommended book lists. In total, we reviewed 177 grief-themed children's picture books.

Instrumentation

With permission, we adapted the Rating Scale for Quality Characterizations of Individuals with Developmental Disabilities in Children's Literature (Dyches & Prater, 2000; Dyches et al., 2018) to evaluate the books' use of personal portrayal, social interactions, exemplary practices, and sibling relationships. Items on this subscale are rated using a Likert-type scale (*1=strongly disagree, 5=strongly agree*).

Personal Portrayal

Personal portrayal focused on the accuracy of the portrayal of disability, the depiction of the character with a disability as realistic, the portrayal of the character's strengths and abilities, the emphasis on similarities between characters with and without disabilities, the use of first-person language, and the growth of the character with disability.

Social Interactions

Social interactions was represented by the presence of reciprocal relationships, acceptance, promotion of empathy rather than pity, positive social contributions, promotion of respect, and a variety of relationships.

Exemplary Practices

Exemplary practices included citizenship opportunities, appropriate services, valued occupations, and the promotion of self-determination for the character.

Sibling Relationships

Sibling relationships dealt with the emotional experiences of the siblings, the siblings' opportunities for growth, the reciprocity of the sibling relationship, family responsibilities of the siblings, and the siblings' awareness of the nature of the disability and its effects on the character with a disability.

Data Analysis

The set of books included 177 books on grief for children. These books included general stories about death, grief themed activity books, and books about a father's, mother's, sibling's, grandparents', pet's, or neighbor's death (see appendix A for a complete list of the books). Books were evaluated by a research team familiar with this area of research. One main researcher read and scored the books' features according to the

categories described above and created a findings table. Next, the books were divided among five different members of the research team, who worked together to read and score the books' features and create a findings table. Two additional researchers (the main researcher's chair and a children's literature expert) then compared the two tables. When there were discrepancies, these researchers went back to the books to review the features and make final decisions about the features. A final table was then created with features from all the books. A different table was created to represent the characters with disabilities found in the books (see Table 1).

Quantitative data were analyzed by reviewing the mean score of each subcategory. For example, if the mean was between 1 and 2.49, the depiction was considered unrealistic. If the mean was between 2.5 and 3.5, the depiction was considered slightly realistic. If the mean was between 3.51 and 5, the depiction was considered realistic.

Findings and Trustworthiness

Of the 177 grief-themed children's books analyzed, few books (only 7) contained representations of individuals with disabilities. Books that did represent individuals with disabilities, most often placed them as side characters (an illustration of a child or children sitting in a wheelchair for example; see Table 1)

The seven children's books about death that represented a child with a disability were analyzed across four themes: (a) personal portrayal, (b) social interactions, (c) exemplary practices, and (d) sibling relationships.

Personal Portrayal

Four out of seven of the books were determined to be positive portrayals. Three of the books were neutral as the characters were side characters. Most of the characters with disabilities (six out of seven) were portrayed as White and male. One of the books portrayed a main character as BIPOC and female. Four out of the seven books represented a character with a disability as a main character. We found two of the books, *I'll Always Love You* and *I Have a Question About Death*, provided realistic depictions of an individual with a disability. It was determined that characters were represented partially realistically in the others (wheelchairs too big or animal characters who represented having a physical impairment with realistic emotions and grief but were nevertheless animals). We also determined that four of the characters with disabilities were dynamic characters while the others were static (such as an illustration of a child in a wheelchair.) For example, in the book *Remembering Lucy*, students at a school for children with disabilities celebrate the life of their classmate. The portrayals of the children with disabilities was deemed partially realistic because wheelchairs and other adaptive devices were not drawn realistically.

Social Interactions

Social interactions between the character and others in the stories included interactions with parents (*I'll Always Love You*, *The Gift of Gerber's Feathers*, *Samsara Dog*, and *Where Do People Go When They Die?*), friends (*I'll Always Love You*, *I Have a Question About Death*, *The Gift of Gerber's Feathers*, and *Remembering Lucy*), and nurses/doctors (*I Have a Question About Death* and *Remembering Lucy*). The most common relationship found in the books were relationships with a parent and friends.

Table 1. Quality Characteristics of Characters with Disabilities in Grief-Themed Children’s Books

Book Title	Character	Personal Characteristics	Level of Characterization	Personal Portrayal	Realistic Depiction	Character Development
<i>I’ll Always Be With You</i>	Kim	Elementary-aged BIPOC female with VI	Main	Positive	Realistic	Dynamic
<i>I Have a Question About Death</i>	Unnamed	Elementary-aged white male with ASD	Main	Positive	Realistic	Dynamic
<i>The Gift of Gerbert’s Feathers</i>	Gerbert	Young male goose with PI	Main	Positive	Partially Realistic	Dynamic
<i>Remembering Lucy</i>	Unnamed	Elementary-aged white male with PI	Main Majority of characters in the book are children with disabilities – seen in illustrations	Neutral	Partially realistic – wheelchair much too big (but not as bad as other illustrations)	Static
<i>Samsara Dog</i>	Unnamed	Elementary-aged white male with VI	Supporting	Positive	Realistic	Dynamic
<i>Where Do People Go When They Die?</i>	Unnamed	Elementary-aged white male in a wheelchair	Side (in illustrations)	Neutral	Partially realistic-wheelchair much too big	Static
<i>What does Dead Mean?</i>	Unnamed	Elementary-aged white male in a wheelchair	Side (only in an illustration)	Neutral	Wheelchair much too big, looks like it is about to fall over	Static

Exemplary Practices and Sibling Relationships

Exemplary practices include citizenship opportunities, appropriate services, valued occupations, and the promotion of self-determination for the character. With this definition in mind, two of the books were determined to represent the exemplary practice of promotion of self-determination (*I’ll Always Love You* and *Samsara Dog*). While some books included dynamic characters, only one of the books, *The Gift of*

Gerbert’s Feathers, portrayed a sibling relationship which was positive.

Literary Devices in Grief-Themed Children’s Books

We also analyzed the books according to literary devices used to represent death (see Table 2). The most common literacy devices authors used to depict death was euphemism. Authors also used metaphor, hyperbole, imagery, personification, anaphora, enumeration, flashback and simile.

Table 2*Literary Devices Used To Represent Death in Greif-Themed Children's Books*

Literary Device	Meaning	Example from Books	% Books Using this Device
Euphemism	a mild and inoffensive word or phrase that is used in the place of something that could be found offensive or displeasing	"passed away," "lost," "gone" "drifted away"	22%
Metaphor	A comparison between two things that are otherwise unrelated.	"path of stars," "walked up and up"	17%
Hyperbole	An intentional exaggeration for emphasis or comic effect.	"But that big invisible dragon didn't even notice. He moved right in and made himself at home"	12%
Imagery	The use of literal or figurative language to enable the reader to imagine.	"skin cold, hard, like wax," "I can see forever. Can Grandpa see me?"	8.8%
Personification	Giving human characteristics to nonhuman things or inanimate objects.	Dinosaurs and rabbits speaking	7.5%
Anaphora	The repetition of a word or sequence of words	"mad, mad, mad," "died, died, died"	4.4%
Enumeration	To mention things one by one	"laughed, cried, sighed"	5%
Flashback	Interrupting the chronological order of the main narrative	"used to make me laugh"	3.1%
Simile	Using "like" or "as" to compare two different things.	dying is like an empty house, "like music, Mrs. Fantini's memory would be a part of her forever," "dead was like being asleep"	1.8%

Trustworthiness

Trustworthiness in this study was attended to by using peer debriefing, an audit trail, analyst triangulation, deviant case analysis, and expert checking. For example, after reading and evaluating the books, we held a peer debriefing where we put our heads together and discussed informally our likes and dislikes. Topping off our good-book descriptors, we simply liked a good story. We do not want storybooks to be too teachy, preachy, or therapy-ish. We noted good books need a storyline. A good storyline

holds children's interest and helps them identify with the story. We looked for stories that truly encapsulated the feeling of grief. When reading our favorite stories, we were convinced that the writer spoke from their personal experience with grief. They captured the basic feelings of grief. When characters' feelings were portrayed in an honest way, we felt a connection to the story's portrayal of emotions. In our favorite selected books, the authors' depictions rang true. We believe that children would relate to these honest portrayals of grief. As we

searched books for portrayals of children with disabilities and grief, we noted two that told a great story and represented the disability, *I Will Always Be With You* and *Samsara Dog*.

Top Picks to Address Children’s Grief

After analyzing the books, we selected our top picks from different categories and included our top two picks that represented children with disabilities. See appendix B and C for the books we selected as our top picks. For each book, Appendix B provides a summary of the story, includes questions to consider, and offers activities that align with the story. Appendix C identifies which of the four tasks of grief are addressed in each story. Parents, teachers, and school counselors may consider books that match the child’s specific need, the task of grief, that needs support.

Discussion

By definition, “inclusion refers to the process through which education systems respond to diverse learners in ways that enable participation, equal opportunities, respect for difference and social justice” (Robinson, 2017, p. 264). The Salamanca Statement and Framework for Action clarifies this definition:

Regular schools with [an] inclusive orientation are the most effective means of combating discriminatory attitudes, creating welcoming communities, building an inclusive society and achieving education for all; moreover, they provide an effective education to the majority of children and improve the efficiency and ultimately the cost-effectiveness of the entire education system (Ainscow et al., 2019, p. 671).

Incorporating characters with disabilities into children’s books about death contributes to a more inclusive representation of the human

experience. Inclusion for children with disabilities means not only physical and academic inclusion in the classroom but also social and emotional inclusion as well. In our examination of books that address grief we identified only 7 books from a group of 177 that address grief from the perspective of a child with disabilities. What does this mean for a classroom? The term “disability” may mean having in-class students who are mentally, emotionally, physically, and cognitively different and who do not see themselves represented accurately or enough in the literature. This excludes them from important processes such as identifying with the main or supporting characters, recognizing and addressing their emotional needs, and developing coping skills and modeling strategies that are the key in the intervention process. For students without disabilities, it means that they will not be able to connect to children with disabilities, will not see the similarities between each other, and will not promote empathy, acceptance, positive social contributions, and respect (Ostrosky et al., 2015).

Thus, exclusion impacts the social competence, emotional regulation, or social interactions that are crucial for an inclusive society, which is one of the aims of the Salamanca Statement and Framework for Action declaration. If children are not included in equal levels, arenas and degrees in literature, inclusion or inclusive practices remain unclear and contradictory terms that are subject to “contradictory and unsettled political, theoretical, and practical context (Robinson, 2017, p. 166)

Implications for Practice

Children with disabilities may need support to process and understand abstract ideas such as grief and death. Using euphemisms or metaphors to describe death adds another layer of ambiguity and can make it more

difficult for children with disabilities to understand. For example, using metaphors and euphemisms such as “Grandpa passed away,” or “Grandma joined the path of the stars,” may be especially confusing to a child with a developmental disability. Also, using these types of literary devices may minimize the gravity of the loss, downplay its meaning, and hinder children with disabilities from grasping the finality of death, a necessary task of grief as explained by Worden (2001).

Parents, caregivers, and educators should consider concrete and unambiguous language such as “Daddy’s body stopped working. He will not be able to talk or hug us anymore.” Though this may be difficult, it will help communicate to the child the absoluteness of death and the impact it will have on their lives so that they navigate through bereavement. When choosing books about death and grief, use books with more straightforward language such as *I Have A Question About Death*. This book presents a dialogue with questions about death from a child with ASD.

Parents, caregivers, and educators can also help children with development disabilities cope with death by listening and answering questions and providing ongoing support and reassurance. Incorporating the child’s unique interests in conversations can make it easier for them to engage in conversations. When choosing books about death and grief, avoid those with multiple meanings. The child may struggle to understand multiple layers of meaning and become confused and frustrated. Instead, choose books with more forthright and plainspoken storylines, such as *Always With You*.

When choosing books about grief and death, parents, caregivers, and educators should read the book ahead of time. Reading the book ahead of time will allow the person to understand which elements of the book to

concretize or provide visual aids of for the child. Questions and suggested activities provided in Appendix B could be used by caregivers to plan how to engage the child in a discussion about death and grief. Educators and school and community librarians may share these tables with parents, grandparents, caregivers, and other professionals who support grieving children. Additionally, we recommend that these selected books are included in school and public libraries.

Limitations and Recommendations for Future Research

This study reviewed a set of 177 grief-themed children’s picture books. The set of books were drawn from library-recommended reading list and searches on Amazon.com. As such, the list of grief-themed books is not exhaustive. Future studies may wish to include non-commercially published books and works published outside the United States.

Additionally, the instrumentation used to analyze the portrayals of individuals with disabilities included evaluating the presence of first-person language. Not all individuals with disabilities feel that first-person language is a positive description. Future researchers may wish to collaborate with individuals with disabilities and discuss their views of the depictions of children with disabilities in grief-themed picture books.

Conclusion

This study sought to understand how individuals with disabilities were represented in grief-themed children’s books. Only seven books included representations of individuals with disabilities. Additionally, the literary devices utilized in the books may inadvertently perpetuate inaccessibility to resources about grief (Berns, 2004). Children with disabilities may feel alienated or neglected if there are no characters with

disabilities (or only a partial representation) in children's books about death or grief. Books are a powerful tool for representation and validation, and when they fail to include robust characters with disabilities, it can send a message that these life experiences are not valued or worthy of attention (Artman-Meeker et al., 2016). In addition, children with disabilities may need additional support as they encounter grief-themed books rich with literary devices. These factors may

inadvertently perpetuate a state of exclusion where individuals with disabilities are not able to fully access rich learning environments and grief resources. When choosing books about grief and death, parents, caregivers, and educators should incorporate concrete and unambiguous language. Taking time to listen and answer questions can provide ongoing support and reassurance for those experiencing the death of a loved one.

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Corresponding concerning this article should be addressed to Elizabeth A. Cutrer-Párraga, Brigham Young University, Counseling Psychology and Special Education, 340R MCKB, Provo, Utah 84660. E-mail: elizabethcutrer@byu.edu

Appendix A Grief-Themed Children's Book

- A little bit of Rob*; Barbara J. Turner
A memory box: A book about grief; Joanna Rowland
A new day: A story about losing someone you love;
 Fiona McDonald
A path of stars; Anne Sibley O'Brien
A place in my heart; Annette Aubrey
A season for mangoes; Regina Hanson
*A sky of diamonds: A story for children about loss, grief,
 and hope*; Camille Gibbs
A song for Cecilia Fantini; Cynthia Astor
After a death: An activity book for children; The Dougy
 Center
After Charlotte's mom died; Cornelia Spelman
After life: Ways we think about death; Merrie-Ellen
 Wilcox
Always and forever; Alan Durant
Always by my side; Susan Kerner
Always my brother; Jean Reagan
Always remember; Cece Meng
Always with you; Eric Walters
Always with you; Ruth Vander Zee
*And still they bloom: A family's journey of loss and
 healing*; Amy Rovere
And what comes after a thousand?; Anette Bley
Angel birthdays; Erin Garay
*Angel catcher for kids: A journal to help you remember
 the person you love who died*; Amy Eldon
Angel catcher: A journal of loss and remembrance;
 Kathy Eldon & Amy Eldon Turteltaub
Annie and the old one; Miska Miles
*Are you sad Little Bear?: A book about learning to say
 goodbye*; Rachel Rivett
Aunt Fanny's star; Brigitte Weninger
Badger's parting gifts; Susan Varley
Ben's flying flowers; Inger Maier
Blackberry stew; Isabell Monk
Blow me a kiss Miss Lily; Nancy White Carlstrom
Bluebird summer; Deborah Hopkinson
Boats for Papa; Jessixa Bagley
Bubby, me, and memories; Barbara Pomerantz
Can you hear me smiling? A child grieves a sister;
 Aariane R. Jackson
Cat heaven; Cynthia Rylant
Chester racoon and the acorn full of memories; Audrey
 Penn
Chicken Sunday; Patricia Polaco
Children also grieve; Linda Goldman
Cry, heart, but never break; Glenn Ringtved
Daddy's chair; Sandy Lanton
Death in a nut; Eric Maddern
Dog heaven; Cynthia Rylant
Duck, death and the tulip; Wolf Erlbruch
Everett Anderson's goodbye; Lucille Clifton
Every Monday in the mailbox; Louisa Fox
Flamingo dream; Donna Jo Napoli
For every dog an angel; Christine Davis
Gentle willow; Joyce C. Mills
Ghost wings; Barbara Joosse
God gave us heaven; Lisa Tawn Bergren
Goodbye mousie; R.H. Harris
Goodbye Brecken; David Lupton
Gran-gran's best trick; L. Dwight Holden
Grandad Bill's song; Jane Yolen
Grandma's gloves; Cecil Castellucci
Grandma's gone to live in the stars; Max Haynes
Grandma's Purple Flowers; Adjoa J. Burrowes
Grandma's Scrapbook; Josephine Nobisso
Grandpa Loved; Josephine Nobisso
Grayboy; Kay Chora
Grief is like a snowflake activity and idea book; Julia
 Cook
Hachiko: the true story of a loyal dog; Pamela S. Turner
Helen the Fish; Virginia L. Kroll
Help me say goodbye; Janis Silverman
Her mother's face; R. Doyle
How it feels when a parent dies; Jill Krentz
I don't have an Uncle Phil anymore; Marjorie White
 Pellegrino
*I had a friend named Peter: Talking to children about
 the death of a friend*; Janice Cohn
*I have a question about death: A book for children with
 autism spectrum disorder or other special needs*;
 Arlen Grad Gaines & Meredith Englander Polsky
I miss you: a first look at death; Pat Thomas
I remember Miss Perry; Pat Brisson
I'll always love you; Hans Wilhelm
Ida always; Caron Lewis
If Nathan were here; Mary Bahr
*Is Daddy coming back in a minute? Explaining sudden
 death in words very young children can understand*;
 Elke & Alex Barber
It must hurt a lot; Doris Stanford
Jasper's day; Marjorie Blain Parker
Jim's dog Muffins; Miriam Cohen
Life and I: A story about death; Elizabeth Helland
 Larsen
Life is like the wind: A big hug book; Shona Innes &
 Irisz Agocs
*Lifetimes: The beautiful way to explain death to
 children*; Bryan Mellonie
Lighthouse: A story of remembrance; Robert Munsch
*Luna's red hat: An illustrated storybook to help children
 cope with loss and suicide*; Emmi Smid
Mama dances the mambo; Katherine Leiner
Michael Rosen's sad book; Michael Rosen
Missing Jack; Rebecca Elliott

Missing Mommy: A book about bereavement; Rebecca Cobb
Molly's mom died: A child's book of hope through grief; Margaret M. Holmes
Muddles puddles and sunshine: Activity book to help when someone has died; Diana Crossley
Murphy and Kate; Ellen Howard
My Angel Mama; Jared & Sharry Buhanan-Decker
My big dumb invisible dragon; Angie Lucas
My father's arms are a boat; Stein Erik Lunde
My favorite color is blue. Sometimes. A journey through loss with art and color; Roger Hutchison
My grandfather's hat; Melanie Scheller
My grandson Lew; Charlotte Zolotow
My grieving journey book; Donna & Eve Shavatt
My pig Amarillo; Satomi Ichikawa
My yellow balloon; Tiffany Papageorge
Nana upstairs and nana downstairs; Tomie dePaola
Not the end: A child's journey through grief; Mari Dombkowski
One more Wednesday; Malika Doray
One wave at a time: A story about grief and healing; Holly Thompson
Paula knows just what to do; Sanne Dufft
Poppy's chair; Haren Hesse
Rabbityness; Jo Empson
Rafa was my robot; Alexandra Dellevoet
Remember the butterflies; Anna Grossnickle Hines
Remembering Crystal; Sebastian Loth
Remembering Lucy; Sarah Helton
Sad isn't bad; Michaelene Mundy
Samantha Jane's missing smile: A story about coping with the loss of a parent; Juile Kaplow & Donna Pincus
Sammy in the sky; Barbara Walsh
Samsara Dog; Helen Manos
Saying goodbye to Daddy; Judith Vingna
Saying goodbye to Lulu; Corinne Demas
Saying goodbye to your pet: Children can learn to cope with pet loss; Marge Eaton Heegaard
Some of the Pieces; Melissa Madenski
Someone I love died; Christine Harder Tangvald
Something happened; A book for children and parents who have experienced pregnancy loss; Cathy Blanford
Something small: A story about remembering; Rebecca Honig
Something to remember me by: A story about love & legacies; Susan V. Bosak
Something very sad happened: A toddler's guide to understanding death; Bonnie Zucker
Sonya's Chickens; Phoebe Wahl
Sophie; Mem Fox
Stewart's tree: a book for brothers and sisters when a baby dies shortly after birth; Cathy Campbell
Stones for Grandpa; Renee Londner
Tear soup; Pat Schwibert & Chuch DeKlyen
That squeak; Carolyn Beck
The blue roses; Linda Boyden
The Christmas day kitten; James Herriot
The Christmas thingamajig; Lynn Manuel
The day Tiger Rose said goodbye; Jane Yolen
The elephant in the room; Amanda Edwards and Leslie Ponciano
The fall of Freddie the leaf: A story of life for all ages; Leo Buscaglia
The flat rabbit; Bardur Oskarsson
The forever dog; Bill Cochran
The funeral; Matt James
The gift of a memory: A keepsake to commemorate the loss of a loved one; Marianne Richmond
The gift of Gerbert's feathers; Meaghann Weaver and Lori Wiener
The goodbye book; Todd Parr
The grief bubble: Helping kids explore and understand grief; Kerry DeBay
The happy funeral; Eve Bunting
The heart and the bottle; Oliver Jeffers
The Invisible leash; Patrice Karst
The Invisible string workbook: Creative activities to comfort, calm, and connect; Patrice Karst & Danna Wyss
The invisible string; Patrice Karst
The kid's book about death; James Carrie
The memory string; Eve Bunting
The memory tree; Britta Tcekenstrup
The next place; Warren Hanson
The scar; Charlotte Moundlic
The stranded whale; Jane Yolen
The tenth good thing about Barney; Judith Viorst
Too far away to touch; Leslea Newman
Upside down cake; Carol Carrick
Water bugs & dragonflies: Explaining death to young children; Doris Stickney
We were gonna have a baby, but we had an angel instead; Pat Schwibert
What does dead mean? A book for young children to help explain death and dying; Caroline Jay and Jenni Thomas
What happened to daddy's body?: Explaining what happens after death in words very young children can understand; Elke & Alex Barber
What happens when a loved one dies?; Jillian Roberts
What happens when people die?; Timothy Robinson
What on earth do you do when someone dies?; Trevor Romain
What's heaven; Maria Shriver
When a pet dies; Fred Rogers
When aunt Mattie got her wings; Petra Mathers
When dinosaurs die: A guide to understanding death; Laurie Krasny Brown

When families grieve: A special guide for parents and caregivers; Sesame Street
When I'm with Jesus: For any child with a loved one in heaven; Kimberly Rae
When someone dies: A child-caregiver activity book; National Alliance for grieving children
When someone very special dies: Children can learn to cope with grief; Marge Heegaard

When Violet died; Mildred Kantrowitz
Where are you now?; Tyler Clark Burke
Where are you? A child's book about loss; Laura Olivieri
Where do people go when they die?; Mindy Avra Portnoy
Where is Grandpa?; T.A. Barron
Wherever you are my love will find you; Nancy Tillman
You hold me and I'll hold you; Jo Carson

Appendix B

Children's Grief-Themed Books: 22 Top Picks

General Stories About Death

Life and I: A Story About Death—

by Elizabeth Helland Larsen & Marine Schneider



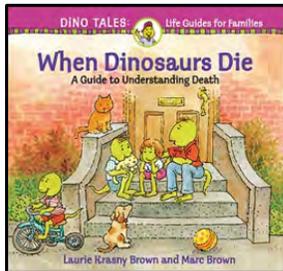
This story is narrated by Death, the main character. She talks about the connection between life and death. Each serves its purpose in the world. Similar to Life, Death is a part of all existence. In the final pages, Death acknowledges, "Love does not die, even when it meets me." This is a very sweet way to talk about the cycle of life and about loving and remembering our deceased loved ones. This book addresses facing the reality of death.

Ask a question: Though death is a tough topic, what part of this story gave you hope or made you smile?

Participate in an activity: Look through photos of relatives or pets who have died and talk about memories of the deceased and how our love never dies.

When Dinosaurs Die: A Guide to Understanding Death—

by Laurie Krasny Brown & Marc Brown

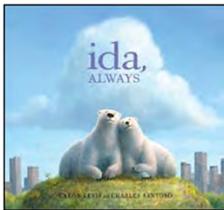


Accepting the reality of death, this book shows many different family situations involving death and discusses them in a way that is easy to understand. Using dinosaurs to represent humans, this book explains death in a way that is factual and appropriate for children. The pictures and captions in the story make it appealing and interesting for children.

Ask a question: This book had a lot of information. What part is most interesting to you?

Participate in an activity: Using a white paper plate, divide the plate into four sections and write these words in the four sections: Death is ...; People die because...; Death makes us feel...; and We want to remember... Ask children to help you complete these sentences. Then with crayons, decorate the outside fluted edges of the paper plate. Children love to color in each little section on the paper plate's ridged edge.

Ida Always— by Caron Lewis



Two polar bears at the zoo live together in the same pen. They are best friends. Ida, the female polar bear, gets very ill and dies. The book shows how Gus learns to cope. This book gently, but honestly, describes illness and poor health that often precedes death. The story portrays how survivors work through feelings of grief following a loved one's death. This book's illustrations are beautiful.

Ask a question: Why was Gus so sad after his friend Ida died?

Participate in an activity: With a string, small strips of paper, and tape, make a grief timeline to describe Gus's feelings before and after Ida died.

Grief-Themed Activity Books

Muddles, Puddles and Sunshine: Activity Book to Help

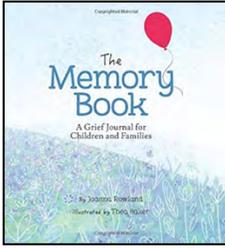
When Someone Has Died— by Diana Crossley



After the death of a loved one, this hands-on workbook guides children through their feelings associated with grief. Numerous activities and journaling prompts are included. Space is provided to encourage writing about memories of the deceased loved one. The activities provide sensory experiences that encourage children to process feelings through active engagement.

Ask a question: Who would enjoy these activities? Which activities fit you the best?

Participate in an activity: Review the book's recommended activities and select one activity to work on together.



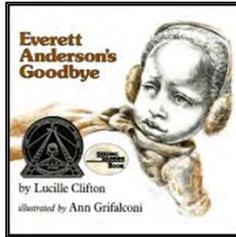
The Memory Book: A Grief Journal for Children and Families—
by Joanna Rowland and Thea Baker

This is not a children’s story, but a grief journal for a child. This book provides an opportunity for children and their families to create an album of drawings, pictures, and sentimental keepsakes to remember the deceased loved one. The journal suggests ideas for writing, drawing, and talking about grief. Over time, this journal helps children remember their loved one.

Ask a question: Which memory do you want to hold on to?

Participate in an activity: Select a memory activity in the book and work on it together.

Father’s Death

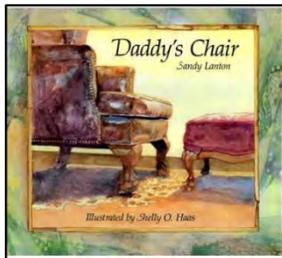


Everett Anderson's Goodbye— by Lucille Clifton

This book is beautifully illustrated. Everett, a young boy, is coping with the pain of his father’s death. The story expresses grief as a child feels it. Everett expresses denial that the death is real, he expresses anger, he feels apathy, and finally, after his mother comforts him, he begins to accept his new reality.

Ask a question: Which of your feelings are similar to Everett’s?

Participate in an activity: Cut out a large heart and draw several things inside the heart that represent things you love about the deceased person. Display the heart and add more things to the heart over time.

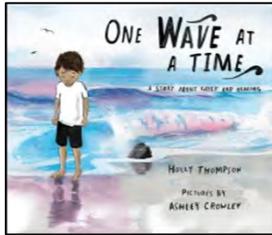


Daddy's Chair— by Sandy Lanton

A young son mourns his father’s death. Prior to the death, the father had been very sick with cancer. This story talks about Jewish faith and traditions. The story shows and validates how the child misses his father and all the things his father did for him. The book shows that, after a person’s death, other people in the child’s life will continue to love and care for them.

Ask a question: What things do you miss that your father did for you?

Participate in an activity: Draw a line down the middle of a sheet of paper. On one side, list things you miss that your father did for you. On the other side, list who might be able to do some of these things. This list might be incomplete, because no one will ever totally replace your father.



One Wave at a Time— by Holly Thompson

A son experiences all kinds of emotions after his father’s death. These feelings are compared to waves that come crashing in and then flow back out to the ocean. As time goes by, the family adjusts, even though the waves of grief continue rolling in. The story shows how we learn to cope and gradually heal over time, ultimately surfing the waves that initially overwhelmed us.

Ask a question: Are the ocean’s crashing waves always the same? Does grief always feel the same?

Participate in an activity: Watch a short YouTube video on surfing. Listen to the sound and watch the waves roll in and back out. Talk about things you can do to learn to balance yourself on the surfboard even when surfing the strong emotions of grief.

Mother’s Death

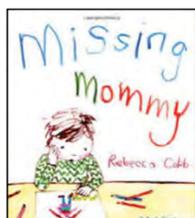


My Big, Dumb Invisible Dragon— by Angie Lucas

This book describes grief as a dragon. After the boy’s mother dies, a dragon follows him around and invades his life. The dragon sits on him, and he feels the weight of the dragon on his chest. In a clever way, this story demonstrates the heavy feeling of grief and explains the feelings a child experiences after his parent’s death.

Ask a question: What would you do if you had a dragon in your house?

Participate in an activity: On the Internet, google search images of “outlines of dragons to color.” With the child’s help, select one of the dragon images, print the dragon, describe the dragon (in terms of grief), give the dragon a name, and color.

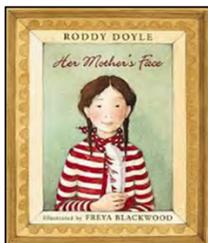


Missing Mommy— by Rebecca Cobb

This sweet story demonstrates a young child’s feelings after his mother’s death. The story explores the emotions a young child feels when grieving. The story ends recognizing the child is still part of a family that loves and cares for each other.

Ask a question: Which picture in this book is your favorite? Talk about it.

Participate in an activity: Draw pictures of things family members are now doing to help cover for what Mom used to do. As you look at the picture, wrap your arms around yourself and squeeze as if your mom was with you.



Her Mother's Face— by Roddy Doyle

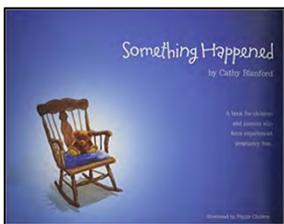
As a 3-year-old, a young girl’s mother dies. She and her father never discuss the death. Years later, as a 10-year-old, the girl longs to remember her mother’s face. One day, she meets a woman in the park who tells her that to remember her mother’s face she just needs to look in a mirror. As she looks in the mirror, she realizes that her mother is inside of her. This realization helps both the girl and her father to heal.

Ask a question: What helps you remember your mother’s face?

Participate in an activity: Look in the mirror. Identify things about you that remind you of your mother. What part of your mother lives on in you?

Sibling’s Death

Something Happened: A Book for Children and Parents Who Have Experienced Pregnancy Loss— by Cathy Blanford



This is a helpful book for families who have lost a baby in utero or at birth. It allows the living children to process their feelings about what happened with the loss of a pregnancy. The book addresses the living child’s confusion, their thoughts and feelings. The story shows how the family continues on while still remembering their little baby.

Ask a question: What were you hoping to teach your new little sibling?

Participate in an activity: Draw a picture of you holding your baby. Below the picture, write, “I miss my baby [sister or brother].”

Ben's Flying Flowers— by Inger Maier

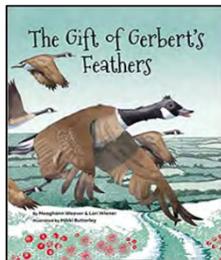


This story describes the feelings of a child (Emily) whose brother dies from a disease. It is written for young children. To represent the surviving sister’s feelings, the illustrations are half in color and half in black/white. Emily learns that asking questions and doing everyday activities, as well as remembering happy times with her brother, help to soothe her grief. The book concludes with practical guidance to help parents navigate their children through the grieving process.

Ask a question: What things help you remember your [brother or sister] who died?

Participate in an activity: Decorate a memory box (shoe box). Collect small special things that remind you of your sibling. Keep these items in a memory box.

The Gift of Gerbert's Feathers— by Meaghann Weaver & Lori Wiener



This is a story of a young gosling who becomes ill. He knows that he will only survive another migration with his family. He demonstrates acceptance of his approaching death and shares his love in a special way with family and community members.

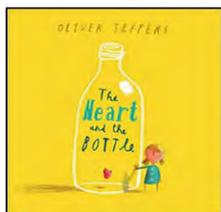
Note: The book also indicates that the main character has a disability.

Ask a question: What things help you remember your sibling?

Participate in an activity: On a large piece of poster board, make a collage of the things that remind you of your sibling. Include drawings and pictures.

Grandfather’s Death

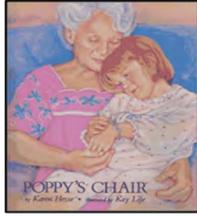
The Heart and the Bottle— by Oliver Jeffers



After the passing of her beloved grandfather, a girl protects her heart by putting it in a bottle. Through words and pictures, the story describes grief and how a grieving heart takes time to heal.

Ask a question: Has your heart ever been in a bottle? What would that feel like?

Participate in an activity: Describe your grief. Pretend to place your grief in a cardboard box. Then talk about how you can take your grief out of the box and talk about it. How does it feel to let those feelings out?



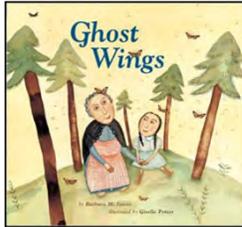
Poppy's Chair— by Karen Hesse

A young girl visits her grandmother for the first time after grandfather's death. The two of them work through grief together by talking about their memories of the grandfather and sharing joy in their remembrance.

Ask a question: What do you miss most about your grandpa?

Participate in an activity: Find an internet image that looks like your grandpa's chair. Print a copy and color the chair. Below the chair, write, "I miss you."

Grandmother's Death

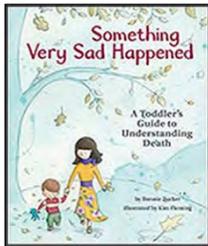


Ghost Wings— by Barbara Joosse

This story shows how a Latina girl maintains a connection between herself and her deceased grandmother through butterflies. The story includes many aspects of Mexican culture and shows that even though the grandmother seems very far away, her grandmother's love endures.

Ask a question: What things in your home or community remind you of your grandma?

Participate in an activity: Read about the Day of the Dead. How will you celebrate your grandma during the Day of the Dead celebration?

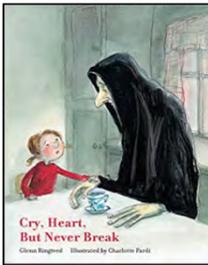


Something Very Sad Happened— by Bonnie Zucker

This book is geared to very young children. The book offers a very simple explanation of what happens when a person dies. The story explains the sad or mad feelings we have when someone dies. Although the story describes the death of a grandmother, this book could generically help a child understand death and grief.

Ask a question: After your grandma died, what did you think and feel?

Participate in an activity: Describe how our body reacts when we feel sad. Talk about who comforts us when we feel sad.



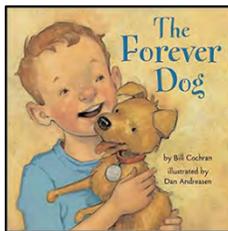
Cry, Heart, but Never Break— by Glenn Ringtved

Death is a character in this story who gently comes to visit four children prior to their grandmother's death. He tells them a sweet story about how there is a need for all things— life and death, sorrow and joy, grief and delight. He helps them realize the value of loss in life and the importance of being able to say goodbye.

Ask a question: After crying, what helps lift your spirits?

Participate in an activity: Play a game of charades with opposites. For example, (a) express "happy," then display "sad" feelings. (b) act out a person feeling tired, then act energetic. (c) act like you are cradling a small newborn, then pretend to be a very old person. (d) show slow, then show fast. (e) show waking up, show going to sleep. (f) say "hello," say "goodbye."

Pet's Death

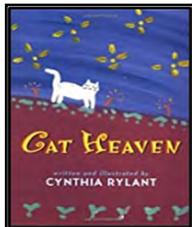


The Forever Dog— by Bill Cochran

This tender story addresses the real feelings of anger and sorrow a little boy has after his beloved dog dies. The story also shows how he finds comfort in the memories of his dog and knowing that the dog will always stay with him in his heart.

Ask a question: What is your favorite memory of your dog? How can you keep this memory in your heart?

Participate in an activity: Write "Favorite Memories of My Dog" on a large heart-shaped piece of paper. Place on the refrigerator. Continue adding to the list of memories.



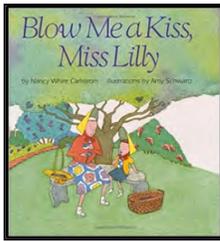
Cat Heaven— by Cynthia Rylant

This book depicts what heaven will be like for our beloved cats. It shows all of the joyful things cats will experience after they die. The story also describes how cats check in on and care for their human pet owners.

Ask a question: What happy thing is your cat doing in heaven that they could not do on earth?

Participate in an activity: Write a pretend letter to you, from your cat. Your cat's letter will include all the fun things they are doing in "Cat Heaven."

Older Neighbor's Death



***Blow Me a Kiss, Miss Lilly*— by Nancy White Carlstrom**

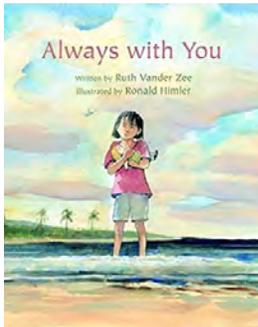
This is a sweet story about Sara, a young girl who becomes good friends with her elderly neighbor, Miss Lilly. They share common interests. The woman becomes ill and is placed in a care center. They write notes to one another. After a short time, Miss Lilly dies. The little girl misses her neighbor and fondly remembers Miss Lilly.

Ask a question: What did you have in common with your elderly friend/neighbor who died?

Participate in an activity: Write a note to your deceased friend/neighbor about the things you enjoyed about them and what you will miss the most.

Books About Death that Include a Main Character with a Disability

***Always With You* – by Ruth Vander Zee**



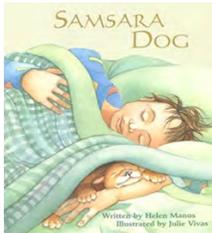
Kim, age 4, is terrified after her mother is killed by an explosion that also destroys her village in Vietnam. Eventually, troops rescue her and take her to an orphanage. Surrounded by the affection of the couple who administer the orphanage, the companionship of the children who reside there, and her mother's promise, "I will always be by your side," Kim discovers the strength and bravery to survive. Based on a true event from the Vietnam War, this picture book for older readers depicts the hope that exists even in the direst circumstances. Illustrations depict the tenacity of the human spirit and the strength of goodwill. Characters are multifaceted and reflect inner determination to thrive even in challenges.

Note: This book may be especially appropriate for children who have experienced displacement and unhousing, as they may relate to the layers of complexity that surround those life challenges in addition to layers of grief at losing a loved one.

Ask a question: How did Kim show resilience when her mother died? How are you showing resilience with little things each day?

Participate in an activity: Make a heartbreak pot. Wearing safety glasses and gloves, break a small terra cotta pot. On the inside of the pieces, write or draw images synonymous with grieving. On the outside of the pieces, write or draw images synonymous with comfort and healing. Glue pot back together (myfarewelling.com).

***Samsara Dog* – by Ruth Manos**



Both the dog and the boy are dynamic characters who change, grow, and grieve as they navigate life's challenges. Characters display growth mindset and the ability to overcome difficulties and challenges they face, be it emotional, physical, ability, or relational in nature. The boy with VI models how life can be fulfilling even with disability. This beautiful narrative about love and life, death, and dying, is based on Buddhist notions of Samsara and Nirvana and will move every reader.

Ask a question: How do you continue to learn and grow each day?

Participate in an activity: Create a button tree to remember those around us who are closest to us (winstonswish.com)

Appendix C
Tasks of Grief Addressed in Top Pick Grief-Themed Children's Books

Categories of Books	Tasks of Grief*			
	1	2	3	4
General Stories About Death				
<i>Life and I: A Story About Death</i> by Elizabeth Helland Larsen & Marine Schneider	X			
<i>When Dinosaurs Die: A Guide to Understanding Death</i> by Laurie Krasny Brown & Marc Brown	X	X	X	X
<i>Ida Always</i> by Caron Lewis	X	X	X	X
General Workbooks About Death				
<i>Muddles, Puddles and Sunshine: Activity Book to Help When Someone Has Died</i> by Diana Crossley	X	X	X	X
<i>The Memory Book: A Grief Journal for Children and Families</i> by Joanna Rowland and Thea Baker		X		X
Father's Death				
<i>Everett Anderson's Goodbye</i> by Lucille Clifton	X	X	X	
<i>Daddy's Chair</i> by Sandy Lanton	X	X	X	X
<i>One Wave at a Time</i> by Holly Thompson	X	X	X	X
Mother's Death				
<i>My Big, Dumb Invisible Dragon</i> by Angie Lucas	X	X	X	
<i>Missing Mommy</i> by Rebecca Cobb	X	X	X	X
<i>Her Mother's Face</i> by Roddy Doyle	X	X	X	X
Sibling's Death				
<i>Something Happened: A Book for Children and Parents Who Have Experienced Pregnancy Loss</i> by Cathy Blanford	X	X	X	
<i>Ben's Flying Flowers</i> by Inger Maier	X	X	X	X
<i>The Gift of Gerbert's Feathers</i> by Meaghann Weaver & Lori Wiener	X			X
Grandfather's Death				
<i>The Heart and the Bottle</i> by Oliver Jeffers	X	X		
<i>Poppy's Chair</i> by Karen Hesse	X	X		X
Grandmother's Death				
<i>Ghost Wings</i> by Barbara Joosse	X	X		X
<i>Something Very Sad Happened</i> by Bonnie Zucker	X	X	X	X
<i>Cry, Heart, but Never Break</i> by Glenn Ringtved	X	X	X	
Pet's Death				
<i>The Forever Dog</i> by Bill Cochran	X	X	X	X
<i>Cat Heaven</i> by Cynthia Rylant				X
Older Neighbor's Death				
<i>Blow Me a Kiss, Miss Lilly</i> by Nancy White Carlstrom	X		X	
Books About Death that Include a Main Character with a Disability				
<i>Always With You</i> by Ruth Vander Zee	X	X	X	X
<i>Samsara Dog</i> by Ruth Manos	X	X	X	X

*Note. Tasks of grief: (1) Facing the reality of death; (2) Facing the pain with others' support; (3) Adjusting to change; and (4) Remembering the loved one.

Addressing Intersectionality and Critical Consciousness: Socioculturally Competent Behavioral-Analytical and Educational Support for Learners with Autism

Jonte' C. Taylor
Pennsylvania State University

L. Lynn Stansberry Brusnahan
University of St. Thomas

Marcus C. Fuller
University of Maryland - Eastern Shore

Erin F. Farrell
University of St. Thomas

Abstract: The U.S.'s increasingly diverse school-age population makes it important for educators and behavior specialists to strive to be socioculturally competent in support of learners with autism. To do so, educational and behavioral practitioners must provide support in a manner that acknowledges the learners' sociocultural identities as strengths and finds ways to utilize these to ensure maximum participation in school and the greatest likelihood of success. Based on theoretical frameworks, this article highlights intersectionality and critical consciousness cycle components, to help guide practitioners in identifying and analyzing intersecting sociocultural identities and their impact on behaviors in educational settings so practitioners can take action to support learners effectively.

Vignette

Borysko, a student with autism, and his family have recently fled from Ukraine and moved to America. There has been an influx of Ukrainian refugees enrolling in the school that Borysko attends. During a meeting with the educational team, the general education teacher states that she needs support with Borysko as he is disrupting the classroom. The teacher states Borysko frequently blurts out in class during lessons with off-topic comments. Borysko knows a lot of factual information and at the beginning of the year, he loudly and emotionally corrected the teacher when she identified a picture of a moth as a butterfly. A month later, Borysko is still talking about the teacher's error. Borysko's preferred topic in a conversation with a peer is to talk about dead relatives and their graves. He stated now that he has moved, he can no longer go to family graves and have a picnic with the deceased. During one class, he shared that he is glad his family

is in Minnesota so he can still plunge into an ice hole in January. The other students laugh when he makes these comments. Borysko is experiencing social challenges in the classroom. He pats his peers on the back and hugs them each morning when he gets to school. Some of his peers have complained to the teacher about the hugs. The general education teacher frequently removes him from her classroom and sends him to the special education classroom. Her rationale is he is interfering with her teaching and the other students' learning. The educational team has decided to do a functional behavior assessment.

The United States is a multiracial and multicultural nation with diversity an important part of the country's fabric and success. This diversity represents a multitude of sociocultural (social + cultural) identities, constructed by society, including but not limited to (dis)ability, citizenship, ethnicity,

language, nationality, race, religion/spiritual beliefs, gender identity/expression, sexual identity/orientation, and socio-economic status. The term intersectional is used to represent overlapping sociocultural identities. Intersectionality (Crenshaw, 1991) is when sociocultural constructs interact and overlap to create power imbalances, such as discrimination (i.e., unjust or prejudicial treatment) or privilege (i.e., advantage, benefit, prestige, and respect).

Much of the current literature and practices for learners with disabilities fail to account for an individual's sociocultural identities beyond ability (de Brey et al., 2019; Meléndez Guevara, 2022). The U.S.'s increasingly diverse school-age population makes it important for educators and behavior specialists (i.e., practitioners) to engage in critical consciousness to become more socioculturally competent in support of learners with disabilities. Otherwise, there may be aspects of a learner's identity where needs are unmet, not considered, or dismissed. Socioculturally competent practitioners provide educational and behavioral support in a manner aligned with learners' identities to ensure maximum participation and the greatest likelihood of success (U.S. Department of Health and Human Services, 2000).

This article discusses theoretical concepts with practitioner application across the fields of education and behavior analysis. Even though these are two separate fields, professionals are increasingly crossing over both fields with an increase in behavior analysts being hired to work in school settings. Adopting theoretical models, grounded in intersectionality and critical consciousness, can help practitioners achieve more socioculturally competent and equitable systems of support for learners (Crenshaw, 1991; Jemal, 2017). Years of

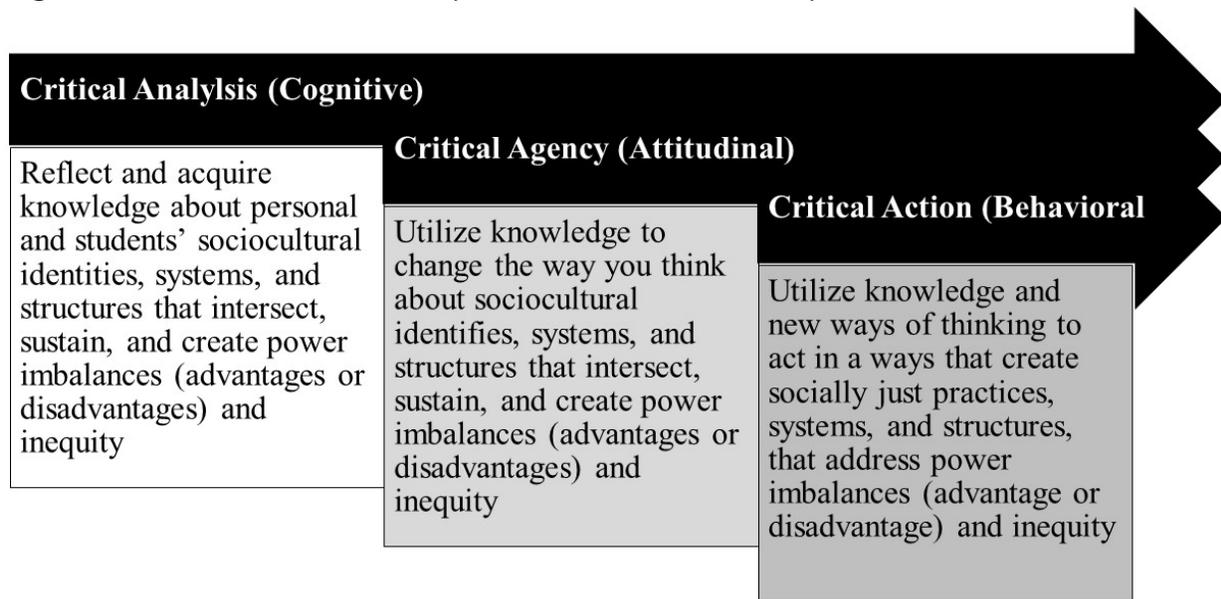
publications have focused a critical lens on the crossroads of disability, culture, and society (Annamma et al., 2013; Baglieri, 2017; Ferri & Connor, 2021), however, few studies, have specifically discussed intersectionality and critical consciousness focusing on autism. Only in recent years have more critical lenses focused on disparities and discrimination in behavior analysis (Taylor et al., 2022; Watson-Thompson et al., 2022; Wright, 2019). This article discusses intersectionality within the critical consciousness cycle as it relates to providing socioculturally competent educational and behavioral-analytic support to learners with autism. Figure 1 highlights the critical consciousness cycle, which consists of three broad components, that includes (1) critical awareness, (2) critical agency, and (3) critical action (Campbell & MacPhail 2002; Ginwright & James, 2002; Hatcher et al., 2010; Morrell, 2003; Prilleltensky, 2003; Watts et al., 2011; Windsor et al., 2014). Utilizing the components of the critical consciousness cycle through an intersectionality lens guides practitioners to see beyond personal identities and better understand how intersecting sociocultural identities, structures, and systems create power imbalances.

Specifically, in this article, the authors address the following:

1. How can practitioners better support learners with autism through the identification of intersectional sociocultural identities?
2. How can the critical consciousness cycle be used to analyze the behavior of learners with autism through a sociocultural competent lens?

This article provides practitioners guidance in the application of intersectionality within the critical consciousness cycle in educational and behavioral support through a

Figure 1. *Critical Consciousness Cycle with an Intersectionality Lens*



Note: Adapted from Freire (1970)

vignette. The vignette highlights a learner with autism, who demonstrates challenging behaviors that are maladaptive or disadvantageous to the individual given the contexts (Ledford et. al, 2021).

Examining and Acting on Key Paradigms

This article focuses on the key paradigms of “identifying” and “analyzing” and the implications for each. These paradigms include identifying a learners’ multiple sociocultural identities and analyzing learners’ behaviors and needs utilizing a critically conscious lens as a means of supporting behavioral outcomes. These two paradigms can provide supportive structures for practitioners, grounded in intersectionality and critical consciousness, to support learners with autism through equitable and socially just actions (Taylor et al., 2023).

The Identify Paradigm: Intersectionality

Practitioners should engage in the paradigm of “identifying” sociocultural identities to more effectively support learners with

autism. Sociocultural identities are a social construct, which means society creates and accepts these identities. Genetic markers for sociocultural identities, such as race, do not exist so DNA does not determine an individual’s sociocultural identity (Duello et al., 2021). Sociocultural identity is where an individual finds a sense of belonging. These identities can be self-ascribed or ascribed by others. Sociocultural identity guides both a sense of self and behavior and how to make sense of the world and others’ behaviors (Saari, 2002). It is important to recognize that not all individuals who ascribe to a sociocultural identity may behave or think in the same way or share the same values or beliefs.

Intersectionality theory denotes the intersecting experiences of learners who belong to multiple groups can lead to oppression, which is where individuals are subjected to unjust treatment (Crenshaw, 1991; Viruell-Fuentes et al., 2012). With increasing diversity within schools, practitioners must identify and gain an

understanding of sociocultural diversity to ensure equitable and full support of diverse learners with autism (Bell, 2016). Acknowledging sociocultural identity differences and how these multiple differences create compounding systems of oppression that impact the educational experience of learners is a pillar of Crenshaw's (1991) work on intersectionality.

Self-identities manifest through critical dialogue and action with similarly situated others, which generates a common understanding and experiences (Goolishian & Anderson, 2002). The construction and altering of narratives and identities are products of social exchange, such that "we are never more than the coauthors of the identities we construct narratively with others" (Goolishian & Anderson, 2002, p. 221–222). The point is practitioners cannot understand the experiences or narratives of others without social exchange, dialogue, and critical analysis.

Intersectionality shines a light on how ableism, bias, discrimination, racism, exclusion, oppression, marginalization, and other ideologies impact people's lives. Using theories and frameworks, like intersectionality, provides practitioners with a lens to understand the obvious forms of oppression like discrimination and othering, as well as the more subtle forms like denial of opportunity and advancement based on these sociocultural identities.

Vignette

For the functional behavior assessment, the school district's behavior specialist, who is a Board-Certified Behavior Analyst (BCBA), conducted observations of Borysko's behavior in the general education classroom. During these observations, the behavior specialist noted that Borysko frequently got out of his seat without permission and

wandered around the room for long durations of time. At times, he flapped his hands. Additionally, he was observed engaging in repetitive dialogue with himself in his first language. He frequently blurted out when the teacher was providing instruction. When the teacher assigned group work, Borysko complained loudly and said he would not work with a group but would complete the assignment by himself. In an interview, the classroom teacher mentioned that this is her first experience with a student with autism in her classroom and she is not familiar with the Ukrainian culture. The teacher suggested that Borysko's challenging behavior in the classroom comes from a desire to break the rules—and stated that she believed that punitive measures, such as losing free time, could effectively address the underlying reasons that he behaves in the manner that he does. The behavioral specialist reminded the teacher that the function of the student's behavior will be determined through functional analysis. The rest of Borysko's educational team has experience working with students with autism, but this is their first Ukrainian learner. The team discusses the observations and analysis of the behaviors of this learner. The diversity, equity, and inclusion school specialist suggest the team raise their understanding of Ukrainian culture. The educational team discusses both their personal and their learners' sociocultural identities. The educational team is all white females. The behavior specialist also interviewed Borysko and his family and shared that Borysko is biracial. His father is originally from Rwanda and his mother is Slavic. The parents mention that Borysko is proud of his African and Ukrainian heritage and speaks several languages including Ukrainian, Russian, and some Swahili. He and his family are learning English.

Understanding Intersectionality and Working with Children with Autism

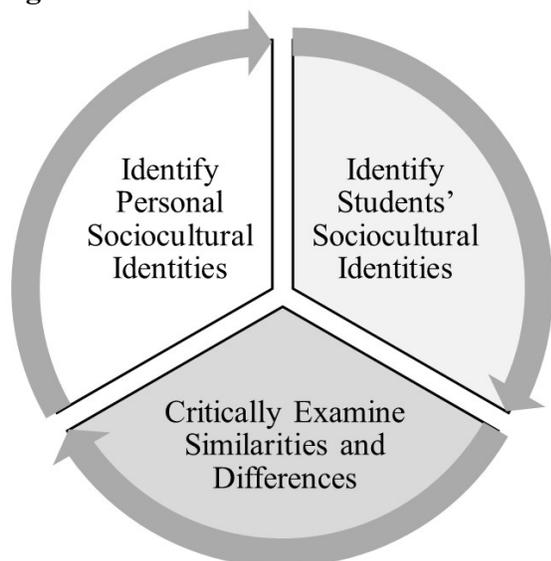
With the recognition of the effectiveness of applied behavior analysis (Baio et al., 2018), trained behavior analysts qualified to work with individuals with autism are in short supply and there is a lack of diversity within this workforce (BACB, 2020). There is also a lack of diversity in the educator workforce (US DoE, 2020). These shortages mean that not all learners with autism will have educators or behavior specialists working with them that reflect their sociocultural backgrounds. The result is learners may miss out on the academic and social-emotional benefits of a more diverse workforce. Because practitioners engage with learners from socioculturally diverse backgrounds, it is important to explore how personal identities intersect as this can influence planning, teaching, and learning daily in classrooms (Azmitia & Mansfield, 2021; Gay & Kirkland, 2003; Rosaldo, 1998; Salas & Lopez, 2008). Practitioners striving to meet the needs of diverse learners must first examine their own and then their learners' sociocultural identities. Practitioners must connect with their sociocultural identities and

understand how identities shape perspectives and influence learners to understand how bias and discrimination infiltrate their way into practices (Givens, 2021).

Practitioners ascribe to a multitude of identities and may possess several identities that have been historically marginalized. On the other hand, some may be privileged and not have experienced oppression in their lives. Practitioners share multiple identities with others, but it is important to recognize not all have had the same experiences within specific sociocultural identity groups. These layers of discrimination and privilege can both be experienced within and across sociocultural groups (Ledesma & Calderón, 2015).

Learners with autism possess the sociocultural identity of disability. Learners who have a disability and receive special education services in schools face stigmas, stereotypes, and discrimination. In addition to just disability, these learners experience multidimensionality of disability or intersecting social identities, which can lead

Figure 2. *Sociocultural Examination*



to further marginalization (Garcia & Ortiz, 2013; Kumashiro, 2000). Educators and behavior professionals can learn more about the learners by providing opportunities within educational settings for learners to reflect and have conversations about their experiences based on their sociocultural identities. These conversations can reveal the intersectional sociocultural identities that learners feel attached to and those which create barriers to optimal outcomes for learners. This insight can help create priorities to address in education and behavior analysis. Figure 2 highlights the journey towards sociocultural competence by examining sociocultural identities, which include three steps. These three steps are explained in relation to the impact of each on the observation and interpretation of learners' behaviors.

1. *Identify Self*: To improve self-awareness, practitioners identify personal sociocultural identities. This first step helps practitioners to understand who they are and helps to identify and minimize personal biases that influence views of learners' behaviors.
2. *Identify Others*: To improve the understanding of students, practitioners

identify learners' sociocultural identities. This step helps practitioners understand and interpret learners' behavior and the function of behavior objectively through critical consciousness.

3. *Identify Commonalities and Differences*: To improve sociocultural competence, practitioners recognize and understand similarities and differences between self and learners. Practitioners examine possible implicit bias during the observation and interpretation of behaviors and then adjust the implementation of practice and procedures based on self-awareness of self and learners' sociocultural identities.

Table 1 provides questions that practitioners can use for self-examination of personal sociocultural identities.

The Analyze Paradigm: Critical Consciousness

Focusing on the "analyzing" paradigm, practitioners can engage in analysis through the critical consciousness framework to become more socioculturally competent.

Table 1. *Self-Examination of Sociocultural Identities and Bias*

<ul style="list-style-type: none"> <input type="checkbox"/> What are my personal multiple and intersecting sociocultural identities and how do these shape and impact my understanding and interpretations of student's behaviors? <input type="checkbox"/> What are my learner's multiple and intersecting sociocultural identities and how do these shape and impact their lives and behaviors in schools? <input type="checkbox"/> What knowledge and experience(s) have had a significant impact on my understanding and interpretations of behaviors? <input type="checkbox"/> What knowledge and experiences have my learners encountered that impact their behaviors? <input type="checkbox"/> What are the commonalities and differences in my and my learners' sociocultural identities, knowledge, and experiences? <input type="checkbox"/> How do these similarities and differences lead to assumptions and biases that can influence my beliefs, understanding, and interpretations of behaviors?

Critical consciousness theory, developed by Brazilian educator, Paulo Freire (1973, 2000), advances an educational pedagogy addressing systemic inequity maintained and perpetuated by practices and processes. Broadly, critical consciousness is the ability to perceive, acknowledge, and act against oppression (Freire, 1970). The critical consciousness cycle is a strengths-based empowering approach to challenge inequity; prevent or ameliorate conditions that contribute to learners' challenging or maladaptive behaviors; and foster insight and active engagement in sociocultural competent solutions (Baxamusa, 2008; Jemal, 2017; Ozer et al., 2013; Peterson, 2014; Prati & Zani, 2013). Gaining critical consciousness makes practitioners aware of the systemic, institutionalized forms of ableism, bias, discrimination, racism, exclusion, marginalization, and oppression as well as privilege associated with sociocultural identities (Shin et al., 2016), and search beyond existing assumptions about behavior (Houser & Overton, 2001).

Engagement in the critical consciousness cycle should be a continuous development process, thought more of as the method of travel, as opposed to the actual destination. It is the development of an intellectual understanding of how sociocultural constructs and conditions disadvantage learners with autism who experience marginalized identities (Campbell & MacPhail, 2002). Supporting learners with autism with a focus on the critical consciousness cycle requires practitioners to engage in introspective reflection and interrogate their role in systemic injustices (Niles & Harkins Monaco, 2019). As mentioned previously, the components of the critical consciousness model include (1) critical awareness, (2) critical agency, and (3) critical action. The following explanations of

these components include an intersectionality lens.

- Critical awareness, reflection, and analysis is a cognitive dimension that involves gaining analytic knowledge about the sociocultural identities, systems, and structures that create and sustain power imbalances and inequity. In this step, practitioners reflect on and become critically aware of sociocultural constructs and social, political, and economic oppression and resulting social injustices.
- Critical agency and efficacy is an attitudinal dimension that involves constructing, checking, and changing thinking about the sociocultural identities, systems, and structures that create and sustain power imbalances. In this step, practitioners identify and navigate social injustices and the constraints that limit human agency, which are the thoughts and actions taken by individuals that express their power.
- Critical action is a behavioral dimension that involves mobilizing and utilizing knowledge to act against power imbalances, such as oppressive conditions. In this step, practitioners acquire skills and resources to transform power imbalances and act in ways that create equitable practices, systems, and structures.

Applying the Critical Consciousness Cycle in Behavior Analytical and Educational Practices

The critical consciousness cycle provides a framework for interrogating educational and behavioral processes for learners with autism from diverse backgrounds. The critical consciousness cycle calls on practitioners to acquire and use knowledge to act, address, and create more socioculturally competent educational and behavioral support for learners with autism. Practitioners can use the

critical consciousness cycle to better understand and support educational and behavior-analytic work by probing through critical analysis, checking for critical agency, performing critical action, and supporting learners in unbiased ways.

Critical Analysis. Critical analysis asks the question: “What are the elements that establish, impact, and maintain power imbalances such as ableism, discrimination, racism, exclusion, marginalization, and the oppression of others?” Freire (2000) notes that “reflection – true reflection – leads to action” (p. 66). Thus, the critical analysis dimension requires practitioners to reflect, examine, and analyze when observing learners’ behaviors. When observing learner behavior, start the critical consciousness cycle process with (Diemer & Blustein, 2006; Diemer et al., 2006; Watts & Serrano-Garcia, 2003):

- reflecting and identifying accepted personal assumptions, beliefs, feelings, and thoughts about behaviors;
- examining and critical thinking about the underlying impact of personal sociocultural assumptions, beliefs, feelings, and thoughts on interpretations of behaviors; and
- analyzing how the sociocultural aspects, along with history and past experiences, impact present ways of thinking and feeling and serve to maintain and perpetuate existing systems of inequity in the understanding of behavior.

To engage in critical awareness, practitioners must analyze relationships (e.g., intersectional sociocultural identities, the environment) and the wider social forces of structural power imbalances, such as discrimination that impact access to opportunity and/or resources sustaining inequity and perpetuating social injustice (Diemer et al., 2006; Hatcher et al., 2010;

Watts et al., 2011; Watts & Flanagan, 2007). Not discriminating against learners with autism does not mean practitioners should not utilize a critical lens during the observations of behaviors, but there must be a consideration of how sociocultural identities, societal structures, and systems may impact interpretations of behaviors. Behavior analysis should go beyond the traditional examination of the antecedent, behavior, and consequence (ABC) sequence, which is rarely simple or linear.

Some practitioners observe behavior and determine the function of a learner’s behavior with little training on equity and limited experiences and perceptions of diversity (Fong et al., 2016). Defining behavior by just how it looks does not tell the observer about the function or why it occurred and often doesn't help in behavior-change efforts (Barbetta et al., 2005). When observing a learner’s behavior, consider variables that influence behavior that cannot be immediately observed, such as setting events (i.e., prior events that influence behavior) and motivating operants (i.e., environmental variables that alter the frequency of behavior or the reinforcing effectiveness of stimulus). To be socioculturally competent when observing learner behavior, it is important to consider the influence of sociocultural constructs and intersectional variables. This is illustrated in Figure 3. Also consider the variables that are influencing behavior, such as ableism, bias, discrimination, racism, exclusion, marginalization, and oppression. Educators and behavior specialists should critically reflect on sociocultural constructs and conditions that shape behavior during observations when examining critical conscious pedagogy through an intersectional perspective.

The nature of applied behavior analysis (ABA) necessitates observation, assessment,

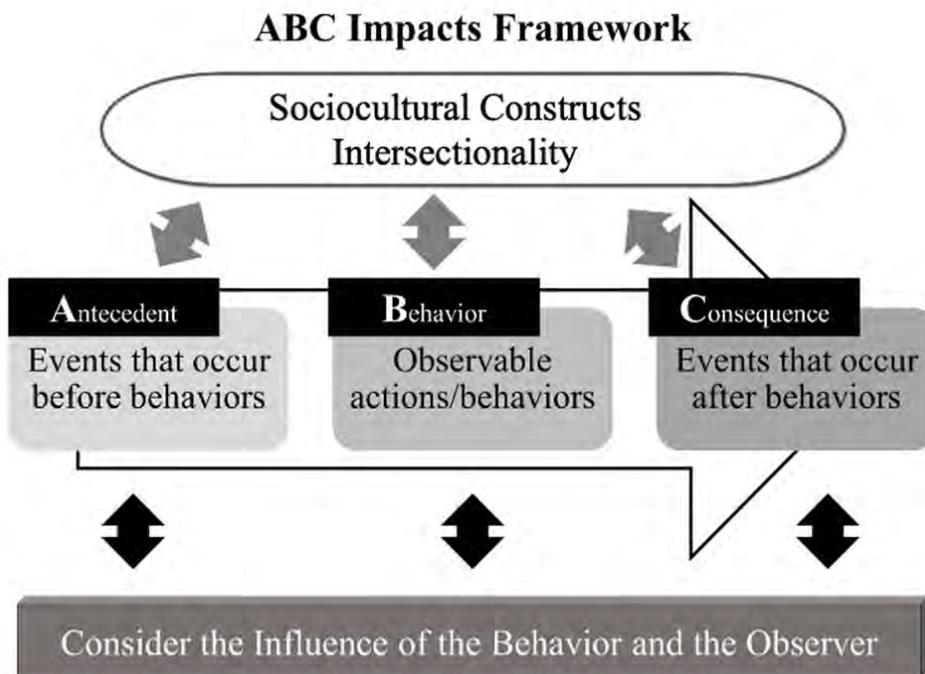
evaluation, and ultimately the identification of the function of human behavior when working with learners with autism who experience challenging or maladaptive behaviors. These processes warrant engaging in a thorough examination and analysis of behavior. Practitioners are required to not engage in discrimination against learners. Behavior analysis would seem inherently non-discriminatory with a focus on objective descriptions of socially significant behaviors and data-driven intervention to address individual challenges, however, data reveals that this is not always the case.

Bias and Discrimination. Building awareness requires an understanding of bias and discrimination. Bias is a preference for or against something, such as a particular behavior, condition, or sociocultural identity (Gatewood et al., 2019). Even professionals, who consider themselves justice-oriented and believe all people deserve equitable rights and opportunities (i.e., egalitarian), can be

unconscious of biases, discriminatory practices, and structures that impact learners. For example, practitioners may be unaware of how bias shapes educational and behavioral practices (Staats et al., 2017) or how automatic and unintentional implicit biases impact interpretations of observed behavior, decisions, and judgments (Stansberry Brusnahan et al., 2022).

Critical consciousness requires practitioners to become aware of their personal sociocultural identity, power, status (e.g., power or powerless, privileged or oppressed), and practices in relation to bias and discrimination. In both educational and behavioral settings, research has found impacts of bias and discrimination based on sociocultural identities. For example, individuals who have limited English proficiency gain access to ABA later, less often, and for shorter durations than individuals who are English-speaking (Zuckerman et al., 2017). Many studies have

Figure 3. *Beyond ABC: Considerations When Observing Behavior*



pointed out that Black children with autism are often misdiagnosed with a conduct-related or adjustment disorder (Čolić et al., 2022), which can impact access to ABA services. In educational settings, studies reveal that educators often give Black learners fewer warnings to correct their misbehavior before being sent to the principal's office, when compared to their White peers (Wegmann & Smith, 2019). As explored by numerous researchers, the observation of behavior is susceptible to discrimination and bias (De Houwer, 2019; Taylor et al., 2022).

The power imbalance between practitioners and learners with autism can provide a fertile opportunity for bias and discrimination. Critically conscious socioculturally competent professionals must be cognizant of personal biases in educational and behavioral-analytic work. Practitioners need to acknowledge and recognize the intersectional nature between behavior and sociocultural constructs, and how bias might influence descriptions of observed behavior. Critical consciousness requires engagement in difficult dialogues that may cause discomfort as practitioners seek opportunities to develop awareness and skills that facilitate effectively addressing issues of bias and discrimination (Watts & Flanagan, 2007). With critical consciousness, practitioners seek to overcome false consciousness or assumptions about the function of behavior through functional analysis and examinations of sociocultural constructs. The goal is to achieve a critical understanding of self, learners, and the environment, including awareness of how personal assumptions (i.e., accepted without proof), beliefs, practices, and values shape interpretations of behavior and reinforce structures of power imbalances and injustice (Chronister et al., 2004; Jemal, 2017). Practitioners who possess critical consciousness take responsibility for choices

that either sustain or alter interpretations of observed behavior (Carlson et al. 2006). As applied to working with learners with autism who experience challenging or maladaptive behaviors, critical consciousness requires practitioners to confront personal biases and see learners as complete sociocultural beings that are a confluence of their experiences and surroundings.

Vignette

During the observations in the general education classroom, the behavior specialist noted that another student in the classroom frequently was out of his seat and engaged in blurting out behaviors. Frequency data were collected, and it was found that the other student engaged in these behaviors more frequently than Borysko. While Borysko was sent out of the classroom for his behaviors, the white male English-speaking student, who was not in special education, received verbal warnings for his behaviors. The general education teacher didn't realize she was treating students differently. The team invited one of the school's paraprofessionals to a meeting to act as a cultural informant, as she knew Ukrainian culture well and was willing to share information about her community. The team learned that having a picnic near a gravesite and jumping into ice holes in the form of a cross three times are cultural practices. They also learned that in Ukraine a greeting can include a pat on the back and a hug. The team now has some cultural explanations for some of the behaviors. When viewing from an intersectional critically conscious lens, the team looked for conditions that shaped Borysko's behavior. based on all of his sociocultural identities, which included autism and English being Borysko's second language. The behavior specialist learned from an interview with Borysko's family that they came to America when the war broke out with Russia. According to his father, the

family experienced trauma and racism in both their native Ukraine and now in America. When interviewing Borysko and his family, the behavior specialist learned more about the grave and ice plunge conversations. Visiting graves and sharing food is a tradition associated with Radonitsa or Hrobki, which is a week of commemoration of the departed observed in Ukraine. The specialist learned that January 19 is a national Ukraine tradition (The Epiphany). On this day, Ukrainians consider the water holy and swim in the icy winter water to heal from diseases. Through an interpreter, the behavior specialist learned that Borysko's family said that they are all pretty loud and emotional and that Borysko must be loud and assertive to be heard in the home. The behavior specialist completed document reviews. In the development history data in the student's file, the mother noted that she was unaware of her pregnancy for a long time and engaged in alcohol consumption during the first four months of her pregnancy.

Critical Agency. The critical agency asks the question: "Do I feel empowered to change the elements of the system I am in that perpetuates ableism, discrimination, racism, exclusion, marginalization, and oppression?" A sense of agency is the feeling of control over actions and the subsequent consequences. Efficacy is the ability to produce a desired result. Agency and efficacy are derived from feeling confident and comfortable with addressing the limits and considering the influence of sociocultural identities during observations of behaviors.

Practitioners can be empowered by school guiding principles on diversity, equity, and inclusion and the *Association for Behavior Analysis International* has a diversity policy, which encourages diversity and inclusiveness in behavior analysis broadly, and within the

organization specifically (ABAI, 2018). Additionally, *Standards for Cultural Competence in Behavior Analysis Practice* state socially responsible practitioners have the ethical responsibility to be culturally competent (Fong & Tanaka, 2013). Furthermore, the Behavior Analyst Certification Board® (BACB) uses BCBA Task List (BACB, 2017) and *Ethics Code for Behavior Analysts* (2020) to guide behavior analysts in their practice. The *BCBA Task List* outlines competencies and skills that behavior analysts are required to possess. BACB's ethics provide support for creating agency within behavior analysis by practitioners. There are four foundational "core principles" that all behavior analysts strive to embody that serves as the framework for the ethics standards. These core principles guide the interpretation and application of the standards in the code (BACB, 2017, p. 4).

- Core principle 1 is to "benefit others", which can be accomplished by actively identifying and addressing sociocultural factors that might lead to negative impacts on professional activities.
- Core principle 2 is to "treat others with compassion, dignity, and respect." which can be accomplished by treating others equitably by considering sociocultural factors.
- Core principle 3 is "behave with integrity", which can be accomplished by providing equitable opportunities to diverse groups.
- Core principle 4 is to "ensure competence", which can be accomplished by working to continually increase knowledge and skills related to sociocultural sustaining practices and service delivery to diverse groups.

In the ethics code under "ethical decision making" (p. 5), behavior analysts are to consider personal learning history and biases in the context of the individuals they serve.

Additionally, a few of the standards address diversity, equity, and inclusion. Here are a couple of examples.

- Cultural responsiveness and diversity (1.07). Engage in professional development activities to acquire knowledge and skills related to cultural responsiveness and diversity. Evaluate biases and the ability to address the needs of individuals with diverse needs/backgrounds.
- Nondiscrimination (1.08). Do not discriminate against others. Behave toward others equitably and inclusively regardless of sociocultural identity.
- Awareness of Personal Biases and Challenges (1.10). Maintain awareness that biases or challenges may interfere with the effectiveness of work. Take steps to resolve interference and ensure work is not compromised.

Additionally, the selecting, designing, and implementing “assessments” (2.13) and “behavior-change interventions” (2.14) standards highlight meeting the “diverse needs” of individuals (Connors, 2020). To further instill capable agency, it might be necessary to consult and collaborate with professionals outside of the field of education and behavior to learn how others address diversity and the need for multicultural training.

Critical action. Critical action asks the question: “How can I dedicate myself to enacting behaviors that dismantle systems of ableism, discrimination, racism, exclusion, marginalization, and oppression?” After analysis and building agency, it is necessary to make tangible and substantive actions. The nature of action corresponds to the nature of understanding (Freire, 1973). Action is conceptualized as “objective ability or potency to act given structural constraints” (Campbell & MacPhail, 2002, p. 333).

Scholars define critical action as overt engagement in action (e.g., individual or collective) to produce sociocultural and sociopolitical change of unjust aspects (e.g., institutional policies and practices) of society (Watts et al., 2011; Watts & Flanagan, 2007). Once practitioners perceive a challenge, understand it, and recognize the possibilities of response, they should act.

There is little use in recognizing systemic challenges in the field of education and ABA and having the cache to make positive things happen, yet doing nothing to address these challenges. Not only are these wasted opportunities, but they may also contribute to harming individuals served through educational and behavior-analytic work. This potential harm is even more probable for those with disabilities who experience intersecting marginalized backgrounds.

Previous authors have presented a variety of actions that can be performed including self-reflection (Aspy & Grossman, 2011; Taylor et al., 2022; Taylor et al., 2023), sociocultural competence training (Beaulieu et al., 2018; Connors et al., 2019; Fong et al., 2016; Fong et al., 2017), and acting on the principles of anti-racism (Levy et al., 2022; Matsuda et al., 2020; Taylor et al., 2023). Action should include actively working with self and/or others to create change that has the potential for transformation. For example, practitioners can focus on changing conditions contributing to a learner’s behavior to decrease challenging or maladaptive behavior and increase learning in an educational setting (Campbell & MacPhail, 2002; Jemal, 2017).

Practitioners, who utilize critical consciousness and intersectionality, engage in difficult conversations that directly address what it means to be privileged (e.g., white, able-bodied, male, heterosexual, educated,

affluent) and overlapping and intersecting identities of privilege and oppression. In other words, the white male learner with a disability, who identifies as gay and from an affluent household, experiences identities of oppression (e.g., (dis)ability status, sexual orientation/identity) and intersecting and interlocking identities of privilege (e.g., gender, race). Or a Black abled-bodied female teacher who is educated and middle-class has intersecting identities of oppression (i.e., race, gender) and intersecting and interlocking identities of privilege (i.e., (dis)ability status, education, socioeconomic status). Critical consciousness and identification of sociocultural constructs help those privileged by the system to recognize social injustice and unjust social processes, unfair distribution of resources and opportunities, and inequity, and acquire the knowledge and skills needed for social change (Thomas et al. 2014). Furthermore, understanding the intersection of personal sociocultural identities of oppression and privilege better equips practitioners to empathize and understand the marginalization of others.

Vignette

The behavior specialist and the educational team begin to analyze the collected behavioral data and prepare to complete a functional analysis. The team notes that some of Borysko's observed behaviors could be linked to characteristics associated with autism. For example, his social communication challenges could be impacting his avoidance of group activities. The team considers Borysko's intersectional sociocultural identities. Borkysko's acquisition of the English language could also be another possible explanation for group avoidance. Sensory seeking could be the function of his out-of-seat wandering behaviors and hand flapping. His blurting out could be a lack of understanding of

expected classroom social behaviors during teacher instruction. The educational team realize they do not know the expected classroom etiquette for Ukraine schools. Borkysko's repetitive dialogue with himself appears to be Echolalia but since the team is not sure what he is saying in Ukrainian, they feel they need to find out more information. The team reaches out to the family to determine some of the classroom experiences Borkysko had in Ukraine, as well as to ask the family about the language that they are hearing repetitively in the classroom. These data can help the team to make a more informed decision on the function of these classroom behaviors.

The general education teacher recognizes the previous lack of critical consciousness and considerations of learners' sociocultural identities in her classroom and works to change conditions contributing to the learner's behavior to decrease challenging behavior and increase learning in an educational setting. Borysko's educational team works with the general education teacher to take action and provide opportunities within educational settings for Borysko and his peers to reflect and have conversations about their unique backgrounds and experiences. Borysko's classroom teacher plans to have students explore and do presentations on various cultural traditions. This will allow Borysko to share information on Ukraine during class discussions, so Borysko's peers understand the topics of his conversations. The teacher and the students work together to put together a list of greetings appropriate for their classroom setting and post the list visually. The team teaches Borysko when it is appropriate to be loud and assertive and when it might upset his peers and others around him. His general education teacher incorporates more discussions and group activities where Borysko can build

relationships with his peers and be himself without seeming like a distraction or defiant. For group projects, the teacher structures the work with clear roles for members. The team advocates for the school to work with the local Ukrainian community to properly commemorate some Ukrainian celebrations and traditions in the next school year. The functional analysis revealed that some of Borysko's behaviors were sensory seeking so sensory breaks are built into his school schedule.

Practitioners' development of critical consciousness ultimately begins with critical awareness, reflection, and analysis. It is important to question and discuss the status quo and beliefs. Practitioners must address the power dynamics and imbalances surrounding sociocultural identity constructs, such as (dis)ability, race, and other aspects of identities. Next, practitioners need to engage in critical agency and check power based on personal sociocultural identities (Ginwright & James, 2002; Prilleltensky, 2003; Watts et al., 2011). It is important to question who is and is not allowed access to resources and opportunities and how that access is granted or denied. Practitioners need to recognize and see in a new light the deeply ingrained practices that have been made invisible to perpetuate systemic inequity and influence behavior (Garcia et al. 2009; Hatcher et al. 2010). When individuals in power deny systemic patterns of discrimination by educational systems against learners based on their sociocultural identity, this perpetuates power imbalances and differential access to resources (Larew, 2010). To best meet the needs of learners with autism who experience challenging or maladaptive behaviors, practitioners need to take critical action against oppressive conditions to create a just society (Ginwright & James 2002; Prilleltensky, 2003; Watts et al., 2011).

Conclusion

Understanding the impact of intersectionality and the critical consciousness cycle on education and behavior analytic work can provide insight into how to best provide educational and behavioral support for learners with autism. Having insight into the intersectional sociocultural identities of learners that present challenging and maladaptive behaviors gives practitioners a better understanding of what is being observed and interpreted. Recognizing that linear behavior analysis using the traditional ABCs framework is a good starting point, but not comprehensive. Identifying individual misconceptions can help practitioners observe behavior from a more sociocultural competent lens. Adapting theories and frameworks that provide intentional guidance for professionals (intersectionality plus critical consciousness) can safeguard against bias and discrimination and increase the equity needed for learners with autism. Knowledge, such as the acquired information from this article, better prepare practitioners to disrupt assumptions about learners' sociocultural identities and impact their success in school. Work with cultural informants to help ensure equitable behavioral practices such as collecting ABC data through a sociocultural competent lens and interpreting the function of behavior through functional analysis and the recognition of sociocultural diversity. Intersectionality and critical consciousness theories and frameworks help practitioners presume competence and create contexts and conditions that allow learners to demonstrate adaptive (i.e., expected) behaviors in school settings so they can experience greater academic success.

Engagement in critically conscious work has no endpoint. It is a persistent fight against oppressive systems through analyzing challenges, building the capacity to advocate for the marginalized, preparing to act, and

ultimately acting and impacting the system in positive ways. By using intersectionality and the critical consciousness cycle as frameworks for combating challenges in the field of education and ABA, critical understanding, discussions, and actions can be sustained for improved outcomes in education and behavior-analytic work (El-Amin et al., 2017). If practitioners are not aware of inequity and do not act to constantly resist oppressive norms and ways of being,

then the result is residual inequity in perpetuity. An examination of how to battle oppression in society can benefit educators and behavior specialists who work with learners with autism. If resources are not available to help support furthering the understanding of intersectionality and critical consciousness within the field of education or behavior analysis, practitioners must seek out resources across other disciplines to help gain a better understanding.

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Correspondence concerning this article should be addressed to Jonte' C. Taylor, Department of Educational Psychology, Counseling, & Special Education, Pennsylvania State University, 210 Cedar Building, University Park, PA 16802. E-mail: jct215@psu.com.

Disability and Social Media: An Evaluation of How People with Disabilities Are Portrayed

M. Addie McConomy
Florida State University

Mark Tyler Chin-Lenn
Florida State University

Denise Dennis
Florida State University

Alice Williams
Florida State University

Taryn Wade
Florida State University

Abstract: Using a content analysis approach, researchers examined social media accounts of organizations that support people with disabilities. The research sought to identify opportunities individuals with disabilities had to develop content or were present in content related to their disability. After completing an initial review of a sample of accounts that met inclusion criteria an additional, in-depth analysis was completed from a smaller, purposively selected group of accounts and the analysis was expanded to all internet accounts for the organization. Researchers found that the evaluated organizations did support people with disabilities and their caregivers with information and community; however, there was minimal evidence that the content was created by or included input from people with disabilities. Implication and areas for future research are discussed.

The purpose of the current study is to investigate whether individuals with disabilities were authentically included within specific social media sites. To conduct this analysis, the research team collected a methodological sample, coded the data derived from the samples, and further reduced the sample to allow for inferring contextual phenomena and narrating in response to the research questions. The data was then analyzed through content analysis to see if individuals with disabilities were authentically included within the selected social media sites.

The first task of the current study is to consider and synthesize prior empirical research and theory. This will be done through a discussion of the connection between disability and social media. The relationship between portrayal of individuals

with disabilities will be synthesized with existing literature on social media. The current study will then provide a brief overview of the methodological procedure before discussing key findings and conclusions. Additional findings related to case-studies of randomly selected social media accounts will be detailed. The current study concludes with a discussion of practical implications of the current study and the study's detailed conclusion.

Disability and Social Media

People with disabilities have faced a long history of discrimination and exclusion (Spaulding & Pratt, 2015). Since the turn of the 20th century the medical model of disability has been pervasive. The medical model of disability categorizes people as disabled or non-disabled, ignoring the potential continuum for disability. Under the

medical model view, people with disabilities do not participate in society until their disability has been alleviated, and only then can they assume roles and responsibilities held by non-disabled peers (Shyman, 2016). This model fosters discrimination through the division of members of the community into “disabled” or “non-disabled” groups. Diversity strengthens society and purposeful changes should be made to reduce the discrimination faced by people with disabilities in our community.

One way to develop more diverse spaces is through inclusion which improves outcomes for all members of society (Kurth et al., 2018) and may include education, employment, and leisure pursuits. Definitions of inclusion can be dependent on the defining agency, for example inclusive education can be defined as students with disabilities who receive academic instruction primarily in general education classrooms (Mastropieri & Scruggs, 2018). Inclusive education is more broadly defined in the Individuals with Disabilities Education Act (IDEA) which defines inclusion as “Educational settings in which students with disabilities have opportunities to participate and receive support in all aspects of school life alongside peers who do not have disabilities.”

(Individuals with Disabilities Education Act, 2004). However, these narrow definitions do not encompass how people with disabilities may be included in society. In the preamble of the Convention of the Rights of Persons with Disabilities (CRPD) the impact of inclusion is stated as, “Recognizing the valued existing and potential contributions made by persons with disabilities to the overall well-being and diversity of their communities, and that the promotion of the full enjoyment by persons with disabilities of their human rights and fundamental freedoms and of full participation by persons with disabilities will result in their enhanced sense of belonging and in significant advances in the human, social and economic development of society and the eradication of poverty,” (Hendricks, 2007, p. 2).

Inclusion in today’s world also includes using social media. Social media can be defined as digital platforms that allow diverse individuals to build community and connections that may benefit mentorship, sponsorship, or advocacy (Montgomery, 2018). The Pew Research Center (2021) reports that 7 out of 10 adults who live in America use social media. Table 1 displays information about adults living in the US and their use of the top four social media sites.

Table 1. *Percentage of adults living in America who report using social media websites and applications*

Age group	Any social media	YouTube	Facebook	Instagram	Twitter
18-29 years old	84%	95%	70%	71%	42%
30-49 years old	81%	91%	77%	48%	27%
50-64 years old	73%	83%	73%	29%	18%
65+ years old	45%	49%	50%	13%	7%

Social media sites have different defined, and society interpreted purposes. While they may have similar applications, the primary form of engagement varies. YouTube is a video sharing platform that allows professional and personal users to add video content. Content can be grouped in channels that can be promoted and followed. Facebook allows pictures and text to be shared and promotes connections between friends using algorithms that find related accounts. Instagram is a visual platform that requires an image to make a post and can include a caption. Twitter may include images and relies on conversation threads between users to build relationships and networks. Social media outlets present an opportunity for inclusion of all people, including those with disabilities because of their free and accessible nature.

Instagram was selected for the focus of this research because of the wide use and the objective of sharing daily life examples to build networks. Instagram is the third most used social media site; eighty-one percent of adults who live in America use YouTube, sixty-nine percent use Facebook and forty percent use Instagram. Adults who live in America who use Instagram report that fifty-nine percent of those who use it, use it daily, twenty-one percent use it weekly, and twenty percent report less than weekly (Pew Research Center, 2021).

Many people gather information through these social media outlets. For example, when Instagram users apply the hashtag, #Teachergram to a post they are indicating that a post is related to teaching tips, suggestions, frustrations, or professional development for teachers. #Teachergram has become a vernacular word to describe the collection of posts related to teaching on Instagram. A similar example is #ActuallyAutistic, this hashtag draws

attention to posts about autism by people who self-identify as autistic. Researchers Newton and Williams (2021) found that special education teachers may use #Teachergram as a method of professional development and found that the networks created support active and collaborative components of professional development. Professionals in the field of disability now rely on social media accounts for information and practical ideas that guides their work. It is important to evaluate the content that is shared to ensure it reflects the experiences of people with disabilities.

Portrayal of Disability in Social Media

To be fully included in society, people with disabilities need to be portrayed accurately through social media. The term inspiration porn, which Stella Young used in her Ted Talk to describe images that objectify people with disabilities for the benefit of others, has been used to describe the negative impact of showing people with disabilities completing inspiring physical tasks (Young, 2014). Researchers in advertising have quantified this phenomenon. Shelton and Waddell (2020) found that society react more favorably to brands that use “inspiration porn” images to sell athletic wear. Similarly, inspiration porn has been addressed in sports. Martin (2019) addressed the concern of this phenomenon in youth sports, when participants with disabilities receive “gratuitous praise and encouragement for engaging in ordinary activities of daily life” the benefits of youth sports including friendship and positive increase in self-esteem are less likely (p. 6). This illustrates the concern that when people with disabilities are portrayed in the media, it may be designed to illicit a response from society rather than to accurately represent people with disabilities.

The wide use of social media, the reliance on social media for information, and the history of discrimination against people with disabilities all support a need to investigate how people with disabilities are portrayed on social media. Specifically, an evaluation of what information about disability is shared on social media accounts that focus on disability can help inform advocacy efforts that support inclusion of people with disabilities in their communities.

People with disabilities benefit from being included in all the same settings as people without identified disabilities. To support inclusion, an accurate understanding of the limitations and strengths of different settings must be evaluated. Just as schools and community settings are critically evaluated for inclusive practices, social media must also be evaluated. Social media has the potential to be an inclusive environment, many physical (including location) barriers are eliminated when interacting on-line. However, social media also has the power to perpetuate myths and discriminatory practices, this is a particular concern because of the wide use of social media and the accessibility to all members of society.

Existing Research on Social Media Use and People with Disabilities

Social media can provide communication and networking opportunities with reduced barriers because all members of the communication group use technology to send messages. People who communicate without conventional language may use augmentative and assistive communication (AAC). AAC is a broad term that includes all forms of communication used by people with limited or no verbal abilities to learn and express themselves. AAC includes gestures and technology that can be used to communicate (Mayne & Rodgers, 2020). Providing authentic opportunities for people who use

AAC to communicate and socialize can be challenging, social media can be an outlet to address this, social media reduces the stigma that may occur during face-to-face communication with AAC devices (Grace & Raghavendra, 2019).

Similarly, people who have experienced a traumatic brain injury (TBI) experience benefits and barriers when using social media. Brunner and colleagues (2019) used interviews with 13 adults with TBI and cognitive-communication impairments who use social media. Through iterative thematic analysis the researchers found five themes that dictated the participants use of social media including the following: a) being included in on-line communities; b) maintaining relationships through social media; c) learning how to navigate social media; (d) developing their online presence; and e) mastering social media use. However, without direct support many people with TBI struggle with confusion and the complexities of using social media. Adults with TBI benefit from the social connections and social practice that social media provides. However, explicit training is needed to support their skills (Brunner et al., 2019).

Concerns about the usability of social media for people with disabilities was a contributing factor to research conducted by Williams and Gibson (2020). These authors provide a report on the creation of a social media type platform that was designed specifically for residents of a supported living community ($n=500$). Authors found participants were already using social media to contact families and designed a new social media platform to replace this with a platform that was designed to reduce some of the risks associated with social media use. The platform was designed with input from the residents. The initial platform, after 2 years, had three percent of possible users interacting frequently. A

second version was developed that addressed concerns like difficulty with logging in. Although the objective of this line of research is admirable, it must be viewed with a critical lens. History has proven that separate is not equal. Some features of the limited social media platform including monitoring and removing posts that were deemed offensive or inflammatory and vetting photographs for decency and safety before posting are censorship that people without disabilities are not subjected to. While this project emphasizes the value of supporting people with disabilities in learning to use social media to broaden social connections, it also demonstrates the risks of creating a separate space for people with disabilities as it reduces the accurate representations of people with disabilities on widely used social media. White and Forrester-Jones (2020) provide additional evidence for the need to support people with disabilities in their use of social media to strengthen community ties. These authors measured social media use for teenagers with disabilities and found they have similar access but use it less than peers. This may be because the social network for adolescents with intellectual disability (ID) was smaller ($M=22.29$ peers) when compared to typically developing peers ($M=61.5$).

When social media is used to highlight disability, there is still evidence of limited participation by people with disabilities. The 25th anniversary of the passing of the Americans with Disabilities Act (1990) included discussion on social media. Williamson and colleagues (2019) evaluated 954 tweets from the social media platform Twitter about this event. Researchers found that only one percent, 11 tweets, came from people with disabilities. When researchers expanded their criteria, they found 35 tweets, four percent that could be attributed to a group that supports people with ID or sharing information about ID. This data concludes

that people with disabilities did not participate equitably in the 25th anniversary of ADA on Twitter (Williamson et al., 2019). This illustrates the need to provide more access to representation of people with disabilities on social media.

The widespread use of social media by the majority of adults in America (Pew Research Center, 2021) is a compelling reason to evaluate the representation of people with disabilities on these platforms. Existing research is centered on narrow topics including how specific groups of people use social media (i.e., Brunner et al., 2019), more research is needed. Social media presents an opportunity to foster more inclusive interactions (Montgomery, 2018), a first step in developing these interactions is to learn about the current state of disability portrayal on social media.

Purpose of Research

Using a content analysis approach, the researchers examined a winnowed group of social media accounts that were relevant to people with disabilities (Krippendorff, 2018). Researchers sought to explore the way disability is portrayed on Instagram, Facebook, Twitter, and organizational websites. This study first evaluated a purposefully selected group of Instagram accounts that share content about people with disabilities. The aim of the research was to explore the Instagram presence of people with disabilities on accounts managed by organizations. In addition, a representative sample of the accounts were selected for further analysis that included additional social media platforms (i.e., YouTube, Facebook, etc.).

The central research question addressed was, how are people with disabilities portrayed on organizational social media accounts? Researchers also addressed two sub

questions; 1) What is the main purpose of the Instagram account that shares information about people with disabilities, and 2) What information about people with disabilities is conveyed through social media platforms?

Method

This study used content analysis to examine how disability was portrayed in social media. A hallmark of content analysis methodology is data making, creating data from text (Krippendorff, 2018). The research team conducted a methodological sample, coded the data derived from the samples, further reduced the sample to allow for more in depth analysis including inferring contextual phenomena and narrating in response to the research questions (Creswell & Poth, 2018; Krippendorff, 2018).

Researchers' role and reflexivity

The primary investigator engages in limited social media use. They maintain an organizational social media account with an emphasis on disability and do not use social media personally. They have a close relative with a specific disability, the disability has an organization that has a national social media presence. The primary investigator also has a formal education in disability and has completed college course work in disability portrayal in the media. The second author uses personal social media daily and has experience running organizational social media accounts. They have a close relative with autism who does not use social media and the researcher has no formal education in disability. The third author uses social media daily for personal reasons, they also maintain a professional social media account discussing the process of getting a PhD in special education. They have a close relative with a disability who uses social media personally and the researcher has a formal education in disability. The fourth author was an early social media adopter who continues

to use social media for personal reasons daily. They are the mother of a child born with cerebral palsy, and teacher of children with disabilities and without for 23 years. The fifth author uses social media use for personal content daily and has a close relative with physical disability. They are the mother of two young children that previously received early intervention services and has a formal education in educational psychology and special education. In summary, all researchers have personal experience with disability and use social media in a professional or personal manner.

Data collection procedures

Data were collected in three phases: media data collection, preliminary evaluation, and final evaluation. The media data collection phase began the process of social media review and exclusively used the social media account Instagram. IRB approval was not required because all accounts viewed for this research were publicly available and maintained by organizations, not individual people. Researchers first identified the initial sample of Instagram accounts, using snowball sampling to identify Instagram accounts that met inclusion criteria. Inclusion criteria included the following: a post created within the last 6 weeks, posts were about disability advocacy or people with disabilities, and the social media account was run by an organization, not an individual account holder. Following the inclusion criteria, 150 accounts were identified in the initial search. From the initial list twenty percent (30 accounts) of the initial 150 accounts were randomly chosen, through the utilization of a random-number generator. These selected accounts were then separated into subgroups. During random selection, all non-U.S. Instagram accounts were excluded to winnow the focus of the research project to the United States. The subgroups identified include; disability-specific accounts (i.e.,

autism, Angelman syndrome), education accounts (i.e., school districts), employment-focused accounts (i.e., coffee shops run by people with disabilities), research lab accounts (i.e., university-based research groups that focus on people with disabilities), community based advocacy accounts (i.e., Best Buddies program), and national organization accounts (i.e., Special Olympics).

Next, researchers conducted a preliminary investigation into the 30 Instagram accounts randomly selected. The 30 Instagram accounts were analyzed in order to develop trends, patterns, and similarities, between the Instagram accounts. The patterns and the trends notated during the analysis were used to create codes. Preliminary codes were developed by the first and second author, these codes were provided to the rest of the research team who provided feedback and application of the codes. Consistency meetings were held to finalize the codes and definitions. Next, the final codes, defined in Figure 2, were used to analyze the last 6 months of all posts on the 30 randomly selected accounts. Researchers assigned a code to the account if evidence of the code was present in at least one post from the last 6 months on the account. The first and second author reviewed each code to confirm the evidence. Any disagreements were discussed until unanimous agreement was obtained. The first and second author then utilized the codes to identify similar themes seen throughout the selected analysis group. Finally, researchers chose five Instagram accounts, one from each of the five subgroups, to analyze in individual case studies. The individual case study expanded the data collection and analysis to all forms of social media that the selected organization participated in. Forms of social media analyzed in the individual case studies included Instagram, Twitter, and Facebook

profiles and all websites owned by the organization. Following analysis, the researchers looked at the themes and codes present and compared them to the organization's asserted purpose statement. The methods are summarized in Figure 1.

Results

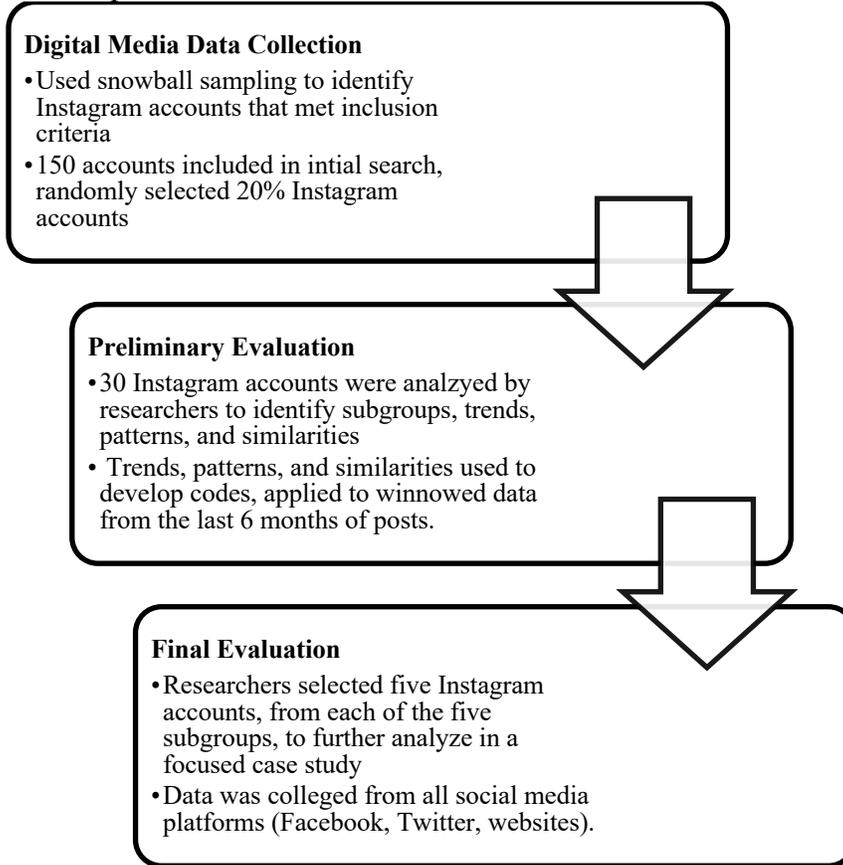
The initial findings described are focused on the windowed group of 30 accounts. Our analysis centered around four major themes and our results are reported in direct relation to those categories. Figure 2 provides the themes and codes developed in this research. Table 2 provides data collected. The majority of accounts (ninety-seven percent) demonstrated a purpose related to support for people with disabilities through posts. Seventy percent of the 30 accounts analyzed included Instagram posts related to their brand or marketing of items available for purchase. A narrow majority, sixty percent of accounts analyzed, provided posts that conveyed research or information to consumers and a minority of forty-seven percent of accounts had evidence of representing people with disabilities in posts on the account.

Research and Information

This category was divided into five areas; policy, research and tips, information aimed at families, information aimed at schools or organizations, and disseminating research. Policy represents the area in which the fewest accounts focused their efforts with only thirteen percent of the accounts making posts intended to provide information about policies impacting people with disabilities. Fifty-three percent of the accounts provided research and tips, while information for families, and for schools and other organizations was represented in posts by sixty-three and fifty-seven percent of the accounts analyzed. One-third of all the accounts focused on the dissemination of

Figure 1

Data collection procedures



research. Accounts from university labs made up the bulk of those providing research and tips, information, and focusing on the dissemination of research.

Representation

This category was divided into three areas: examples of othering, examples of inclusive practices, and lack of representation. Examples of othering were defined as accounts with activities limited to those with disabilities, occurred in twenty-six percent of accounts. Twenty-three percent of the accounts analyzed presented examples of inclusive practices (authentic opportunities to engage with the community). In twenty-three percent of the accounts no representation was found that included or centered people with disabilities.

Branding/Marketing

This category was divided into four areas: profit status, staffing, fundraising, and how they brand or market themselves. Accounts focused on their status as profit or not for profit in half of all accounts analyzed. Forty-Seven percent of the accounts included posts that featured their staff. Posts focused on fundraising were present in thirty percent of the accounts. Self-promotion and brand/marketing posts were made in one-third of accounts.

Purpose

This final category is divided into three areas: sales, education and advocacy, and awareness. Only twenty-three percent of the accounts made posts that were clearly focused on selling something. An

Figure 2. Definitions of codes developed

Key Research and information: How data about people with disabilities are presented		
1	Policy	Content revolves around policy information related to disabilities (i.e., educational policy-IDEA)
2	Research and Tips	Content revolves around research and tips for people with disabilities and those who support people with disabilities
3	Information for Families	Content is geared towards providing information for families of people with disabilities
4	Information for Schools and Others	Content is geared towards providing information for educators and others who support people with disabilities
5	Disseminating Research	Content is focused on disseminating current effective practices for people with disabilities
Representation: How people with disabilities are presented		
1	Examples of Othering	Account features activities limited to people with disabilities
2	Inclusive Practices	Account features authentic opportunities for people with and without disabilities to engage within the community
3	Not Represent	Account does not feature people with disabilities, only content about them
Branding/Marketing: Accounts provide the opportunity to purchase merchandise		
1	Profit status	Account was assessed for profit vs. not for profit status
2	Staffing	Account features staff members with or without disabilities
3	Fundraising	Account features opportunities to raise funds for organizations to support people with disabilities
4	How They Present Themselves	Account presents themselves as very obviously for profit or not for profit (i.e., links to purchase merchandise)
Account's Purpose		
1	For Retail	Account features and/or supports people with disabilities engaging in selling products
2	To Educate and Advocate	Account's focus is to educate the community about disabilities and advocate for them
3	To Increase Awareness	Account's focus increases awareness of a specific disability (i.e., Angelman Syndrome) or disabilities in general

Table 2

Data collected from preliminary investigation

Account Name	Instagram Data													Other sites				
	Research and Information					Representation			Brand and marketing				Purpose					
	1	2	3	4	5	1	2	3	1	2	3	4	1	2	3			
D1 - Angelman asf																		
D2 - Autism grown up																		
D3 - Autisnmusic																		
D4 - Autismspeaks																		
D5 - Autismsocietyflorida																		
D6- DSA South GA																		
D7 - Moebius syndrome foundation																		
D8 - United spinal philly																		
S1 - Acsd5 specialeducation																		
S2 - NJ Coalition for Inclusive Ed																		
E1 - Bitty and Beau Coffee																		
E2 - Nolimitscafe																		
E3 - Turning point program																		
R1 - Classlab fsu																		
R2 - Bartonlab																		
R3 - GCALAB																		
R4 - Hemmeter lab																		
R5 - Vanderbiltkidtalk																		
C1 - Abilitiesfirstsgf																		
C2 - Bestbuddies																		
C3 - Childmindinstitute																		
C4 - Diversability																		
C5 - Dopeblackdisabled																		
C6 - Lifes worc																		
C7 - Tnrighs																		
N1 - Cecfloridastate																		
N2 - Cec headquarters																		
N3 - Special Olympic																		
N4 - Special Olympics Nebraska																		
N5 - Tashorg																		

Key – D: Disability specific, S: Education, E: Employment, R: Research, C: Community supported, N: National organization

Table 3. *Percent of Instagram accounts with codes present*

Quality evaluated	%	Quality evaluated	%
Theme: Research and information	60%	Theme: Branding/Marketing	70%
Code: Policy	13%	Code: Not for profit	50%
Code: Research & tips	53%	Code: Staffing	46%
Code: Information for families	67%	Code: Fundraising	30%
Code: Information for schools/others	60%	Code: Presentation of disabilities	33%
Code: Disseminating research	33%	Theme: Purpose	97%
Theme: Representation	47%	Code: Selling a thing	23%
Code: Examples of othering	26%	Code: Educate & advocate	97%
Code: Examples of inclusive practices	23%	Code: Awareness	87%
Code: Not represented	23%		

overwhelming majority, ninety-seven percent of accounts focused on education and advocacy for issues related to people with disabilities. And secondary, these accounts' posts centered around bringing awareness of people with disabilities and issues pertaining to that population with over eighty-seven percent of those accounts engaging in posts with the purpose of awareness. Table 3 displays this data.

Case Study Findings

After completing analyses of 30 selected Instagram accounts the first and second author randomly selected one account from each of the five categories (Disability specific, Education, Employment, Research, Community supported, and National organization) to complete a comprehensive case study using Instagram posts, Facebook posts, Twitter messages and websites. A

random number generator was used to identify which of the qualifying accounts would be analyzed.

Disability specific - Autism Speaks

Autism Speaks is a large national organization that maintains an Instagram, Twitter, Facebook, Spotify, YouTube, SoundCloud, LinkedIn, Pinterest, Amazon Store front, Apple Podcast, and website. The organization uses social media similarly across platforms. People with autism and other disabilities can submit a picture and a story in their own words. Many of the posts are shared by family members (i.e., parents, siblings, grandparents); however, there are also many posts written by people with disabilities. Autism Speaks shares authentic stories that include struggles with school, food aversion and limitations in communication. The majority of personal

stories also include general messages of overcoming adversity and inspirational messages. This account is noteworthy because they post authentic life stories including statements that are not interpreted as happy or positive. Fundraising efforts that are highlighted on social the media accounts re-directed to the Autism Speaks website. The website features resources for people with autism, parents, and educators.

Education - NJ coalition

The New Jersey Coalition of Inclusive Education is an organization that advocates for inclusive education for all students with disabilities. The organization provides consultation and professional development for school districts and teachers and support and trainings to parents. and found that they lived up to the mission statement of the organization but did not showcase testimonials or stories from people with disabilities. Researchers analyzed the website, Twitter, Facebook, and Instagram and found that within the last 60 days, no testimonials from people with intellectual disabilities or learning disabilities were showcased. However, the social media accounts did provide resources and learning tools for families and schools with people that have disabilities. The website describes that they do not provide direct support for students with intellectual and learning disabilities but rather they provide training and support to the school districts.

Employment - No Limits Cafe

No Limits Café is a restaurant that hires people with intellectual disabilities and pays all employees' at least minimum wage. This is noteworthy because the Fair Labor Act includes provisions to pay people with disabilities sub minim wage rates for work (U.S. Department of Labor, 2008). An analysis of No Limits Cafe revealed that while No Limits Cafe served and fulfilled its

mission statement regarding providing employment opportunities to people with disabilities, true advocacy on behalf of those with disabilities was limited. An analysis of No Limits Cafe's Website only revealed one instance of a testimonial from someone with a disability. Notably, the only time the testimonial occurred, was to accrue money and fundraise for the cafe itself. However, when Facebook and Twitter were analyzed, inclusive practices were evident, primarily seen through a recent post about one of the employees getting married.

Research - Vanderbiltkidtalk

Vanderbiltkidtalk represents the Vanderbilt Kid Talk research lab. They maintain a website, Facebook, and Instagram account. Vanderbilt Kid Talk reports that they study language growth in young children with disabilities through KidTalk procedures that support new vocabulary, longer sentences, and positive relationships with caregivers and peers (<https://kidtalk.vkcsites.org/>). Posts associated with these accounts primarily feature research accomplishments and opportunities to participate in research. In review of the Instagram account there are no posted suggestions for parents or caregivers, however, the website does include a resource page for parents in Spanish and English. The accounts associated with Vanderbilt Kid Talk do not depict or share stories from people with disabilities, although the goal of the research lab is to study children with disabilities.

Community-supported - Child Mind

The Child Mind Institute states they focus on transforming the lives of children with mental health and learning disorders. Researcher examined Instagram accounts and found no posts that mentioned those with learning disabilities. Contrary to the Instagram account, when the researcher analyzed the Child Mind Institute Website,

the researcher found and examined testimonials of people with learning and intellectual disabilities. Furthermore, when the researcher examined the Facebook account, treatments and articles about autism and other learning and intellectual disabilities were included. However, similarly to Instagram, Twitter did not contain posts in the last 60 days about people with intellectual or learning disabilities. All four accounts promote awareness and skill development for coping with mental health issues for adolescents.

National Organization - CEC Headquarters

The Council for Exceptional Children is the primary professional organization for teachers of students with disabilities and who are gifted. As a large professional organization, they maintain a Facebook, Instagram, LinkedIn, Twitter, YouTube, and website. Their social media presence primarily promotes products, trainings, and members of their organization. In addition, the social media accounts provide updates about current events including conferences and political updates related to special education laws and funding. Personal stories of educators are featured, but the voice of people with disabilities was not evident in their accounts during this research.

Discussion

This research used content analysis of social media sites that support and advocate for individuals with disabilities. The primary question researchers sought to answer was how people with disabilities are portrayed on accounts that purposefully support people with disabilities. Researchers found that the accounts examined did feature research, support, training, and resources that may assist caregivers and educators but had limited content created by or reflecting individuals with disabilities. The only account examined that included profiles of

individuals with disabilities in their own words or the words of their caregivers was Autism Speaks. As a result, people with disabilities on social media are portrayed in these organizational accounts as vague groups and not with a focus on the individual.

The purpose of the Instagram accounts we analyzed were varied, as demonstrated by the five main areas they represented (i.e., education, disability specific, etc.); however, all but one account included a purpose that was aligned to supporting people with disabilities. The lack of representation from people with disabilities is an area of concern and more research should be completed. Primarily, the information conveyed was related to suggestions for support in many domains of life including education and employment. This information can benefit people engaged in the disability community, however based on the analysis completed by this research team, the content was primarily created about people with disabilities by people who did not identify as a member of the disability group they are advocating for.

The value of developing more inclusive settings is well documented (e.g., Hendricks, 2017; Kurth et al., 2018) and social media is an accessible area for people with disabilities to engage with peers and people who do not have disabilities. In this content analysis researchers found limited evidence of engagement from people with disabilities on accounts that are designed to support people with disabilities. This aligns with Williamson et al.'s (2019) finding that people with disabilities did not participate equitably in the 25th anniversary of ADA on when they analyzed Twitter responses about the event.

A secondary question researchers addressed was the main purpose of the Instagram account that shares information about people with disabilities. Information produced

through the accounts the research team examined could be considered beneficial. There were many examples of networking opportunities and suggestions to support caregivers. For example, the Instagram account, Angelman_asf included links to resources for families with a recent diagnosis, books for siblings, registration for an annual family conference, information about medical research opportunities, and pamphlets about undergoing general anesthesia for individuals with Angelman Syndrome, a complex genetic disorder that results in intellectual disability. Newton and Williams (2021) discussed the use of hashtags (e.g., #Teachergram) as a network and component of collaborative professional development. Through this research, it is evidence that one outcome of social media focused on people with disabilities is opportunities to connect and learn from other members of the disability community.

The researchers addressed a final secondary question regarding what information about people with disabilities in conveyed through social media platforms. In consideration for the themes and categories identified in this content analysis, an overwhelming majority of accounts focused on education and advocacy for issues related to people with disabilities and bringing awareness of issues pertaining to that population. This is important and valid use of platforms. Some accounts included periods that featured voices of people with disabilities. For example, GCALab, a research group based at a university included interviews and messages from people with autism during a specific month of the year. However, with the exception of the accounts maintained by AutismSpeaks, the posts did not frequently

include content created by people with disabilities. This difference, content created about people with disabilities not by people with disabilities should be an area of concern for disability advocates.

Limitations

A limitation in this content analysis was the data collection of applied codes. Each researcher applied codes based on their review of the social media account, codes were included if data was present in one post or several. Upon reflection and analysis, it would be beneficial to include the number of times each code was included in the data collection phase. Consensus IOA was used to determine the final code for any disagreements, the analysis would be stronger if data from the number of disagreements had been maintained.

Implications

The next step in this line of research is to conduct a deeper analysis of a sample of the accounts. A qualitative interview and survey could be used to gather more information about the process used to determine what accounts post and the people responsible for the creation of content on each account.

Conclusion

Overall, this research demonstrated that social media can be used to convey information about living with a disability; however, including the voice of people with disabilities occurs infrequently. To increase the authentic inclusion of people with disabilities, social media accounts that define their purpose as supporting people with disabilities should include more voices from people who identify as disabled.

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Correspondence concerning this article should be addressed to M. Addie McConomy, Florida State University, 1114 W Call St, Tallahassee, FL 32306. Email: mmcconomy@fsu.edu

How to Implement Evidence-Based Literacy Practices with Students with Intellectual and Developmental Disabilities: Examples from a Text-Centered Literacy Intervention

Jill Allor
Southern Methodist University

Charlotte Gregor
Southern Methodist University

Stephanie Al Otaiba
Southern Methodist University

Abstract: The purpose of this article is to describe recommendations for providing evidence-based literacy instruction to students with intellectual and developmental disabilities (IDD), including students with comorbid autism spectrum disorder (autism). We identify six evidence-based practices, highlight key research that supports each practice, and then illustrate how to implement these practices in the classroom. We describe and provide examples from Friends on the Block (FOTB; Allor et al., 2022), a comprehensive literacy intervention designed to apply evidence-based practices in innovative ways to better meet the needs of students with IDD and autism. This program includes the supports and intensive practices teachers need to promote literacy development for students with IDD and autism. We conclude by providing and describing several recommended resources for teaching foundational reading skills to students with extensive support needs.

Literacy is important in improving opportunities and outcomes for students with intellectual and developmental disabilities (IDD; Browder & Spooner, 2014; Cihak & Smith, 2018; Conners, 2003), yet students with IDD typically demonstrate much lower levels of reading achievement than students with other disabilities (Caffrey & Fuchs, 2007; Wei et al., 2011). Research about reading development and instruction for struggling readers is extensive and very encouraging as it demonstrates that reading problems can be prevented or at least greatly reduced with evidence-based literacy intervention. However, much of this research on the *science of reading* has focused on students at risk for reading disabilities and has often excluded students with IDD or students with autism (e.g., Cihak & Smith, 2018; Conners, 2003; Connor et al., 2014; Foorman et al., 2016; National Institute of

Health and Human Development, 2000; Polloway et al., 2010). In recent years, the body of evidence informing best literacy practices for students with IDD and autism has grown, resulting in raised expectations and clearer recommendations for literacy instruction; in short, relatively recent research is demonstrating that students with IDD and autism also benefit from evidence-based literacy practices that are consistent with what is now being termed the “science of reading” and “structured literacy” (e.g., Afacan et al., 2018; Allor et al., 2014; Allor et al., 2018; Allor et al., 2020; Browder et al., 2008, 2012; Conner et al., 2014, 2022; Henry et al., 2022; Lemons et al., 2012, 2015, 2017). These researchers are also examining innovative ways to tailor instruction for students with IDD. The *Friends on the Block* literacy program (FOTB; Allor et al., 2022) is one program that weaves together

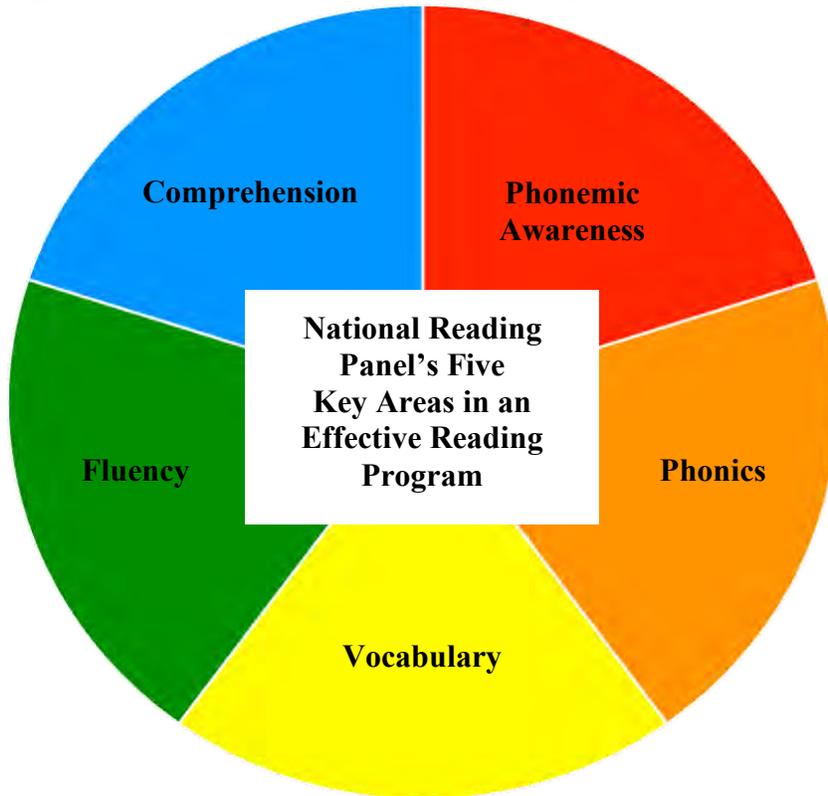
evidence-based practices (EBPs) with innovations specifically designed to provide increased accessibility to foundational literacy skills, including accessibility for students with intensive needs, such as those with IDD or comorbid IDD and autism. According to the Centers for Disease Control and Prevention (CDC), approximately 33% of students with autism are comorbidly affected with IDD (CDC, 2014, 2020). In this article, we describe EBPs and use FOTB techniques as examples of how to provide EBPs to students with IDD and autism. We will also provide some information on FOTB (details, including some free downloadable materials and eBooks, available at <https://www.friendsontheblock.com>).

An EBP is a teaching practice supported by rigorous academic research (The IRIS Center, 2014). Organizations such as the What Works Clearinghouse (WWC) provide educators with summaries about practices, the strength of the research findings that support them, and ratings on their effectiveness (U.S. Department of Education). Throughout this article, we will refer to two seminal resources that describe evidence based literacy practices, both written by panels of experts: the report from the National Reading Panel (NRP; National Institute of Health and Human Development, 2000) and the WWC Practice Guide on *Foundational Skills to Support Reading for Understanding in Kindergarten Through 3rd Grade* (Foorman et al., 2016). The NRP report describes evidence supporting literacy instruction in five key areas: phonemic awareness, phonics, fluency, vocabulary, and comprehension (see Figure 1). The WWC practice guide summarizes key research and describes in detail four recommendations that focus on academic language, phonemic awareness, phonics, and connected text. The WWC also cautions when there is not yet enough strong research evidence about a

practice to conclude that it is effective or to conclude that it is not effective.

In this article, we describe recommendations for providing evidence-based literacy instruction to students with IDD, including students with autism. We identify six EBPs, highlight key research that supports each practice, and illustrate how to implement these practices with students with IDD. We will also describe and provide examples from FOTB (*Friends on the Block*; Allor et al., 2022), a comprehensive literacy intervention designed to apply EBPs in innovative ways to better meet the needs of students with IDD and include the supports and intensive practice necessary for students with IDD and autism. FOTB innovations provide teachers with tools to address specific needs, including oral language development, early connections between word recognition and meaning, extensive cumulative review of both decodable and irregular high-frequency words in meaningful text and highly engaging learning games. Some of these innovations will be described in more detail in this article as we explain how to implement EBP with examples from FOTB. FOTB was developed and is being researched with the support of federal research grants (H324K040011, R324A130102, & R324A200151). We have conducted a series of single-case design (SCD) research studies that provided strong support for a statistically significant functional relation between the intervention and word recognition (Allor et al., 2013; Allor et al., 2018; Allor et al., 2020). Descriptive measures also illustrated student growth on a variety of academic skills and teachers reported increases in student engagement and comprehension (Allor et al., 2018). A randomized control trial is currently underway that will examine a broader range of literacy and language outcomes with a larger sample of students with intensive needs.

Figure 1. National Reading Panel’s Five Key Areas in an Effective Reading Program



Implementing Evidence-Based Practices (EBPs) with Students with Intensive Needs

Dialogic Reading. We begin with the EBP of Dialogic Reading, which promotes learning in two areas identified by the NRP, vocabulary and comprehension, and falls within the first recommendation from the WWC practice guide, *Teach students academic language skills, including the use of inferential and narrative language, and vocabulary knowledge.* During Dialogic Reading the student becomes a storyteller and the adult acts as an active listener. The adult asks questions of the student, provides additional information, and prompts the student to increase the sophistication of their story telling based on the content of the picture book being read to the student (Lonigan & Whitehurst, 1998). This practice supports the development of vocabulary, oral language and comprehension. Evidence from

a randomized control trial in which preschoolers with low language were exposed to the practice of dialogic (i.e., interactive) book reading, inclusion in the treatment condition led to significant gains in both the expressive and receptive vocabulary abilities of the participants (Lonigan & Whitehurst, 1998; Wasik & Bond, 2001). These and other studies support positive effects for language development in young children in a variety of settings (U.S. Department of Education, 2007). Similarly, shared book reading practices have been found to promote listening comprehension and language development for students with autism by targeting instruction in vocabulary, connection and observation making, along with a variety of other skills (Henry & Solari, 2020; Lindgren et al., 2009; Ricketts, 2011; Whalon, 2018; Whalon et al., 2015, 2016).

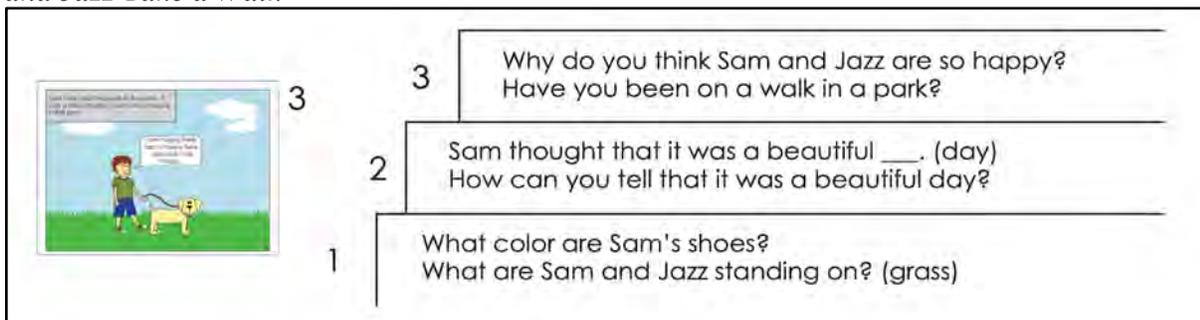
Implementing Dialogic Reading with students with IDD and autism is one way to support growth in vocabulary and language. One component of this practice is to ask a variety of levels of questions to engage students in conversations about a book being read to them, ranging from basic questions to open-ended questions to higher level questions or questions that relate to student experiences. In FOTB, text read to the student is combined with text read by the student, making stories more meaningful and providing students with opportunities to develop vocabulary and listening comprehension. We have incorporated Dialogic Reading into the FOTB book reading activities. As can be seen in Figure 2, the text in the gray background (referred to as

helper text) is read to the student and the student reads the text in the white background. Examples of levels of questions are in Figure 3. Teachers use these questions as a menu, selecting questions that are appropriate for the students. Teachers model expanded language and engage the student in discussion. For example, if the teacher asked, “How can you tell that it was a beautiful day?” and the student responded, “blue sky.” The teacher could expand upon the student’s response, “Yes, the sky is blue and it is not raining.” For more guidance on how to implement Dialogic Reading, see Flynn (2011). For other recommendations about developing language, see the WWC practice guide (Foorman et al., 2016).

Figure 2. Sample Pages from Level 4 FOTB Text, *Sam and Jazz Take a Walk*



Figure 3. Sample Comprehension Questions from Teacher Guide for Level 4 FOTB Text, *Sam and Jazz Take a Walk*



Phoneme Blending and Segmentation

The next EBP is explicitly teaching phoneme blending and segmentation. These skills are in the area of phonemic awareness identified by the NRP and part of Recommendation Two from the WWC practice guide, *Develop awareness of the segments of sounds in speech and how they link to letters*. Explicitly teaching phoneme blending and segmentation are EBPs involving manipulation of the smallest units of sound in our language, the phoneme. When applied to print, phoneme blending is the process of systematically combining sounds from right to left to read a word (Foorman et al., 2016). Phoneme segmentation is the process of breaking down the sounds in a spoken word, which ultimately enables the student to spell the word. Explicit, systematic instruction of phoneme blending and segmentation leads to significant gains in overall reading achievement (Hagans & Good, 2013). In a randomized control trial with first graders from low socioeconomic backgrounds, this instruction was found to help close the socioeconomic gap in early reading performance (Hagans & Good, 2013). In elementary-aged students with borderline to moderate intellectual and developmental disabilities (IQs 40-80), systematic and explicit instruction of phonemic awareness strategies has been shown to lead to significant gains in sound segmentation ability within the context of a multicomponent curriculum (Allor et al., 2014). Direct, daily instruction also leads to significant growth in phoneme blending in primary students with Down syndrome (Burgoyne et al., 2012). Recent research has also demonstrated that the practice of stretching continuous sounds (e.g., /mmm/ is a *continuous* sound, whereas /t/ is a *stop* sound) supports blending and segmenting (Gonzalez-Frey & Ehri, 2021)

Several techniques are important when teaching students to blend and segment

phonemes. One consideration is sequencing instruction from simple to complex. Teachers should begin with isolating initial sounds in spoken words, providing examples and practice with words that begin with continuous consonants, that is, consonants that can be stretched without distorting or adding to the sound (e.g., *sun*, *mom*, and *fish* all begin with consonant sounds that are continuous). Teachers should have students practice saying the first sounds in given words (e.g., What's the first sound in *sun*? Response: /sss/) and blending the first sound with the rest of the word, or the rime (e.g., Listen. /sss/ un. What word? Response: *sun*). As students' skills develop, teachers should move to the more difficult tasks of saying all the sounds in a simple word (e.g., Tell me the sounds in *sun*. Response: /sss/ /uuu/ /nnn/) and blending three phonemes into a word (e.g., Listen. /sss/ /uuu/ /nnn/. What word? Response: *sun*). Teachers should also be careful to pronounce isolated sounds the same way they are pronounced in words, stretch sounds that can be stretched (i.e., *f*, *l*, *m*, *n*, *r*, *s*, *v*, *z*), and keep stop sounds short (/t/ instead of /tuh/). Pronouncing sounds in isolation can be difficult and requires practice (for an excellent video about this, see <https://www.youtube.com/watch?v=b78icf-bb7Q>). Blending and segmenting are best learned through modeling and frequent practice with feedback. In the early levels of FOTB, brief, routine practice of these skills are conducted daily and fun, engaging games that provide intensive practice are also provided, such as the Bingo game in Figure 4. As we will discuss below, phoneme blending and segmenting should also be practiced with print as students learn to connect sounds to print. In our research, we have observed that most students with IDD require intensive practice with blending and segmenting and some do not master these skills until print (i.e., written letters) is added. This is just one reason why it is important to

teach letter-sound relationships alongside phoneme blending and segmenting. We also do not recommend spending instructional time on phonological sensitivity (i.e., phonological awareness of rhymes, onsets and syllables) with students who are struggling, particularly those with IDD as research does not support this type of instruction after pre-k and we have observed in our research many students with IDD become highly skilled in blending and segmenting, sounding out and spelling words well, while never having mastered some of the phonological sensitivity tasks, such as rhyming (see Brady, 2020, for discussion).

Letter-Sound Relationships

The next EBP is explicitly teaching letter-sound relationships, including individual letter sounds and the sounds of common letter patterns. These skills are in the area of phonics identified by the NRP and are another part of Recommendation Two from the WWC practice guide, *Develop awareness of the segments of sounds in speech and how they link to letters*. Teaching letter-sound

relationships, along with phonemic awareness, is an essential step in preparing students to decode. At this early stage in literacy development, it is essential that students learn how letters represent the individual speech sounds in written words, a concept called the alphabetic principle (Foorman et al., 2016). Understanding of the alphabetic principle and one to one letter sound correspondence is an important first step to decoding words well. Once students have mastered the ability to decode using simple one sound to one letter correspondences, they then begin learning more complex letter-sound patterns. The method of teaching students to sound out words using knowledge of correspondences between letters and groups of letters and the sounds they make in an alphabetic language (such as English) is called phonics. Evidence from a meta-analysis of studies including students with IDD shows these students benefit from phonics instruction and learn to use phonics strategies while reading (Joseph & Seery, 2004). Furthermore, systematic and explicit instruction of letters, sounds, and

Figure 4. *FOTB Level 1 Game, Sounds Bingo*

Objectives:

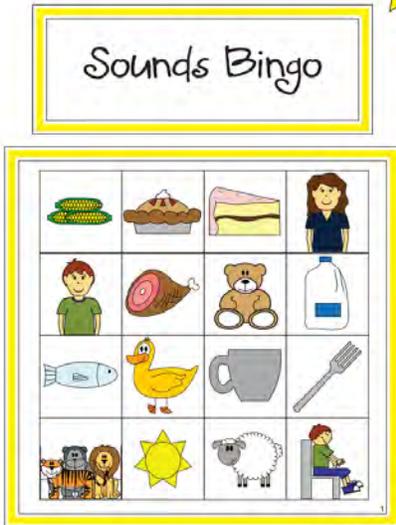
Blending - Orally blend sounds (phonemes) into words

- Teacher says each sound in the word (holding continuous sounds and saying stop sounds quickly).
- Student thinks of the word and says it aloud.
- Student finds the matching picture on the board and covers it with a bingo marker.

OR

Segmenting - Say the sounds (phonemes) in spoken words.

- Teacher chooses a word from the list and says the word.
- Student says each sound in the word.
- Student finds the matching picture on the board and covers it with a bingo marker.



© Friends on the Block

phonics strategies to elementary-aged students with borderline to moderate IDD (IQs 40-80) leads to significant gains in their phonics ability within the context of a multicomponent curriculum (Allor et al., 2014).

In our research with students with IDD, we have observed a relative strength in learning the important skill of letter sounds. As recommended by the WWC practice guide, the scope and sequence of FOTB teaches students the most common sounds for individual letters a few at a time, including the short vowel sounds for the letters *a* as in *apple*, *e* as in *Ed the elephant*, *i* as in *icky*, *o* as in *octopus*, and *u* as in *umbrella* (see <https://www.youtube.com/watch?v=b78icf-bB7Q>). In order to help students with blending, it is important to have them acquire the habit of stretching sounds that can be stretched; therefore, teachers should model this when practicing letter sounds and encourage students to always stretch continuous sounds 2-3 seconds and keep stop sounds short. In FOTB, letter sounds are

practiced in brief, warm-up routines in every lesson and engaging games are provided for additional, more intensive practice and cumulative review (see Figure 5).

Blending Letter Sounds into Words

As students learn letter sounds, they should begin to blend those letter sounds into words. This skill is also part of the area of phonics (see Figure 1) and the final part of Recommendation Two from the WWC practice guide, *Develop awareness of the segments of sounds in speech and how they link to letters*. “Sounding out a word is a type of blending that involves saying the sound of each letter or letter combination one by one until the end of the word, and then saying them all together again quickly” (Foorman et al., 2016, p. 42). This EBP is the process by which students apply their knowledge of phonics to read words. Systematic and explicit instruction of sounding out strategies to elementary-aged students with borderline to moderate IDD (IQs 40-80) leads to significant gains in word attack ability with both real and nonsense words (Allor et al.,

Figure 5. FOTB Level 1 Game, Climb and Slide

<p>Objective: Fluently say the most common sound for taught letters</p> <p>Materials: <i>Climb and Slide</i> gameboard, die (1-2-3), pawns</p> <p>Teacher: You will take turns going up the path on the board. When it's your turn, roll the die and move that number of spaces. Say the sound of the letter on the spot that you land on. If you land on a ladder, you must climb the ladder to its top space, but if you land on a slide, you must slide down to the space at its bottom.</p> <p>Students take turns. Follow the steps with each turn.</p> <ol style="list-style-type: none"> 1. Choose a pawn for each player and place it on the start space. 2. Take turns rolling the die and moving the number of spaces shown on the die. 3. Say the sound of the letter written in the space you land on. 4. If your pawn lands on a picture circle that has a ladder, then you must climb up the ladder to the related space. If your pawn lands at the top of a slide, then you must slide down to the related space. 5. Play continues until one person reaches the finish space. <p>Corrective Feedback & Scaffolding If students make an error, follow the <i>I, We, You</i> feedback procedure. I: Listen. Say the letter sound for the students. We: Say it with me. Students say the letter sound with you. You: Your turn. Students say the letter sound independently.</p>	<p>The gameboard is a green rectangular board with a path of letter circles. The path starts at a 'Start' space with the letters c, t, m, s, p, f. It then goes up through several rows of letter circles. There are ladders and slides connecting different levels of the path. The path ends at a 'Finish' space with the letters f, s, p, c, m, p. A yellow star is in the top right corner.</p>
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2014). Word attack refers to the ways in which students flexibly apply phonics skills and other techniques they have learned to systematically decode words that are not yet familiar to them by sight.

Students with IDD require intensive practice to become proficient at blending letter sounds into words, moving from simple to more complex words. The modeling described in the previous two practices continues, with teachers stretching continuous sounds and modeling how to connect sounds. Given the printed word, *sun*, the teacher points to each sound as it is pronounced, /sss/ /uuu/ /nnn/, and then says the whole word, *sun* (note that all three sounds in *sun* should be stretched). The students repeat this with the teacher and then on their own. To make this more concrete, it is common to use sound boxes, as is described in the WWC practice guide. One way we have applied this with students with IDD is through the game, I Got It (see Figure 6) in which students draw letter cards, say the sounds, and cover the associated letter in the sound box. When all letters are covered, they sound out the word and then read the sentence

with the word. In FOTB, these sentences relate to the books being read to assist students with connecting individual words to their meanings. When a word is familiar to a student, the word is easier for them to sound out. As with phoneme blending and segmenting, words that begin with continuous sounds are easier to sound out. The top of Figure 7 provides a list of letter sounds and common words made up of those sounds. These are particularly important for students to practice because these words are not only decodable, but they are high-frequency words students will see frequently in many stories.

High-Frequency Irregular Words

Some words are challenging to decode using only the knowledge of typical sound-spelling patterns, particularly in the earliest stages of reading. These words are referred to as irregular words because the known sounds of the letters that make up the word do not add up to the correct pronunciation (e.g., the word *was*); they have exceptions that make them difficult to decode (Foorman et al., 2016).

Figure 6.
FOTB Level 4 Game, I Got It

Objective: *Sound out and read short vowel words with taught letter-sounds/patterns*

- » The student picks up a card and says the sound, stretching continuous sounds for 2 - 3 seconds, and saying stop sounds quickly.
- » If the student has that letter on their sentence card, they put a bingo marker on the corresponding letter.
- » When all of the letters on the student's page have been covered, the student sounds out and reads the word before reading the sentence.

m

a

d



I am not

m

a

d

Figure 7. FOTB Target Word List and Phonics Patterns

Friends on the Block Target Word List and Phonics Patterns														
Letter Sounds	★ Preparing to Decode			🔵 Early Decoding		🟢 Short Vowels			🔴 Vowel Patterns					
	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10	Level 11	Level 12	Level 13	Level 14
	c, f, p, m, s, t	d, j, n	b, g, h, l, r	ck, k, a, z	u	ch, th, w, x, y	i, o, sh, qu, v	e	a-e, i-e, o-e	ai, ay, ol	al, ea, ee	ar, igh, er	oa, or, ow	ir, oo, ur
Sound It Out Words (Decodable)	In Levels 1-3 students are learning phonemic awareness blending and segmenting, letter-sounds, and a small number of irregular words. Students begin in the level in which they miss two or more target words (Levels 1-5) or four or more target words (Levels 6-14). As soon as the students learn most of the words in the starting level, move to the next level. (Note: Sound It Out words in Levels 4-5 are repeated in level 6.)			am and at can dad mad sad	am and at can dad mad sad	am and at can dad fun had hat mad ran run sad sun up us	big did got him if in it mom not on sit stop this will with	bed best end get help let next red step tell them then went when yes	came fine five gave home hope like made make nine same side smile time white	cold hold may old plain play rain roll say stay tail told wait way	all call clean each eat feel green neat need read see seem small tall wall	after better chapter different hard high light might never night number part right start together	before below door follow forget goal know more morning own road short show slow yellow	bird book burn cook girl good hook hurt shirt stood third took turn wood
Read It Words (Irregular)	a do I like not want	dad here is look mom see the where	are at happy in no she yes you	good help play there to was	big have little my please very what	be friend give go he her it me on so thank we who with your	because care come could feel first of how next said should take too why would	again away came clothes cold eat food for from need oh other put ready some	about animal been day does down every many one or other push snow their warm were	any ball both boy done family girl more most new room saw sure thought word young	another answer kind know our people question really right second soon sure these two work	almost book bought break buy easy four learn money new probably review these two watch	above alone by eight find house idea often special talk through usually walk water worry	able along carry color full great heard instead live love move only over try world
	Note: Words in blue are made up of patterns taught in later levels so they are temporarily irregular. They are introduced prior to the pattern to facilitate meaning and may facilitate learning of the phonics pattern.													
														
	© 2022 Jill H. Allor, Jennifer P. Cheatham, and Stephanie Al Otaiba													

Many of these irregular words are also high frequency, meaning that they appear often in a variety of texts and they may also represent parts of longer multisyllabic words (Foorman et al., 2016). Learning high-frequency irregular words and word parts is part of recommendation three of the WWC practice guide, “Teach students to decode words, analyze word parts, and write and recognize words,” specifically part five of this recommendation, “Teach regular and irregular high-frequency words so that students can recognize them efficiently.” It is efficient to directly teach a bank of these words to students so that they can be recognized by sight and to support a strategy of flexible decoding when typical sound spelling patterns may not work. Decades of research supports that sight (i.e., irregular)

word instruction is highly effective for individuals with a variety of disabilities (Browder & Xin, 1998, meta-analysis of 48 studies, participants included individuals with IDD, learning disabilities (LD), emotional disturbance (ED), and autism).

Although students learn irregular words more quickly once they have strong phonics skills, teaching at least a few irregular words while students are learning letter sounds and phonemic awareness is necessary for students to begin reading those words in meaningful sentences. These early words can be taught using a basic echo procedure with a small set of words (see detailed recommendations in the WWC practice guide). Although initial practice requires an echo procedure, the teacher needs to withdraw the echo as soon as

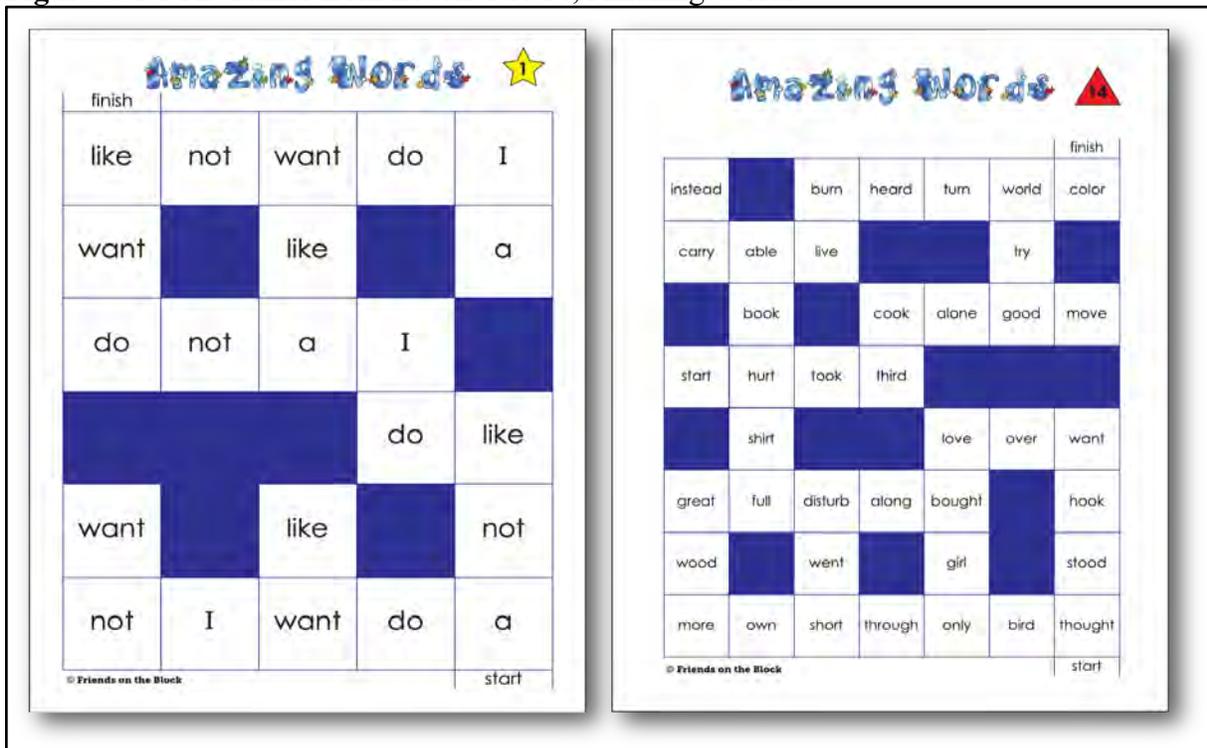
the student is successful without it. Immediate corrective feedback should always be provided quickly (i.e., within 2-4 seconds), and should follow an I (model), We (read it together), You (read it by yourself) procedure. Words are chosen that can be combined to form simple sentences, often with a picture included. For example, the first words taught in FOTB are *a, do, I, like, not,* and *want*, so students can begin building simple sentences with a few pictures added (e.g., *I like pizza [picture of a slice of pizza]*). Students are shown a simple sentence and then they build that sentence with word cards. Instruction is initially highly scaffolded and supported by the teacher. The FOTB sequence (see Figure 7) supports spoken language as it includes words that are common in early spoken language and in written language, enabling practice of these words in sentences and simple stories. Words

can also be practiced with simple games (see Figure 8).

Daily Reading of Connected Text

The final EBP includes fluency and comprehension (see Figure 1) and is the fourth recommendation of the WWC practice guide, *Ensure that each student reads connected text every day to support reading accuracy, fluency, and comprehension.* Implementation of reading programs that include frequent engagement with connected text have been shown to lead to significant gains on measures of word reading, oral reading fluency, and reading comprehension in typically developing early learners (Begeny et al., 2010). Furthermore, daily use of connected text within the context of a multicomponent curriculum has been shown to lead to significant gains on a variety of measures of language and literacy for elementary-aged students with borderline to

Figure 8. FOTB Games from Levels 1 & 14, Amazing Words



moderate IDD (IQs 40-80); (Allor et al., 2014). The repeated exposure and opportunities for practice within a text-based contextual format provides students with authentic opportunities to strengthen their language comprehension and word recognition skills, facilitating the transfer and integration of skills and reinforcing the purpose of reading and why the process of learning to read is important.

Reading connected text every day is particularly important to students with IDD who demonstrate extreme challenges transferring skills from one context to another (Connors et al. 2006). Although a complete description of the series of books written for FOTB is outside of the scope of this article, we will highlight a few features and techniques that we have used in our research to support reading connected text in the earliest stages of learning to read. We have already mentioned teaching some high-frequency irregular words that can be combined into sentences. Another technique is to use what we have referred to as *helper text* that is read by a teacher or helper. An example of this can be seen in the gray boxes in Figures 2 and 9. You will notice the helper text provides more context and meaning to the story. The teacher or helper reads the gray helper text and the student only reads the text

with the white background. This method combines listening and reading comprehension and enables students to read more meaningful stories before they know how to read very many words. Helper text like this can be added to any decodable reader to provide more context and meaning to the story, facilitating listening comprehension. Alternatively, sticky notes with student text can be added to any book that is read to the student. The teacher reads as usual, and the student only reads the sentences on the sticky note that are made up of words the student is ready to practice. Another feature is the use of pictures underneath words the student is not yet ready to practice. In Figure 2, you see a picture underneath the word *scared* because the structure of this word is too complex for the student to read independently at this stage and the word is needed for the story as it is a story about a girl who is scared of dogs. Similarly, in Figure 9 the word *drink* has a picture beneath it as this pattern has not been taught yet in the program. Figure 10 also provides some guidance for a simple book reading routine that we have used in our research. It includes making predictions, reading, and discussing text. More detailed explanations of this routine are available at <https://www.friendsontheblock.com/resources> and explanations of other routines are available in the WWC practice guide.

Figure 9. Sample Pages from Level 4 FOTB Text, Mom Gets Sick



Figure 10. Guidance for Book Reading

Objectives	Read and Discuss Routine
Make oral predictions about text.	Briefly preview vocabulary and encourage the student to make predictions about the book. Model, as needed.
Read text made up of taught irregular words and decodable words.	Teacher reads helper text and student reads student text. Teacher corrects word recognition errors quickly using the I, We, You routine.
Discuss text and vocabulary words when prompted by the teacher	Stop periodically to prompt student to discuss the book, modeling expanded responses, and encouraging the student to repeat the teacher’s model.

Conclusion

The purpose of this article was to describe and show how to implement recommendations for providing evidence-based literacy instruction to students with IDD, including students with autism. We focused on six evidence-based practices (EBPs), highlighted key research that supports each practice, and then illustrated how to implement these practices in the classroom. We used examples from *Friends on the Block* (FOTB; Allor et al., 2022), a comprehensive literacy intervention, designed with federal research funding, to apply EBPs in innovative ways specifically to better meet the needs of students with IDD and autism. The program includes the supports and intensive practice teachers need to promote literacy development for students with IDD and autism. For more information on how to support students as they learn to read, visit <https://www.friendsontheblock.com/resources> for sample lessons and materials, <https://www.friendsontheblock.com/blog> for practical tips for implementing EBP with students with a variety of needs, https://ies.ed.gov/ncee/wwc/Docs/PracticeGuide/wwc_foundationalreading_040717.pdf for more information on how to implement evidence-based recommendations, [https://ufl.edu/education.ufl.edu/resources/](https://ufl.edu/education/ufl.edu/resources/) for a

wide range of resources, and see Flynn (2011) for further details about how to implement Dialogic Reading.

We mentioned earlier we are currently conducting a large-scale experiment to understand the impact of FOTB on a broader array of language and reading comprehension measures. Although our program is consistent with the evidence about what works to improve these domains, we cannot yet report the specific effect or how long it will take students with IDD and autism to read with comprehension. We are learning more about individual differences in how students respond to programs and there is not yet clear evidence for how much growth or response should be expected. For example, is it reasonable for all students with IDD and autism to read at a second grade level after participating in the program? One avenue for future work is to conduct experimental research to test the efficacy of *Friends on the Block* with other students, including those at risk for specific learning disabilities, dyslexia, or emotional and behavioral disorders. Another avenue is to examine the impact of learning to implement the program on teaching behavior and teachers’ self-efficacy to teach students who struggle to learn to read after receiving pre-service training and professional development

teaching FOTB. Anecdotally, the program has been used effectively by university faculty to train preservice and inservice general and special education teachers in how to deliver evidence-based literacy practices consistent with the science of reading, providing teachers and future teachers with clear models and lessons for guided practice. In addition, during some stages of our research paraprofessionals and parents have

also reported success reading the books and playing the games with children. Furthermore, the interventionists in our research studies have included some initially less experienced teachers and they have successfully implemented the program with a high degree of fidelity. By fidelity, we mean that they successfully learned to teach and adhere to each of these six EBPs, among others, within the context of the program.

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Let's Count the Ways we can Utilize Technology to Improve Instructional Practices for Individuals with Autism

Heather Coleman
University of North Carolina Greensboro

Selena J. Layden
Old Dominion University

Annemarie L. Horn
Radford University

Christian Coogle
George Mason University

Abstract: To maximize instruction and learning outcomes, it is essential that educators and family members who support individuals with autism have adequate training and support required to implement evidence-based practices (EBPs) with fidelity. Research shows various coaching methods, including self-coaching and classroom-based feedback, yield positive outcomes in terms of increasing practical application and sustained use of EBPs. With the growing prevalence of autism, it is essential to find effective coaching methods that can be utilized equitably across geographic locations and learning environments. Fortunately, technology affords educators and others the opportunity to receive quality coaching and feedback without facing traditional barriers (e.g., travel, financial). This article presents three viable methods for increasing practical application of EBPs with fidelity when working with individuals with autism. Accordingly, we describe self-coaching, technology-enabled delayed feedback, as well as providing immediate feedback via eCoaching with Bug-in-Ear (BIE) technology. Implications for research and practice specific to supporting individuals with autism are provided.

To optimize instruction and increase practical application of evidence-based practices (EBP) for individuals with autism, it is essential for educators, support staff, and family members to have the opportunity to engage in on-going education. Effective education for adults incorporates structured learning around instruction with the goal of improving teachers and adults' knowledge and practices (Steinbrenner et al., 2020). Ultimately, the goal is to also improve outcomes for individual with autism (Darling-Hammond et al., 2017). However, a need remains to find effective methods for providing quality adult education to caregivers (i.e., parents and other family members) and teachers who support individuals with autism to ensure they are prepared to implement EBPs with fidelity (Cook & Odom, 2013). Since this need is not specific to pre- and in-service professional

learning and development, it is essential to examine the context in which adults acquire new skills.

Adult Learning Theory

Teachers and caregivers supporting individuals with autism need to be provided with on-going education that follows the principles of adult learning theory. Adults and children do not necessarily learn in the same fashion. Theories of andragogy, or how adults learn, suggest several considerations when working to teach adult learners. These considerations include self-directed learning and choosing what they learn (Schmitt, 2018), need-based learning and salience (Schmitt, 2018), application of knowledge and skills to their own situation (Dunst et al., 2010; Schmitt, 2018), viewing prior experience as a resource and the need for experiential learning (Ives, 2008; Schmitt,

2018), reflective practice (Dunst et al., 2010; Ives, 2008; Tripp & Rich, 2012), introduction of new knowledge or practice by an instructor (Dunst et al., 2010), and evaluation and self-assessment of knowledge or practice (Dunst et al., 2010; Sharpe et al., 1996). Based on these components, coaching offers a viable method of on-going education that can focus on improving the skills of caregivers and teachers while being mindful of the individuals' unique needs.

Coaching

There are many different models of coaching utilized in instruction for autism. However, the commonality between the models includes qualified professionals (e.g., university faculty/supervisors, behavior specialists, coordinators), hereinafter referred to as “coaches”, providing support to an individual receiving coaching, referred to henceforth as “coachee.” For the purposes of this manuscript, we will present ways in which qualified professionals can coach any adult working with individuals with autism (e.g., teachers or family members).

Coaching involves three basic steps: (a) jointly planning learning experiences based on the individual's needs, (b) coachee implementing interventions, and (c) coaches providing feedback and guiding coachees to reflect on their intervention implementation (Rock, 2019; Rush & Sheldon, 2005). Traditional, face-to-face coaching requires the coach to be present in the learning environment to observe the learning session and provide delayed feedback in writing or conversation (Crawford et al., 2021). The benefits of coaching for individuals with autism have been observed in multiple settings and contexts, e.g., caregiver coaching in early intervention (Romano & Schnurr, 2020), teacher coaching in preschool to high school classrooms (Coogler et al., 2020; Horn et al., 2022), and on-the-job

coaching when supporting young adults with autism (Horn et al., 2020).

In-person, traditional coaching has been deemed to be effective; however, it is also time-consuming and expensive because of associated travel costs, especially for providers and families who live in rural communities (Esposito et al., 2020; Horn, 2021). For example, caregivers in rural areas are more likely to report significant difficulties obtaining therapies due to lack of available services, long wait-lists in their geographical region, and financial burdens associated with autism treatments (Little et al., 2018). Rural community providers working with individuals with autism may have limited education and training surrounding autism best practices (Elder et al., 2016; Horn, 2021). Additionally, during the global COVID-19 pandemic, many professionals were unable to complete in-person coaching visits; thus, educators and children lost learning opportunities and access to consistent services (Little & Stoffel, 2021; Rotisch et al., 2021). The limited ability for in-person coaching and support for those with autism was highlighted during the pandemic when caregivers reported their children, including children with autism, exhibited more social emotional difficulties and more frequent, intense behavioral challenges when compared to life before COVID-19 (Barnett & Jung, 2021). Technology-enabled coaching can help ameliorate some of the challenges discussed.

Technology-Enabled Coaching

Embedding technology during coaching enables qualified professionals to work with more individuals due to the elimination of travel time. Utilizing technology can lead to enhanced coaching experiences as the coach observes and engages with the coachee through virtual methods (e.g., phone, email, video conferencing via *Zoom*; Horn & Rock,

2022). It is important to distinguish between methodological coaching differences though, specifically as they relate to feedback delivery and the origin of the feedback. The first consideration is the timing corrective feedback is delivered by the coach to the coachee (i.e., delayed or immediate). The second consideration relates to the professional responsible for providing coaching (e.g., coach, self).

Delayed Feedback

Delayed feedback entails a coach providing corrective feedback on a target behavior(s) following a classroom observation (Scheeler et al., 2018). In other words, all feedback delivered by the coach is withheld until the end of the lesson, and feedback delivery occurs up to 24 hours following the observation (Scheeler et al., 2018). Providing delayed feedback has been common practice in teacher preparation for decades. An example of delayed feedback involves a coach sitting in the back of the classroom taking notes throughout the observation before engaging in a brief conference with the coachee at the conclusion of the lesson. Fortunately, advances in technology enable coaches to provide delayed feedback without being physically present in the classroom (Esposito et al., 2020; Ruble et al., 2013). For example, coachees can share recorded videos with the coach or the coach can conduct the observation via live video conferencing. Using either observation method, delayed feedback can be given by phone or via email within 24 hours of the lesson.

No doubt, receiving feedback following a classroom-based observation is beneficial as it facilitates reflective practice. While traditional site visits are sometimes necessary or preferred, utilizing technology to conduct observations extends access to learning environments in an unobtrusive manner. Further, empirical research supports

providing delayed feedback through technology-enabled means when working with individuals with autism in the classroom and home environments (Esposito et al., 2020; Ruble et al., 2013).

Delayed Feedback for Parents

Delayed feedback has been used to support parents of children with autism in the home environment (Akemoglu et al., 2020). In a systematic review of the literature, Akemoglu and colleagues (2020) found technology-enabled coaching to yield positive outcomes in the home environment, as measured by parents implementing target skills with fidelity when working with young children (birth to 8 years) with autism and other developmental delays. Similarly, positive effects were observed when delayed feedback was given to parents and other caregivers by means of conversation and email following an in-home observation (Meadan et al., 2016; Wainer & Ingersoll, 2013). Coleman and her colleagues (2021) extended the extant literature by examining the impact of providing delayed feedback to rural Early Interventionist (EIs) who were providing in-home coaching to parents of toddlers with autism. The coach first taught the EIs the intervention and to provide coaching, the EIs and coach met weekly via phone call after the coach reviewed the audio recording of the EI session. Results showed that EIs could effectively coach caregivers from a rural area to implement the autism-specific intervention that included structured learning at a table and naturalistic play-based learning (Family Implemented TEACH for Toddlers). After the intervention, caregivers reported that they enjoyed participating because it improved their understanding of their child's learning.

Delayed Feedback for Teachers

Technology-enabled delayed feedback has led to positive outcomes in the P-12

classroom setting as well (Coogle et al., 2020; Ruble et al., 2013). Coogle and colleagues (2020) have used delayed feedback provided via email to support pre-service teacher candidates' use of embedded instruction within preschool and early intervention settings. The researchers observed typical activities taking place in the classrooms or homes such as play, teacher-led small groups, and meals via video conferencing (e.g., Skype). Upon completion of observations, the coaches provided affirmative and suggestive feedback within a template and sent it by email resulting in educator's increased use of embedded instruction. Educators enhanced their use of embedded instruction, and children used these opportunities to practice target skills such as communication. Ruble et al. (2013) also utilized delayed feedback during coaching to increase special education teachers' use of an intervention (the Collaborative Model for Promoting Competence and Success). Their study included elementary students with autism and they targeted many different behaviors, including social skills, communication, and independence. In the Ruble et al. (2013) study, the special education teachers and coaches watched the recorded instructional videos together, paused, and discussed the instruction. The coach provided feedback while watching the video and then discussed the instructional plan for the following session.

While using technology to provide delayed feedback has shown empirically to be an effective means of feedback delivery for teachers and parents/caregivers working with individuals with autism, feedback delivery is limited to the conclusion of the observation. Consequently, there may be missed opportunities to shape or refine teaching behavior during critical instructional times. By contrast, an emerging body of research

validates the use of technology to provide in-the-moment, or immediate, feedback as teachers (or parents/caregivers) are actively teaching (Horn et al., 2022, Horn et al., 2023; Rock et al., 2009; Rock et al., 2014).

Immediate Feedback

*e*Coaching through bug-in-ear (BIE) technology is an innovative method for providing special education professionals with immediate feedback in an unobtrusive manner (Coogle et al., 2020; Horn et al. 2022; Horn et al. 2023). That is, feedback is transmitted through a Bluetooth earpiece as coachees are actively engaged in instruction; thus, facilitating ample opportunity to practice and refine specified skills (Rock et al., 2009). Immediate feedback occurs within three seconds of the target behavior (Horn et al., 2020; Scheeler et al., 2018). Feedback delivery is positive, instructive, questioning, and/or corrective (Horn & Rock, 2022; Scheeler et al., 2004). Individualized BIE coaching facilitates implementation of instructional and behavioral practices with high fidelity in pre- and in-service special education teachers, paraeducators, and family members (e.g., Akemoglu et al., 2020; Horn et al. 2023; Plossel & Rock, 2014; Scheeler et al., 2018). Just over a decade ago, Rock and her colleagues (2009) took BIE to a new level by introducing *online* BIE coaching during special education teacher preparation. Relying on advanced technology and the Internet, online BIE enables the coach (also referred to as *e*Coach) to provide immediate feedback without requiring their on-site physical presence (Rock et al., 2009). Findings from the foundational Rock et al. (2009) investigation and other online BIE studies that followed (e.g., Coogle et al., 2020; Horn et al. 2023; Rock et al., 2012; Rosenberg et al., 2020;) validate the effects using online BIE to improve instructional practice. In a systematic review of the research that included gray literature, Sinclair

et al. (2020) confirmed using technology (i.e., BIE) to deliver immediate feedback (i.e., feedback occurs within 3s of the target behavior) is an EBP for improving instruction.

Immediate Feedback when Supporting Individuals with Autism

Providing immediate feedback through online BIE technology has been shown to improve instruction across learning environments. That is, positive effects have been observed in general education classrooms (e.g., Rock et al., 2014), special education classrooms (e.g., Horn et al., 2022), community-based settings (e.g., Horn et al., 2020), mixed-reality Mursion™ classroom simulations (e.g., Horn et al., 2023), early childhood learning environments (e.g., Coogle et al., 2019, Coogle et al., 2020), and the home (Coleman et al., 2023). An emerging body of empirical evidence highlights the benefits of using online BIE to support pre- and in-service special education teachers and paraeducators who support students with autism (e.g., Coogle et al., 2020; Horn et al., 2023, Rosenberg et al., 2020). Notably, participants view online BIE coaching as a socially valid form of professional development (Horn et al., 2023; Ottley et al., 2015). Namely, the immediacy and unobtrusive nature of feedback delivery were highlighted as the most advantageous components of the *eCoaching* experience. To that end, educators valued receiving feedback in real time because they were provided with support while using the target practices within everyday activities (Coogle et al., 2020). Horn and colleagues (2022) were interested in learning what, if any, effect the *eCoaching* experience had on students with autism who were working 1:1 with paraeducator coachees. In their single-case design investigation, researchers observed increased social and communicative responses (e.g.,

eye contact, facial expression, vocalization/verbalization) in transition-age students with autism as a result of support staff engaging in the *eCoaching* intervention. *eCoaching* has been extended to the home environment wherein parents/caregivers were the recipients of immediate feedback transmitted through BIE while working with their children with autism in the home; however, more research is needed to evaluate the effects of *eCoaching* in the home environment (Akemoglu et al, 2020).

Immediate Feedback for Parents

Recently, Coleman and colleagues (2023) presented the preliminary results of a single case research design that aimed to use *eCoaching* in the home environment. The researchers first used behavior skills training (BST) to teach an EI provider how to use *eCoaching* to support a caregiver coachee. BST is a widely adopted EBP that can be used to train adults to implement interventions (Reid et al., 2021). It involves four steps: “instruction, modeling, role-play, feedback” (Schaefer & Andzik, 2020, p. 19). Following BST, the EI provider (referred to henceforth as “coach”) taught the caregiver how to implement an intervention involving practical application of EBPs for young children with autism. The caregiver received immediate feedback from the coach through *eCoaching* with BIE technology. Engaging in BST training prior to *eCoaching* in the home environment, the caregiver was successful at implementing the intervention (targeting three verbal behaviors) with fidelity. The caregiver reached criterion immediately after BST and sustained that performance rate, across behaviors, during *eCoaching* sessions. This study is providing promising evidence that BST and *eCoaching* can be successfully utilized to provide remote instruction to EI providers and family members (Coleman et al., 2023).

In addition to the overall positive effects of immediate feedback delivered via *eCoaching*, family members and educators have found it both feasible and effective (Coleman et al., 2023; Ottley et al., 2015). Social validity data from two different groups of educators suggest that technology-enhanced feedback is important and effective in supporting educator practice. Educators indicated feeling satisfied with the intervention and viewed it as an acceptable form of professional development (Ottley et al., 2015). However, there are drawbacks as well. Notably, caregivers, educators, and individuals with autism need access to experts to serve as *eCoaches*. Thus, if experts are not available, self-coaching is a great alternative.

Self-Coaching

Delayed and immediate feedback are critical components of improving practice, yet they require a substantial amount of expertise and support from other professionals which may not be practical based on limitations in schools (Rispoli et al., 2017). Thus, another approach is warranted. Self-coaching is a model of learning that is reliant upon the learner to also be their own coach. When it comes to changing their performance, teachers may act as the most effective change agent (Mouzakitis et al., 2015), and thus, when looking to change behavior, self-coaching has been found to be an EBP (Simonsen et al., 2013). This form of coaching incorporates the components of andragogy as it allows for the learner to be self-directed by applying their knowledge and engaging in self-assessment and reflective practice, which aligns with the characteristics reported in the meta-analysis on effective adult learning strategies by Dunst et al. (2010) as well as Ives (2008), Schmitt (2018), Sharpe et al. (1996), and Trip & Rich (2012).

Self-monitoring is a form of self-coaching and is an evidence-based strategy and has been socially validated for both pre-service and in-service teachers (Hager, 2018; Kalis et al., 2007; Layden, Crowson, et al., 2022; Saccomano, 2013; Tripp & Rich, 2012). There are two components of self-monitoring: (a) observing one's own behavior and (b) recording and analyzing data from the observations (Hager, 2018; Rispoli et al., 2017) which should lead to improved practices. Morin et al. (2019) suggested self-monitoring can provide authentic experiences that teachers may desire. This flexible practice can occur in several forms including paper and pencil checklists, counters, audio self-monitoring, and video self-monitoring (e.g., Cook et al., 2017; Layden, Crowson, et al., 2022; Sutherland & Wehby, 2001). In addition to flexibility in methods, there is flexibility in implementation. Self-monitoring can be used across time and without the need for another person to be mutually available (Hager, 2018; Janas, 2001). This allows adults to be in control of their own learning. Additionally, self-monitoring is well-suited to pair with other coaching interventions (e.g., Briere et al., 2015; Martin et al., 2015; Mouzakitis et al., 2015; Thompson et al., 2012) in order to support further practice and maintenance of skills.

One of the challenges of self-monitoring is the learner's own limitations. If the skill the learner is attempting is new to them, they may struggle to perform to mastery without additional supports (e.g., Layden, Horn, et al., 2022; Thompson et al., 2012). Conversely, the skills may be demonstrated but not maintained over time (e.g., Sutherland & Wehby, 2001). Self-monitoring can support consistent implementation of learned skills in the classroom, though supports may be needed to acquire such skills (Layden, Crowson, et al., 2022). Yet, the

many benefits pertaining to its flexibility coupled with the low-cost and relatively low-effort required to implement (Layden, Crowson, et al., 2022; Rispoli et al., 2017) means self-monitoring is a viable form of professional development for adults supporting individuals with autism. However, like other forms of coaching, educators must consider goodness of fit and feasibility prior to implementation.

Considerations for Technology-Infused Coaching

Coaching styles should be determined on an individual basis. Access to resources, including qualified coaches and required technology are things to consider when selecting a coaching method. A list of technology required and associated expenses for implementing eCoaching with BIE technology can be found in an article by Horn and Rock (2022). In addition to resources, it is essential to evaluate “goodness of fit” to determine what will work best for all involved (see Figure 1).

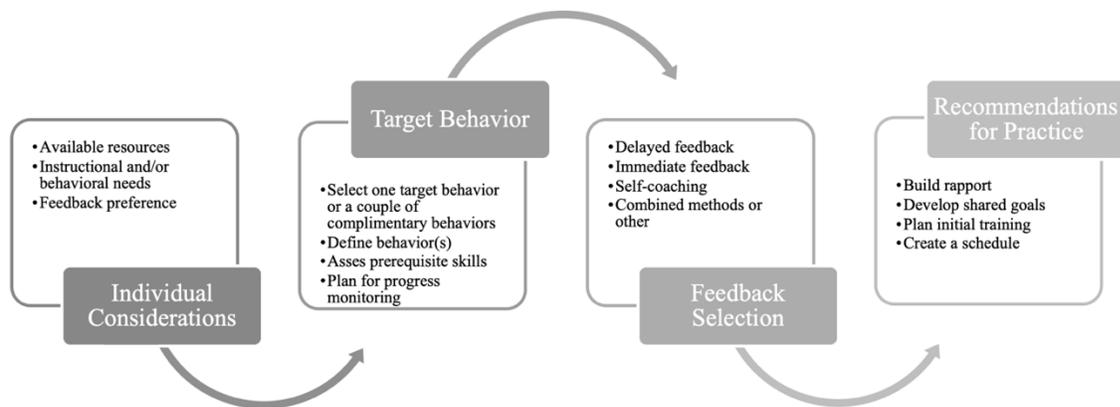
Understanding Individual Needs

The first step to determining “goodness of fit” is to understand what each individual needs and wants from the coaching experience. Those who would like to use technology-enabled coaching can provide choices while also balancing the learning needs and resources available in the environment. For example, the individuals can choose how feedback is provided, and how often it is provided. Coaches (or researchers supporting coaches) must be flexible in scheduling and determine what frequency and times of the day/week will work best for the coaching sessions. Behaviors to target for change must also be carefully selected.

Selecting Target Behaviors

Honing in on one or a few complimentary target behaviors should be one of the first steps. It is important to define the behavior or behaviors, develop goals, and measure progress accurately. When defining behaviors the individuals involved in the coaching process need to collaborate to ensure everyone fully understands the target behavior or behaviors. They need to systematically define the behavior and

Figure 1. Considerations for Technology-Infused Coaching



develop goals that are specific, observable, and measurable (see Bicard et al., [2012a] and Bicard et al., [2012b] references for resources that are helpful for defining and measuring behaviors). Further, in order to understand if the coachee has met the goals (i.e., reached criterion), the coach needs to develop a measurement system, systematically assess the behaviors, and provide quality feedback that will help the coachee succeed. To learn more about assessing and delivering quality feedback using immediate feedback, please refer to the article from Horn and Rock (2022). An article from Kunemund and colleagues (2021) also describes the COACHED (Capturing Observations And Collaboratively SHaring Educational Data) platform that may be useful for recording, assessing, and providing delayed feedback (see Kennedy & Runemund [2020] to learn more).

Technology-enabled coaching has been shown empirically to improve instructional practices when teaching students with disabilities, including those with autism. However, prior to coaching, sometimes it is important for the coach to understand if the coachee has the prerequisite skills needed for the targeted behaviors. Thus, adding a pre-baseline or pre-requisite assessment may be necessary. Layden, Crowson, et al. (2022) found that though self-coaching was effective to promote consistency of implementation, it was not as effective for teachers who did not have the behavior within their repertoire. Thus, BST may enhance acquisition of behaviors that are not in teachers' repertoire (see Parsons et al., 2012, to learn how to use BST).

Feedback Selection

After considering partners' needs, systematically choosing, defining, and assessing target behaviors, and considering

the need for BST, it is now time to choose how the feedback will be provided (e.g., delayed, immediate, or self-coaching). To that end, it is essential to determine what resources are available in terms of potential required technology, as well as the coach. When selecting how feedback will be provided, it's important to first understand individuals' preferences, while also balancing the needs of the coachee and the learning environment. For example, is the need focused on instructional or behavioral practice? BST and coaching are used to ensure acquisition and implementation of targeted behaviors. Thus, pre-assessments and/or observations in the environment are needed to understand what form of feedback will likely ensure the coachee is able to implement strategies with fidelity. As we discussed, BST prior to coaching may be needed to ensure the coachee acquires the skills necessary for implementation in the learning environment. Further, a coachee might be apprehensive and not want to complete eCoaching and receive immediate feedback. However, the coach may think that simultaneously instruction and coaching may be necessary for the coachee to learn the targeted skill. Thus, it is important to discuss that typically after four sessions, coachees are comfortable with eCoaching and find it useful despite the initial apprehension (Horn et al., 2020; Horn et al., 2022).

The available resources in the learning environment may make your selection easy. For example, to provide immediate and delayed feedback, the coachee needs access to an expert that will consistently meet to discuss the instructional sessions. When using self-coaching, an expert is not consistently needed; however, the coachee needs access to some type of instruction to learn the targeted skills. Online modules could be very helpful to utilize prior to engaging in self-coaching (see the Autism

Focused Intervention Resources and Modules [National Professional Development Center, 2023] for a great selection of modules to learn about EBPs for autism).

To utilize technology-infused immediate feedback using video-conferencing and BIE, the learning environment must have consistent and reliable access to the internet and the BIE device must pair with the computer/tablet to ensure the coach is able to simultaneously see the instruction and provide immediate feedback. If the partners do not have reliable access to the internet, delayed feedback might be a better option. However, regardless of the chosen method, the partners need to consider confidentiality and data protection. For example, agencies or school districts may require Health Insurance Portability and Accountability Act (HIPAA; Center for Disease Control and Prevention, 2022) compliant video conferencing, password protection when sending files, or a multi-factor authentication.

The last thing to consider prior to using technology to coach is sustainability. The goal of coaching, and on-going adult education in general, is to provide individuals with the knowledge and skills to improve their abilities to work with individuals with autism. Thus, after coaching is provided, we would like individuals to maintain skills learned without consistent help from a coach. In order to ensure skills are maintained, it is important to assess for maintenance. Thus, regularly assessing for maintenance (e.g., once a month/bi-monthly) might be necessary for sustainability. Further, coaches can consider systematically fading the coaching and/or BIE device (e.g., Horn et al., 2023; Scheeler et al., 2018).

Recommendations for Practice

Other than the above-mentioned

considerations for technology-enabled coaching, individuals need to also consider logistical and relationship considerations. Logically, individuals need to understand where and when the coaching will take place, develop a plan, and stick to it. When first beginning the coaching experiences, it is recommended that the coaching takes place during the same time of the day (e.g., circle time in a preschool classroom or math instruction in grade school). If consistent times of the day are chosen, the individuals will more likely stay consistently engaged in the coaching process. Consistency is also important in scheduling regular de-briefing sessions (e.g., delayed coaching). Even when providing immediate feedback by means of eCoaching with BIE technology, it is recommended that the coach and coachee build rapport and communicate regularly outside of the coaching session to discuss the target behavior and clarify any questions (Horn et al., 2020). Thus, in addition to providing immediate feedback via BIE, the coach should provide ample opportunity for reflective practice at the conclusion of the session. For self-coaching, it is also best to set up a schedule and plan for assessing and reviewing one's own instruction.

Rapport-building between the coach and coachee is essential. When the coach and coachee are able to build a friendly, collegial relationship, both parties can better learn from each other. To build a positive relationship, the coach must consider the coachee's needs (as discussed above), and express sincere interest so the coachee feels heard. Coaches can do this by having a 'check-in' conversation during the beginning of the coaching session. To further build a relationship, each partner must trust each other. Confidentiality must be maintained to build trust. Further, the coach must be reliable and accountable. They must arrive at the scheduled meetings on time and follow

through with pre-established actions. Even in a remote session, body language and tone can be easily detected. A coach must be actively engaged in the coaching session and their body language needs to reflect this. Last, a coach is serving as the expert. Thus, it is important to establish credibility, provide credible sources of information and resources, and make data-based decisions. However, coaches must also encourage their coachees to problem solve and develop strategies that will enable them to best support individuals with autism (Rock, 2019).

Conclusion

To ensure the educational, behavioral, and social/emotional needs of individuals with autism are met at home and in the P-12 setting, it is timely and necessary to explore empirically validated methods for providing support to teachers and parents. In this article, we highlight three viable coaching methods that hold promise in increasing practical application of EBPs with fidelity when working with individuals with autism. Delayed feedback, which has been given in-person or through technology-enabled means (e.g., video recording or video conferencing followed by email or phone call) within 24 hours of the observation (Scheeler et al., 2018), has been used widely in the field of special education, including teaching students with autism (Ruble et al., 2013). Additionally, *eCoaching*, an EBP in teacher education (Sinclair et al., 2020), facilitates immediate feedback delivered via BIE technology, and a growing body of research validates the use when teaching students with autism (e.g., Coogle et al., 2019; Coogle et al., 2020; Horn et al., 2020; Horn et al., 2022; Horn et al., 2023). Finally, another empirically supported coaching method, self-coaching (Simonsen et al., 2013), yields positive outcomes when supporting students with autism, though researchers recommend

skill selection to fall within the repertoire of the implementer (Layden, Crowson, et al., 2022; Layden, Horn, et al., 2022). It is hoped that the coaching methods described in this article will guide researchers and practitioners who are interested in improving instructional practice with fidelity when working with P-12 students with autism in the home and classroom setting.

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Correspondence concerning this article should be addressed to Heather Coleman, University of North Carolina Greensboro 1300 Spring Garden St, room 438 - New School of Education Building, Greensboro, NC 27412. Email: hmcolem2@uncg.edu

Evaluating the Role of Instructional Array Size When Teaching Auditory-Visual Conditional Discrimination Skills

Sara M. Snyder
James Madison University

Megan Barnes
Carolina Center for ABA and Autism Treatment

Abstract: Young children with autism spectrum disorder (ASD) may be participating in instructional programs designed to improve their receptive language or listener responding skills. Such skills are integral for growing language repertoires and preparing the child for further learning. In this study, we taught a particular receptive language skill, also known as auditory-visual conditional discrimination (AVCD). We showed the learner an instructional array of different food items, then asked him to touch the fruit. The study included four different stimulus sets with a total of 16 different fruits. Each set was presented using a different array size (e.g., an array of two consisted of one target fruit item from the set paired with a non-fruit distractor). The learner was approaching the performance criteria set using the array size of two, but the study ended before any set met the performance criteria. We conducted an operant-level analysis and determined that several individual targets met or were close to meeting the performance criteria. These were primarily fruits his parents reported that he consumed. We discuss the results and limitations while providing additional guidance to practitioners implementing similar programs with learners.

Children with developmental disabilities (DD) with limited receptive language repertoires may benefit from carefully structured instruction to increase receptive language skills (Grow & LeBlanc, 2013). Many early intervention curricula target such skills, which may be referred to by a variety of names such as listener responding, language comprehension, and listener behavior. One such skill is known as auditory-visual conditional discrimination (AVCD), where a vocally stated instruction specifies the correct visual stimulus (e.g., “touch the pencil”, where touching the image of the pencil is the only correct response; Eldevik et al., 2020). The overarching goal of teaching AVCDs is to build vocabulary, which allows learners to follow basic instructions and participate in further language learning (Eldevik et al., 2020; Grow & LeBlanc, 2013). AVCDs targeted in early intervention curricula include picture identification (i.e., selecting a named picture

when shown a larger array), selecting a picture of item when told the item’s feature, function, or class, or selecting a picture that has two or more specified features (Grow & LeBlanc, 2013).

Research literature supports teaching AVCDs with distractor stimuli present from the onset of instruction (Greene, 2001) although this is not always done in clinical practice (Love et al., 2009). Some practitioners (e.g., teachers, behavior analysts, early interventionists) may assess and teach AVCDs by following prescribed curricula (e.g., Verbal Behavior Milestones Assessment and Placement Program [VB-MAPP], Sundberg, 2008; Assessment of Basic Language and Learning Skills - Revised [ABLLS-R]; Partington, 2010). These curricula may specify the antecedent conditions under which these skills should be taught. For example, some Listener Responding tasks in Level 3 of the VB-

MAPP Milestone Assessment (Sundburg, 2008) specify that the child should complete the task by selecting from instructional arrays consisting of 10 stimuli. Learners receiving this kind of intensive receptive language instruction need to gradually build towards identifying stimuli from array sizes as large as those recommended in the VB-MAPP. Yet choosing from a larger array may prove useful in complex environments such as school, home, and community. Large arrays are present everywhere: the library, the grocery store, and on TV. For example, when shopping for toothpaste, learners might have to scan through a large array before identifying the desired product.

Poor attention and working memory impact completion of AVCD tasks. Regulation of attentional skills in children with intellectual and developmental disability (IDD) can be poor compared to children without IDD (Deutsch et al., 2008). Individuals with ASD may demonstrate deficits in working memory, which is defined as storing and processing information mentally. Deficits in working memory negatively impact school performance in areas such as listening comprehension (Kercood et al., 2014). Thus, children in need of receptive language instruction who present with poor attentional skills and working memory may struggle to complete AVCD tasks.

Sundberg and Sundberg (1990) noted a systematic scan repertoire is required when teaching AVCDs. A systematic scan repertoire ensures the individual does not overlook the correct stimulus. This may not be intact for early learners with IDD. Larger array sizes take longer to scan, and "...if the scanning takes a long time, the effectiveness of the original controlling variable could be lost" (p. 33).

Researchers noted learning and cognition research needs to emulate the complex conditions present in everyday learning

activities (e.g., Kirschner et al., 2011). Practitioners should consider the learner's attentional skills, working memory, and scanning repertoire when designing skill acquisition programs for learners with ASD and developmental disabilities. However more research is needed to determine ideal instructional conditions for receptive language skills like AVCD (Grow & LeBlanc, 2013).

Without guidance from research, practitioners should engage in assessment-based instruction where a learner is exposed to several different instructional conditions and the practitioner chooses to continue with the condition that worked the best (Kodak & Halbur, 2021). However, Kodak and Halbur noted assessment-based intervention is underutilized when designing skill acquisition programs. Thus, it is likely that practitioners may be selecting the same array size (e.g., three stimuli) for all learners and all programs based on arbitrary decisions rather than through assessment that might uncover which array size works best for the learner.

There is a materials issue, as well. Larger array sizes will require more materials to create all the distractors to be presented alongside the learning targets. Creating these materials uses valuable practitioner resources. Managing these materials likely adds on additional intertrial preparation time, which may ultimately reduce the number of learning trials that can be presented in a session. Despite the need to know more about instructional array sizes, Grow and LeBlanc (2013) acknowledged that up to that point there had been very little research on this topic. Our search of the literature since 2013 suggests that this remains an under-investigated topic.

In an unpublished study, Kousen and Snyder (2018) evaluated the impact of instructional array size when teaching teenagers with IDD

to receptively identify sight words (i.e., point to a word in an array when told the word). The words were selected from the Edmark Functional Word Series (Fast Food Words, Pro-Ed, 2013a; Grocery Words, Pro-Ed, 2013b). The researchers probed the participant's prior exposure to the foods by conducting an AVCD pre-assessment where the participant was asked to select a food picture from an array of three. If the learner could not identify the food picture when told the name, the target was discarded. Only foods that the learner could identify in the AVCD tasks were targeted in sight word instruction. The researchers divided sight words into four sets of five words, each set presented using an array size ranging between two and four. Words were evenly distributed across sets based on the number of syllables in each sight word as well as beginning sound. The researchers used constant time delay to teach three sets. The fourth set was not taught using constant time delay, but was probed periodically in an array of three. The performance criterion was 80% accuracy on the entire set for four consecutive sessions. One participant reached the performance criterion first in the array size of two. The other reached performance criteria first in the array size of four, although the data path for the array size of two had a higher level but was variable.

In the current study, the researchers sought to replicate the previous study on array size. The current study included a 7-year-old with ASD working on an ACVD task related to the stimulus class of fruit. The research question was as follows: When teaching an AVCD skill in varying array sizes (range 2-4), which array size would lead to faster skill acquisition?

Method

Participant and setting

One child participated in this study. Ivan was 7-years-old and diagnosed with ASD. He was receiving ABA services at the university

ABA clinic prior to participating in this study. Ivan spoke in short phrases and could emit short sentences when prompted. He engaged in vocal stereotypy, vocalizing sounds and words that were not relevant to the task at hand (e.g., making car sounds, humming, and high-pitched noises). He also demonstrated difficulty attending to presented tasks and required frequent prompts to attend to instruction.

The study took place in a treatment room in the university clinic. The treatment room measured 2.75 m by 2.75 m with a one-way mirror. The setting included a small round table, chairs, a small rolling filing cabinet, and a couch pushed up against the wall. The room also included a video camera mounted to one wall. All trials took place at the table with the clinician and participant seated in chairs next to each other. Data were recorded by the researcher conducting trials with the learner. A second observer periodically recorded data from the other side of the one-way mirror in order to calculate interobserver agreement.

Considerations for choosing the receptive language task and learning materials

One of Ivan's goals was to select an item or picture when told the category name or class. Prior to the onset of the study, we reviewed his progress on this goal, then probed several categories (e.g., clothing, food, toys) to identify a category that he was unfamiliar with. Parents and clinicians reported that the participant ate a wide variety of fruit but was not able to correctly identify a picture of a fruit when told "find the fruit". Therefore, we selected this topic for this research study. This allowed us to implement an instructional program consistent with his current goals. In addition, being able to receptively identify fruit in this way may benefit him by advancing his listener discrimination skills. Further, teaching listener discriminations between categories of items could facilitate the development of his intraverbal repertoire

(i.e., the learner could answer questions such as “What fruit did you eat at lunch?”).

After fruit was selected as a category, the researchers asked his parents to complete an inventory identifying what fruit he was likely to eat. The inventory was also used to gather information about how fruit was presented to him (e.g., color of the fruit; whether the fruit was cut, peeled, or presented whole). Although the parent inventory identified a wide variety of fruits to use in the study, we had to add additional fruits that he did not eat in order to have enough stimuli for four sets.

Materials

Materials included 2” x 2” picture cards. The cards were printed in color and laminated. Each card depicted a photograph of a single fruit on a white background. In the initial parent interview, a member of the research team asked the parent how fruit was typically presented to the learner. This presentation method was used to find photographs that depicted the fruit as the participant would see it. For fruits that the parent reported the child did not eat, the researchers used a picture that would best depict how the fruit would be served. For example, the picture of kiwi showed the fruit cut in half so the green inside was shown.

Research design, stimulus sets, and dependent variable

We used an adapted alternating treatment design. Four stimulus sets were used and were presented to the learner with different array sizes. Each set consisted of four target fruits. Set A was presented in an array size of two (i.e., the target fruit and one distractor image that was a food but not a fruit [e.g., hamburger, cracker]), Set B was presented in an array size of three (i.e., the target fruit and two distractors), and Set C was presented in an array size of four (i.e., the target fruit and three distractors). Sets A-C were taught using constant time delay procedures (Collins, 2022). Set D was the control set, which was

probed periodically but was not directly instructed. When probed, Set D was presented in an array size of three. Each fruit was initially assigned to a set using random assignment. Following random assignment, we reviewed the groups to ensure that visually similar items were not in the same groups and that each group contained a balance of fruits the participant consumed and did not consume, per parent report.

The dependent variable consisted of Ivan independently (i.e., without prompts) touching the one fruit presented in each trial. We developed performance criteria before the study commenced. The performance criteria were based on the entire stimulus set (i.e., the participant had to reach the performance criterion for all four fruits in the set for the set to be considered mastered). The set performance criterion was 75% accuracy on independent correct responses for four consecutive sessions in the 3-s delay condition. We also established a drop back criterion for moving a set from the 3-s delay back to the 0-s delay condition. In order to drop back to the 0-s delay condition, the participant needed to score 25% or below on a set for three consecutive sessions while in the 3-s delay condition. If this occurred, the entire set moved back to the 0-s delay condition. During the study we modified this drop back criterion when the participant scored 0% correct in the first 3-s delay session for Sets B (array size 3) and C (array size 4). We implemented one additional 0-s delay session for both Sets B and C to ensure that the client could touch the fruit item when provided with an immediate prompt.

Procedure

In all conditions, before the session the clinician randomized the order the sets would be presented. Sets were then presented to the participant in that random order. Sets A, B, and C were presented in all conditions, and Set D (control set) was presented in 79% of all sessions and at minimum once during each

condition. Within each set, the four targets were also presented in random order. Each target was presented one time during the session. The number of trials presented in each session ranged from 12 (when only Sets A-C were presented) and 16 (when all four sets were presented), not counting error correction trials. The distractor photos of other food items were randomly paired with the target fruit for each trial. In each trial, the location of the target was moved to a different location in the array.

Baseline

At the beginning of each trial, the clinician working with Ivan set up the array of photos based on the set's assigned array size (e.g., targets in Set A were always presented as an array of two). Next, the clinician secured Ivan's attention. Securing the Ivan's attention consisted of 1-3 learning trials where Ivan was directed to complete a response he had mastered previously (e.g., gross motor imitation where the Ivan was instructed to "do this" and copy the clinician's movement). Next the clinician gestured towards the array on the table, then stated "Show me the fruit". The clinician waited approximately 4 s for Ivan to respond. If Ivan engaged in vocal stereotypy or appeared to be looking elsewhere, the clinician would attempt to regain his attention by presenting another instruction to engage in a mastered response. If Ivan appeared to be looking at the array but did not make a response, the trial ended after 4 s. If Ivan touched an item before 4 s, the trial ended. Ivan's responses in baseline were recorded as correct, incorrect, and no response.

Constant Time Delay, 0 s condition

The clinician followed the same procedures as baseline to set up each trial, secure Ivan's attention, and deliver the direction "Show me the fruit". Next, the clinician immediately touched the correct photo in the array. Ivan was expected to then touch the same photo. If he touched the same photo the clinician

touched, the clinician provided behavior specific praise (e.g., "That's right! You found the fruit!") and physical touch (e.g., tickles, high fives), which was a preferred activity used frequently during his clinic sessions. If he did not respond to the prompt, the clinician provided a physical prompt by holding Ivan's hand in order to touch the correct photo. This process of the gesture prompt followed by a physical prompt was consistent with prompting techniques used in his other skill acquisition programs at the clinic. When he touched the correct photo after the physical prompt, he also received praise and physical touch. Each trial ended after Ivan responded to either the gesture or physical prompt. Each set was presented one time during each 0-s session, and each target fruit was presented one time within each set. Three 0-s delay sessions were administered.

Constant Time Delay, 3 s condition

The clinician followed the same procedures to set up each trial, secure Ivan's attention, and present the direction "Show me the fruit". In this condition, the clinician waited for 3 s before delivering a response prompt. After 3 s of no responding, a prompt was delivered to touch the correct image in the array. Ivan's response options included responding correctly before the prompt or after the prompt, responding incorrectly before the prompt or after the prompt, or not responding to the prompt. If Ivan responded correctly before or after the prompt was delivered, he received praise and physical touch. If Ivan responded incorrectly before the prompt was delivered or incorrectly after the prompt was delivered, an error correction procedure was implemented. For the error correction procedure, the clinician pointed to the correct photo and stated "This is a fruit". Then the clinician shuffled the photos before repeating the trial with a 0 s delay between the direction and the gesture prompt. If Ivan touched an incorrect photo but was observed to be looking elsewhere in the room and not at the array on the table, the clinician secured

his attention again using the processes stated above before implementing the error correction trial. If Ivan did not touch any photos (correct or incorrect) after the gesture prompt was delivered at 3 s, the clinician proceeded to implement the physical prompt. Responses in this condition were recorded as independent correct or incorrect (if any prompting was required).

Maintenance

Once a set met the performance criterion, we planned to continue to probe that set at least once every 2 weeks. Maintenance probes would be administered following baseline procedures. None of the sets met performance criterion in the 3 s condition and the clinic closed for the summer, so maintenance was not assessed.

Procedural Fidelity

Procedural fidelity was assessed using a checklist that stated each step the clinician needed to implement during the session. Procedural fidelity data were recorded by a second observer on the other side of the one-way mirror. Procedural fidelity was assessed for 33% of baseline sessions (100% accuracy), 66% of 0 s delay sessions (100% accuracy), and 43% of all 3 s delay sessions (100% accuracy).

Interobserver agreement

Interobserver agreement (IOA) was assessed by comparing the clinician's data to the data recorded by the second observer on the other side of the one-way mirror. IOA was calculated based on trial-by-trial agreement. IOA was calculated for 33% of baseline trials (100% agreement), 66% of 0 s delay sessions (100% agreement), and 50% of 3 s delay conditions (100% agreement).

Results

Ivan completed three baseline sessions and 11 instructional sessions before the clinic closed for the summer.

Set A

After baseline, Set A was taught using a 0 s time delay in three consecutive sessions. In the 0 s condition, he did not have an opportunity to respond independently so independent correct responses remained stable at zero levels. Following the three 0 s delay sessions, Set A was taught using a 3 s delay for the remaining eight sessions. Overall level for Set A was higher than in baseline, but with significant variability. In two of the final three sessions he demonstrated 100% independent correct responding, but did not meet performance criteria of 75% accuracy or above for four consecutive sessions before the study ended.

Set B

After baseline, Set B was taught using a 0 s time delay for three consecutive sessions. The data in these sessions remained at zero levels. After the three 0 s sessions, we conducted one session at the 3 s delay. He had zero independent correct responses in this session, so we made the decision to drop back to implement one more 0 s delay session to ensure that he could respond to the prompt when it was delivered immediately. After the additional 0 s delay condition, we returned to the 3 s delay. Data in the final condition was variable but low, with no discernible change in level from baseline.

Set C

Set C was similar to Set B in regards to changes in conditions. After three baseline sessions, we implemented three sessions at a 0 s delay. Independent correct responses in the first three 0 s sessions were at zero. When we moved to the 3 s delay condition, Ivan's independent correct responses were at zero. Thus, we dropped back to complete one additional 0 s delay session to ensure that he would respond to the prompt when delivered immediately. Following the final 0 s session, we implemented the 3 s delay for all remaining sessions. Data in the final 3 s

condition were variable, ranging from 0-75% correct.

Set D

Set D was not taught to the learner using constant time delay. Instead, we periodically probed the targets in Set D to detect threats to

internal validity. Stimuli in Set D were presented in an array of three. Set D data were highly variable.

Discussion

In this study, we taught an AVCD (e.g., touch the stimulus when told its class)

Figure 1. Ivan's independent correct responses for Set A.

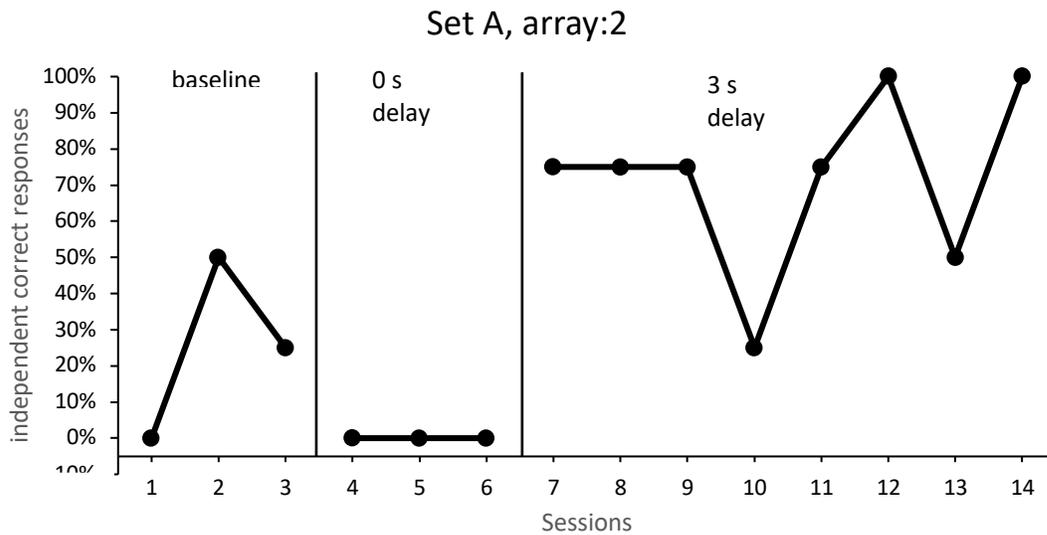


Figure 2. Ivan's independent correct responses for Set B.

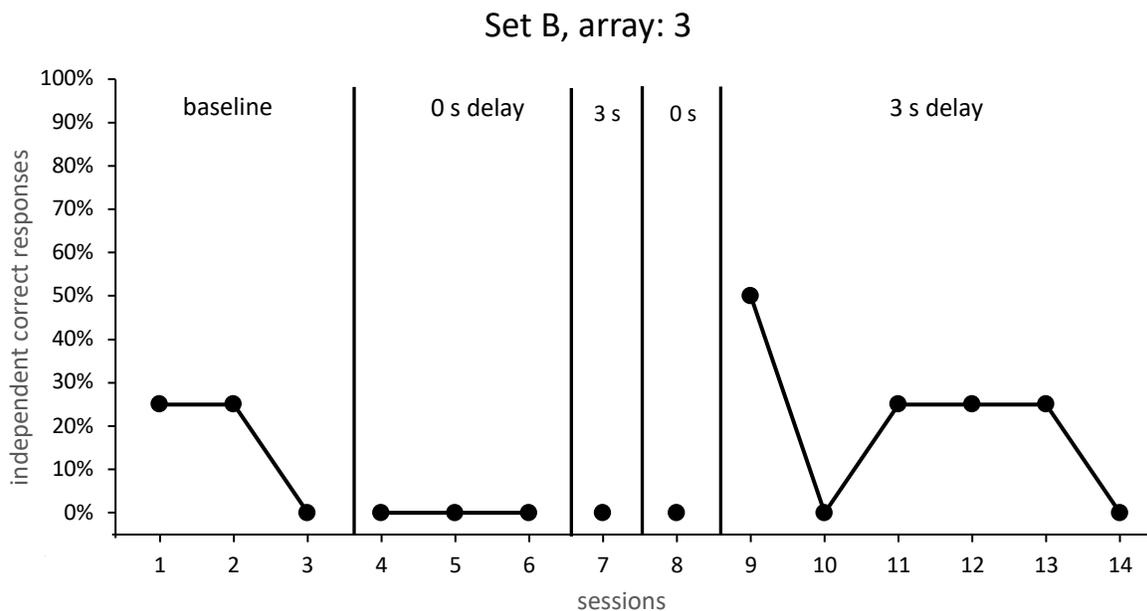


Figure 3. Ivan's independent correct responses for Set C.

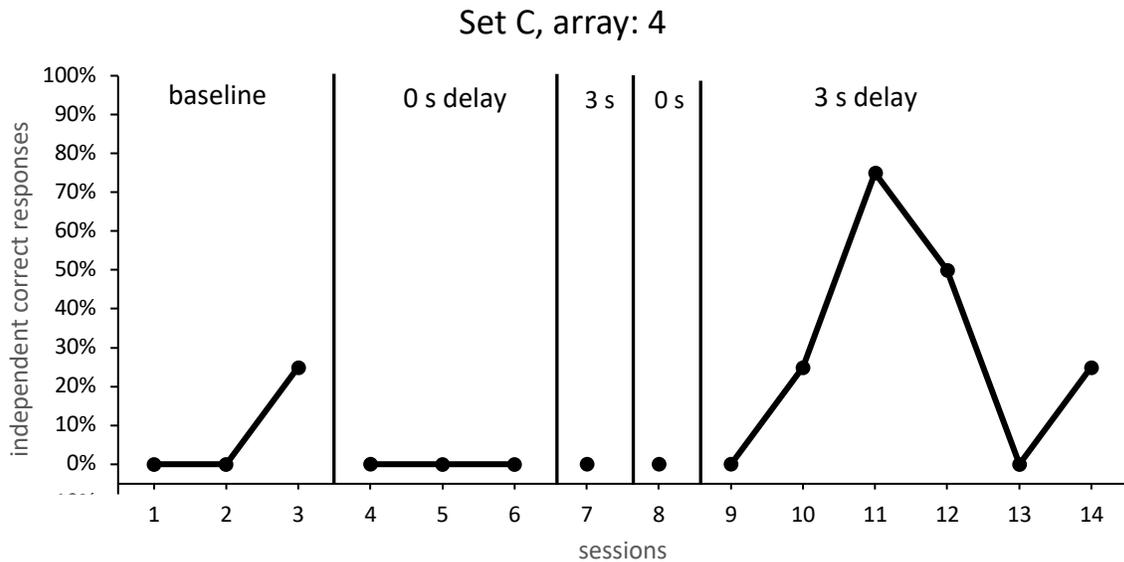
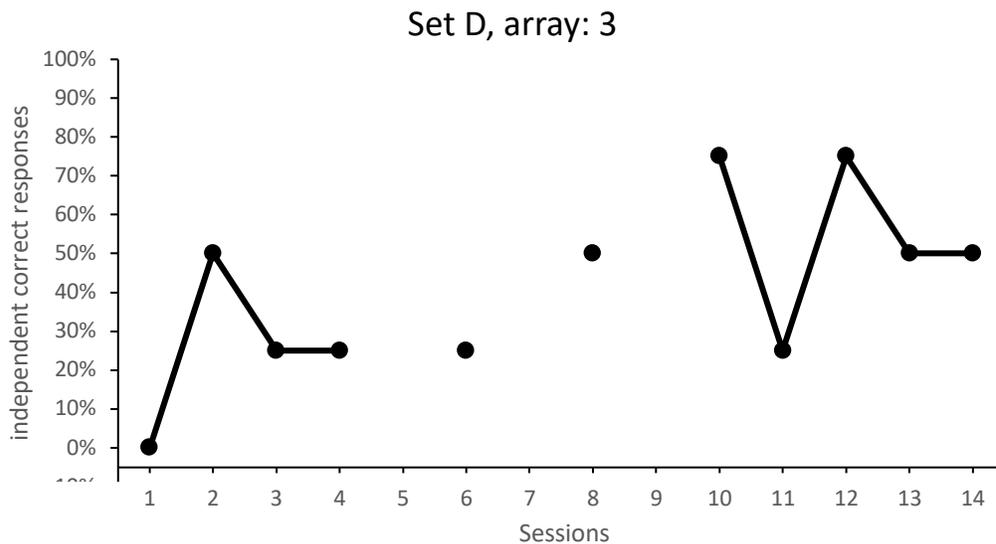


Figure 4. Ivan's independent correct responses for Set D



using constant time delay, where each stimulus set was presented using a different instructional array size. The goal was to determine which instructional array size resulted in the most efficient learning. None of the sets met the performance criteria before the clinic closed for the summer, so we cannot conclude which array size resulted in the most efficient learning. Set A (array of

two) approached the performance criterion more quickly than Sets B and C. This suggests that teaching using an array of two may lead to more efficient skill acquisition for this learner, but since Set A did not meet the performance criteria, more data is needed to support this claim.

The a priori decision to consider performance at the set level may have masked progress at the individual operant level. In other words, one or more targets in the set may have been mastered, but slow progress on another target prohibited the entire set from meeting the performance criteria. We decided to further examine our results at the individual operant level to detect what progress was made on individual items.

First, we analyzed Ivan's progress on each target fruit in Set A, the set in which the data suggested that he might meet set-level performance criteria first. Set A included apples, red grapes, pineapple, and watermelon. The parent inventory indicated that Ivan regularly consumed apples and red grapes. When examining progress on individual operant-level and not set-level performance criteria (i.e., 75% unprompted correct on four consecutive 3-s delay sessions on the individual item rather than the entire set), he met the performance criterion by the fourth session (apple) and fifth session (red grapes and pineapple) in the 3-s delay condition. Variability in responding across administration of Set A resulted in the entire set not meeting the performance criteria, however he did appear to master three of the four stimuli using the operant-level performance criteria. This operant-level analysis suggests that the array size of two might have been the best array size to use with this learner, which we may have been able to confirm had we had additional time to conduct more sessions.

Upon further review of all the sets, meeting the performance criteria at the operant level generally aligned with whether or not Ivan was reported to eat the fruit being assessed. The fruits with the lowest level data or slowest progress towards the performance criterion were all fruits he was not reported to eat (e.g., lemon, lime). The fruits that were mastered at the operant-level and the fruits that were just short of the operant-level

performance criteria, four consecutive sessions at 75% accuracy were generally fruits he was reported to eat, such as red grapes, apples, blackberries. In summary, the data suggests better performance on fruit he consumed compared to fruit he did not consume. This suggests that selecting personally meaningful stimuli in skill acquisition programs may contribute to faster skill acquisition.

Further, array size and known targets in the set may have significantly impacted learning targets in Set D (array of four). Set D was the largest array size used in the study. Set D consisted of one fruit that he consumed (orange) and three that he did not (cherry, peach, lemon). None of the targets in Set D (including orange, the one item he was known to consume) were close to the operant-level performance criteria. This suggests that the array of four was not an effective array size for this particular person. Per clinician report, during instruction on Set D, the participant engaged in considerable interfering behavior including vocal stereotypy and not attending to the presented array on the table. Given this, perhaps he was unable to sustain attention long enough to scan the entire array, made worse by the fact that only one item in Set D was a fruit he consumed.

Limitations and Future Directions

Several limitations impact our study. First, we ran out of time to conduct teaching sessions so no sets met performance criteria. Second, most teaching sessions were conducted one time per ABA session, which only occurred twice per week. Due to illness, the student missed several ABA sessions in the beginning of the study, which increased the time between sessions. In the final week, we conducted teaching sessions multiple times per day. Implementing the teaching sessions more frequently and consistently may have resulted in faster skill acquisition, which is consistent with research regarding

dose in skill acquisition programs (e.g., Neil & Jones, 2015). Another limitation is that this study only included one participant. Our previous research on this topic suggests that ideal set size is learner-dependent, which limits our ability to generalize these results to other learners.

Our choice to use this particular instructional program (e.g., identify exemplars of a larger stimulus class) was guided by the student's current instructional goals in the ABA clinic. In pre-study probes, Ivan demonstrated that he could select exemplars from a larger category for categories such as things you eat, things you drink, things you play with, and things that you write with. We chose fruits for our instructional program because Ivan was reported to eat many fruits. However, we had to add additional exemplars that he did not eat in order to complete our instructional sets. Thus, research requirements resulted in the inclusion of targets that were not personally relevant. Another limitation is that although previously consumed fruits were dispersed across the sets as evenly as possible, Set D only had one previously consumed fruit in it. This is also the set with the slowest progress towards the established performance criteria.

Adopting set-level performance criteria did not allow the researchers to easily detect when some individual items were mastered. Future researchers should consider adopting an operant-level performance criterion. This recommendation is consistent with previous research indicating that operant-level performance criteria may lead to faster skill acquisition (e.g., Cordeiro et al., 2022; Kim et al., 2023). This research study offers some limited support to previous research findings by investigating operant- and set-level performance criteria when teaching AVCDs to a young learner with ASD.

Future research should investigate the importance of selecting personally meaningful targets. This could be

accomplished by dividing instructional targets into sets depending on whether the learner had personal experience with those targets, then evaluating which set met performance criteria first. This could be done without investigating array size, or in combination with further study on array size.

Although our smallest array size was two, Grow and LeBlanc (2013) recommend a minimum array size of three. An array size of at least three reduces the possibility that the learner will select the correct stimulus by chance. In their example, a learner with a right-side bias could choose the correct stimulus 50% of the time when the position of the correct stimulus is rotated across trials. Additionally, they point out that an array of two might not support the learner mastering the target stimulus when the array includes a previously mastered target and a new target. Instead, the learner might develop a reject relation with the new stimulus. The learner can select the new stimulus when paired with a previously learned stimulus, but cannot select the new stimulus when presented in a new array of two where one of the two is a third, unknown stimulus. Given these issues, future research should examine array sizes of three or larger and assess how array size impacts maintenance of learned skills.

Future research should investigate how learning to discriminate in smaller array sizes generalizes or contributes towards being able to discriminate in larger array sizes. Research should examine how to progress the student from a small array size to an array size that more closely emulates environments in home, school, and community. Practitioners would benefit from knowing how best to systematically increase array size without impacting learning efficiency.

Finally, future research should also aim to replicate this study on more individuals, using a variety of receptive language programs (e.g., picture identification,

identifying academic content like numbers, letters, mathematical symbols). Researchers may want to consider using a different systematic instruction procedure (e.g., progressive time delay, simultaneous prompting) or varying elements of the instructional procedure (e.g., changing the delay time in constant time delay, implementing an error correct procedure) to best meet the needs of the learner.

Considerations for Practitioners

Practitioners charged with teaching instructional programs requiring a large amount of targets should carefully select those targets. In this study, we asked Ivan's parents to tell us which fruits he regularly consumed and also how they were presented to him. For example, we wanted to know if Ivan was given a whole, unpeeled banana to eat, or if the banana was peeled or sliced before being presented to him. We made sure our images resembled the item as he would see it. For fruits that he did consume prior to the study, we used images that presented that fruit as one might see it before it was consumed, or in a way that would allow him to see both the inside and outside of the fruit. For example, the kiwi image depicted a kiwi that was cut in half so Ivan could see both the inside and outside. Clinicians and teachers should work with caregivers to understand what potential targets the learner may (or may not) have experience with, and the features of those known items that should be included in the targets. If the learner is working on picture identification of food, include images that depict the food as the learner typically experiences them (i.e., if the learner eats scrambled eggs but does not help

prepare them, it would be better to show scrambled eggs rather than whole eggs). There is value to including and teaching targets that the learner does not have experience with. However, knowing if it is a familiar or unfamiliar item may help the teacher analyze the data, especially if progress is slow on particular items.

Practitioners should use operant-level performance criteria rather than set-level performance criteria. Other research has indicated that learners meet skill acquisition goals more quickly when operant-level performance criteria is used (e.g., Cordeiro et al., 2022; Kim et al., 2023). Operant-level performance criteria allows the practitioner to be more responsive to learning and remove mastered targets from the stimulus set.

There are many parameters within skill acquisition programs that can be refined to best meet the needs of the learner. Array size and inclusion of personally meaningful stimuli may be two such parameters. Kodak and Halbur (2021) offer a framework for assessment-based instruction that can be used to investigate these parameters to increase efficacy and efficiency of skill acquisition programs. The framework walks users through a process to assess these parameters using single case research design methods. Kodak and Halbur's framework offers behavior analysts (and teachers) research-based tools to determine how to best modify skill acquisition program parameters to meet a learner's needs. This is prudent considering the possibility that many of these parameters are learner-specific, given the unique needs of the populations we serve.

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Correspondence concerning this article should be addressed to Sara M. Snyder, College of Education, James Madison University, 395 S. High St., MSC 6908, Harrisonburg, VA 22807. E-mail: snyde3sm@jmu.edu

Reflections of Our Experience: A Postsecondary Self-Advocate and Her Mentor

Julie A. Sears
East Tennessee State University

Alaina Satterly
East Tennessee State University

Abstract: As more inclusive postsecondary education programs are implemented, there is a need to share successful programmatic practices that support students with intellectual disabilities. This paper provides a reflective overview of a postsecondary program experience held by the mentor and mentee. The mentee was a first-year college student with an intellectual disability who participated as a self-advocate trainee in a 300-hour health-related certificate program. Building a strong mentor-mentee relationship played a valuable role in this experience. The relationship allowed the mentor to determine the best evidence- and research-based practices to support the mentee. The paper provides a literature review of self-advocacy and postsecondary educational practices for postsecondary learners, an overview of the practices implemented throughout the programming, and reflections from the mentor and mentee. The paper ends with implications and the conclusion that more programs and research should be implemented to support postsecondary inclusive programs for those with intellectual and developmental disabilities.

Students with disabilities are both mentees of faculty in areas of the faculty's expertise and mentors to faculty in areas about disability. ~ Heckman, Brown, and Roberts (2007).

During the 2021-2022 academic year, the Vanderbilt Consortium Leadership Education in Neurodevelopmental Disabilities (LEND) accepted the first self-advocate trainee from East Tennessee State University (ETSU). Alaina, the selected self-advocate trainee, was a first-year college student at ETSU and received support from Access ETSU, a 2-year inclusive college-support experience for students with intellectual disabilities. I, Julie, was chosen to provide educational supports for Alaina to help her complete the program. After Alaina completed LEND, it seemed beneficial to share our experience.

Alaina and I wrote this paper together because the practice aligns with the 'nothing about us without us' disability movement by adding voice to the experience of a person

with an intellectual disability (Charleton, 1998). In addition, providing the mentor and mentee's perspectives gives a richer and more robust description of our experience. In this paper, we provide a literature review of self-advocates and postsecondary educational supports, a description of LEND and the self-advocate trainee's role, then discuss the program's supports utilized, followed by the mentor and mentee's relationship and reflections.

Self-Advocates

Through self-determination skills, postsecondary students with intellectual and developmental disabilities have a higher quality of life because they can make more personal decisions in their own lives (Chambers et al., 2007; Schalock 2004; Wehmeyer, 1997, 2020). One self-determination component is self-advocacy skills, which allow expressing preferences and eliciting support from others by knowing what to advocate for and how to do so (Loham et al., 2010, Wehmeyer, 1997). To

utilize self-advocacy, students with intellectual and developmental disabilities must understand their rights, have a knowledge of self, and have skills in communication and leadership (Test et al., 2005).

In inclusive higher education programming, self-advocates play an important role by bringing their experiences and perspectives into discussions about those with disabilities. Through participating in postsecondary educational settings, self-advocates begin to understand their disability better, learn about available services and accommodations, expand communication skills to meet their needs, and improve their knowledge about their strengths, limitations, and abilities (Kimball et al., 2016; Test et al., 2005). Furthermore, those without disabilities benefit from personal interactions and learning through the first-hand experiences of those with disabilities (Nelis, 2010).

Postsecondary Educational Supports

To ensure the success of people with intellectual and developmental disabilities within postsecondary settings, it is necessary to implement individualized supports so they can remain active and involved community members. Postsecondary educators should utilize effective instructional practices derived from evidence-based and research-based practices to promote academic success. However, there is a paucity of research focused on postsecondary students with intellectual disabilities concerning academic progress in inclusive programs. Becht et al. (2020) found 43 studies focusing on postsecondary students with intellectual and developmental disabilities, and less than half focused on inclusive postsecondary settings.

Mentoring postsecondary students with intellectual and developmental disabilities is another effective practice that can be

implemented. Although little research exists concerning mentoring college students with disabilities (Heckman et al., 2007; Jones & Goble, 2012), the existing research indicates that mentoring faculty are a vital part of these students' college success, both inside and outside of the classroom (Dowrick et al., 2005; Jones & Goble, 2012). Having a mentoring faculty is particularly useful during the student's first year of college (Patrick & Wessel, 2013). Mentorship is most effective when formal and informal interactions build positive and trusting relationships. Through these interactions, mentees learn about campus resources, gain advice, practice engaging with faculty, helping to form relationships with other faculty, and feel that someone on campus cares about their personal success (Patrick & Wessel, 2013). Such information strengthens the ability of students with disabilities to better advocate for themselves.

Leadership Education in Neurodevelopmental Disabilities

The LEND programs are long-term graduate-level interdisciplinary training programs developed to improve the health of infants, children, and adolescents with disabilities (Association of University Centers on Disabilities (AUCD), n.d.). There are 60 LEND programs within the United States and its territories, which are federally funded through the Maternal and Child Health Bureau. Each LEND program is unique in its focus and expertise yet holds common objectives to advance the knowledge and skills of child health professionals, provide high-quality interdisciplinary education, foster community-based partnerships, and promote family-centered, community-based, culturally competent, and interprofessional services (AUCD, n.d.).

The Vanderbilt Consortium LEND (VCL) is based with the Vanderbilt Kennedy Medical Center and has a primary partnership with

East Tennessee State University and six other Tennessee higher education institutions. Every academic year, approximately 30 trainees participate in the 300-hour certificate program. Trainees include graduate-level health and education professionals, medical students, family members, and a self-advocate. To support the program objectives, trainees learn skills to hold leadership roles within their professions and communities by collaboratively learning from interdisciplinary faculty and other trainees to better serve children and families with neurodevelopmental and other disabilities.

Self-Advocate Trainee

The role of the self-advocate is invaluable for both the self-advocate and the disciplined trainees, as they learn from each other. Through LEND, self-advocates learn more about their own disabilities and other types of disabilities from a clinical perspective (Nelis, 2010). Self-advocates also learn about essential skills for decision-making and communication skills to have their needs better met, which leads to not only a more successful college experience (Goldhammer & Brinckerhoff, n.d.; Stodden et al., 2003) but to a higher quality of life (Schalock, 2004). Equally important, trainees without disabilities can engage with and learn about the experiences of people with disabilities to help broaden their perspectives (Nelis, 2010).

Due to the important role of the self-advocate, our leadership team sought additional support for the self-advocate trainee. All trainees were regularly assigned a faculty member, who helped develop an individualized plan and completed monthly check-ins. The leadership team added a mentor for the self-advocate trainee to add another support staff. Due to my background in special education and mental health, I was assigned to be the mentor and to make necessary educational supports. I have a

doctorate in philosophy in educational leadership and policy studies and a master's in special education.

Alaina

Alaina, the self-advocate trainee, was selected as the LEND trainee because of her experience as a person with an intellectual disability, her desire to become a stronger advocate, and her current goal is to work in the medical field. Throughout the paper, Alaina's writing is noted in italics to distinguish her perspective. Alaina starts by providing some information about herself.

Hello. My name is Alaina. I was the 2021 LEND Self Advocate Trainee. I am 20 years old. When I was born, I was the typical weight and length for a newborn. However, I was too weak to suck from a bottle or drink breastmilk from my mom and ate from a feeding tube to maintain a healthy weight, which my parents found unusual. I had tongue-strengthening therapy until I was able to eat on my own. At 2 weeks old, I was taken to the hospital for genetic testing. That is when my parents found out I had Prader-Willi Syndrome (PWS), a rare genetic disorder affecting the deletion of chromosome 15 from my dad. People with PWS have a low metabolism, some psychological and behavioral issues, cognitive development disabilities, and many other challenges.

To tell you more about PWS characteristics. Facial characteristics include almond-shaped blue eyes and blond hair. It is common to have clubbed feet and scoliosis. Scoliosis usually requires surgery depending on the severity of the curvature, which was my case after wearing a back brace that did not work. My clubbed feet were cured by using a brace and physical therapy. We

also have low muscle tone, which can be improved with occupational therapy.

Sex organs are also underdeveloped in most. In rare cases like mine, I can carry a child and have working reproductive organs, but it is still risky to carry a child. However, most females with PWS who have these functioning organs must take birth control for the rest of their lives because they can have delayed or non-existent menstrual cycles. Without birth control, there is a higher risk of uterine and gynecologic cancer.

Many who have this syndrome are in special education and are unable to meet the necessary requirements to receive a high school diploma. However, I was fortunate to receive a diploma with minor special education support because I am high on the spectrum. As of August 2021, I was accepted into ETSU with the support of Access ETSU, which is a 2-year college non-degree-seeking program for those who have intellectual disabilities. Now that I have completed Access ETSU. I plan to get my bachelor's degree in Public Health in the microbiology department.

As a person with an intellectual disability, Alaina explains what being a self-advocate means to her:

A self-advocate is someone who speaks up for those who have a disability and is a support for those who have a disability. Self-advocates need to learn how to speak professionally and respectfully to help others learn how to treat those with special needs.

Programming and Supports

The VCL programming has several educational components. The two major curriculum components are the core

curriculum and a leadership series. For the core curriculum, trainees complete 24 online modules, which focus on characteristics of neurodevelopmental disabilities, ethics in practices and research, and other health-related topics. Core teams consist of four to five interprofessional trainees. The team members work together to answer questions based on the module readings and submit written responses for review and feedback from expert faculty members. A team leader assigns pre-determined questions to each member, then compiles and edits the responses. For the leadership series, trainees learn about their personal traits and leadership skills. At the end of each leadership module, trainees submit a reflection. Bi-monthly evening sessions are held via Zoom with expert faculty. Additional required activities include attending orientation, visiting community agencies, and participating in an interprofessional group project, along with other activities determined between the assigned faculty member and trainee.

Initial Meeting

Before the LEND orientation, I met with Alaina at her initial Access ETSU person-centered planning (PCP) team meeting. Often, PCP meetings are used for students with intellectual and developmental disabilities to develop “collaborative supports focused on community presence, community participation, positive relationships, respect, and competence” (Claes et al., 2010, p. 432). Research has shown that PCP meetings are a meaningful way to engage learners in postsecondary settings and their families to increase engagement and self-advocacy which leads to enhanced outcomes (Turnbull et al., 2020).

During the PCP meeting, Alaina remained quiet while her parents provided information about her. We discussed how the role of the

self-advocate was to share personal experiences and that our sessions and assignments were safe spaces for her to disclose personal information about her disability and experiences. I learned about Alaina's strengths and challenges through her parents, which helped me determine a starting point for implementing her individualized support.

Alaina writes about her initial thoughts about starting the LEND program:

I remember being quite reserved when I first started LEND. When I first met Julie, I did not really open up much to her. If I recall correctly, she told me, "You are going to have to talk to me, so I know your story and know how to support you best." It took me about 2 months to be comfortable speaking to my mentor and my group members.

Another thing that comes to mind, is that I really did not fully know what and how much work the program entailed. I did consider that the workload was at a graduate school level, but I did not realize how difficult it would be. At first, the program seemed overwhelming because there were readings and prompts for core seminars, leadership reflection essays, pre-class preparation materials, group projects, and community agency visits. I was also required to be the team leader once a month for the core modules. I eventually got a handle on it with the help of various supports.

Pre-Reading Activities

Reading comprehension skills are essential for individuals with intellectual disabilities, and strategies should continue to be taught in postsecondary settings (Shelton et al., 2019). To help support Alaina's comprehension of the module readings, she and I set a 1-hour

weekly session to preview the module's materials. Our pre-reading sessions focused on evidence-based reading comprehension strategies by building on Alaina's background knowledge, previewing reading materials, and using guided questions (Duke & Pearson, 2009; Watson et al., 2012).

Our meetings started with a preview of the module's learning objectives, which allowed me to evaluate Alaina's background knowledge of the topic. First, the objectives were verbally reviewed and simplified, as needed, to help Alaina decide what important facts she should look for while reading the materials. The assignment questions were reviewed to help establish a purpose for the reading (Ford & Opitz, 2011). Next, we previewed the reading materials with a superficial review of the chapter and article titles, looking through the pages for subtitles, charts, graphs, and text length (Kashyap & Dyquisto, 2020). This step helped Alaina determine which sections may provide applicable information in answering her assigned question. Through this process, we looked for words that Alaina might be unfamiliar with, discussed the meanings to help activate prior knowledge, and examined new words through explicit vocabulary instruction (Afflerbach et al., 2020).

Knowing the meaning of the words in a difficult text helps improve students' comprehension and ultimately acquire content knowledge (Swanson et al., 2017). Based on her prior knowledge, I adjusted the time spent using explicit instruction for the vocabulary words, an evidence-based practice (Kamil et al., 2008). When teaching Tier 2 words, learner-friendly explanations were used by simplifying the definitions (Archer & Hughes, 2011; Hamel, 2016). Tier 2 words are high-frequency, abstract, descriptive, and often used across disciplines (e.g., benefit, context, environment). For

Alaina, using learner-friendly explanations meant using an online dictionary (e.g., Merriam-Webster Student Dictionary) to find simplified meanings. I also gave her examples in sentences.

The module reading assignments are mostly expository texts focusing on neurodevelopmental disabilities. Expository texts are often complex and dense with unfamiliar content-specific vocabulary, known as Tier 3 words (Gajria et al., 2007; Shelton et al., 2019). Tier 3 words are the low-frequency words that occur within specific subjects (e.g., neurodevelopmental, cerebral palsy, genetics, etc.) and need to be taught to understand the content better (Hamel, n.d.). To help ensure Alaina understood the content, I implemented Archer and Hughes' (2011) guided approach to explicit vocabulary instruction for Tier 3 words by exploring the embedded prefixes, suffixes, and or root words to find meanings. One textbook required for the program contained definitions of medical and disability terminology and was used to help provide explanations of unknown definitions.

Sometimes, the information was difficult and required me to modify the language. After reading the definitions, I would explain the definition by using plain language (PL) which is the communication process of using health terminology in a clear and accessible way to help be understood by the intended audience. Stableford and Mettger (2007) applied Strunk and White's (1979) *The Elements of Style* writing practices to develop PL guidelines, which include

- clean, accurate, and brief language;
- short sentences;
- a void of unnecessary descriptive, bureaucratic, or jargon-filled language

- use of commonly understood words rather than difficult abstract words and concepts;
- and friendly, conversational tone rather than formal and scholarly tones.

In education, PL has not been cited as a research-based practice. However, other research fields, such as medicine, indicate that PL can help people with low health literacy skills to understand information better (Greene et al., 2017). For Alaina, applying PL appeared to strengthen her understanding of the unclear medical terms she encountered in the readings.

Alaina provides her thoughts on how using PL and reviewing the definitions helped her.

I think breaking down definitions helped me to understand the text better. More so, Julie helped me break down complex phrases. Discussing the overview and reviewing the session's slides helped me, too, because I was better prepared and ready to answer questions.

Readings and Notes

Alaina completed the module's readings independently, and rotating team members shared their peer notes to further support her comprehension and recall. Although notetaking is heavily used in postsecondary education, there is a paucity of research on evidence of peer-note taking (Childers, 2013). The little research that was found focused on taking notes during class. However, Kiewra et al. (1991) observed that undergraduate students who reviewed peer notes facilitated the ability to recognize main points, helped the students make sense of the lesson materials, and improved the synthesizing of information. In addition, peer notes helped college students with learning difficulties by providing clarity, expanding on information, and organizing content (Childers, 2013; Reis et al., 2000).

Alaina appeared to gain the same benefits by citing that the peer notes were beneficial:

Peer notes provided me with important information from the core curriculum articles. The notes helped Julie and me when we met to complete my questions. Sometimes, I did not read or was silent because I did not understand what I was reading, although this lessened as the class went on.

Post Reading Activities

After completing a module, Alaina and I would meet for 1-hour in-person sessions. This time was used one of two ways, based on how well Alaina felt prepared to answer the pre-assigned module question(s). If Alaina did not feel ready to answer the question, I would use the time to help her develop an answer. In other sessions, when she came prepared with an answer, I would provide feedback on her writing.

During the sessions, when Alaina needed further guidance in answering the question(s), I used guided questions to help narrow the information she needed to construct her answer. Guided questions differ from other types of questions by being open-ended and focusing on inquiry, succinct, non-judgmental, and can encourage emotional and intellectual responses (Association for Supervision and Curriculum Development, 1998). There are many benefits to using guiding questions as it allows learners to apply higher levels of thinking by recalling information already known, allowing them to connect ideas to broader perspectives (Maria, 2022; Wong et al., 2002), and improve their descriptive writing (Wardani et al., 2014). By providing guiding questions, Alaina used her texts and peer notes to narrow down where to find the information needed to help answer the question. She would re-read the information, then we would discuss her

findings. I continuously asked questions, narrowing Alaina's focus until she felt comfortable synthesizing a written response.

Alaina indicates it was helpful for me to give her hints of what topics to focus on:

Julie helped me make my own notes when planning my question on what I should write, or she would say, "Think about...." I really liked that because it helped me think about what to write. Sometimes, I already had ideas, and Julie would help me polish my thoughts.

In sessions when Alaina came with a written answer, we reviewed her written response for content, basic writing structure, and grammar. As Mason et al. (2011) stated, the first step is to evaluate the student's prior knowledge and abilities regarding the writing process and self-regulation strategies before incorporating explicit instruction. Initially, Alaina's writing held two primary challenges common for students with disabilities. First, she wrote with a stream of consciousness by using the "relevant idea, writing it down, and using each preceding phrase or sentence to stimulate the next idea" (Graham & Harris, 2009, p. 61). Second, she was challenged to write topic sentences (Mason et al., 2011) and align ideas to the topic sentence.

To help strengthen Alaina's writing, I used explicit writing strategies, which are research-based, based on the six instructional stages of self-regulation in writing—*developed and activate background knowledge, discuss it, model it, memorize it, support it, and independent performance* (Graham & Harris, 2009; Mason et al., 2011). Alaina grasped this concept quickly, and she was able to implement more robust writing techniques (e.g., topic sentences, paragraph structure, and grammar). After a few times discussing and modeling these techniques, she showed improvement in her formatting

and clarity. To further her writing, Alaina read her peers' responses, which were strong exemplars of quality writing and helped to reinforce what Alaina was taught (Sawchuk, 2023).

Alaina was proud of how much her writing improved during LEND. During the second semester, Alaina enrolled in a college introductory English composition course and continued to advance her writing skills. By strengthening her technical writing skills, Alaina focused more on the content than the technique. Focusing on content, she offers advice when writing about people with disabilities.

Whether writing as a person with a disability or writing about inclusion as a person without a disability, you should write professionally, respectfully, and in a caring, supportive manner. This is mandatory. Otherwise, if this cannot be accomplished, then avoid writing a paper about people with disabilities. They [people with disabilities] have feelings, so respect that. Even as a person with disabilities, writing this way is difficult and has taken practice. I hope my advice is helpful.

Evening Sessions

At the beginning of the program, Alaina and I participated in the evening sessions together via Zoom rather than from home alone as the other trainees did. After a few sessions, some adjustments needed to be made to increase her engagement with her group members during the fast-paced discussions, which lasted for several minutes.

During our preparation time, Alaina and I previewed the session's PowerPoint to familiarize her with questions that would be asked during the small and large group discussions. We also reviewed any questions prepared by the faculty, as sometimes faculty members wanted Alaina to share her personal

experience so other trainees could hear about her experience through the lens of a person with a disability. This extra preparation provided Alaina time to organize her thoughts without the pressure of everyone waiting for her response.

When asked a question during the session discussions, Alaina had prolonged response times (30+ seconds) due to the time it took to place her hand on the mouse and unmute herself. She often responded, "I don't have anything to add." To further mitigate this delay, I implemented a 30-minute meeting to prepare before the sessions and integrated more supports during the session.

To help improve delayed responses, Alaina was supported with the research-based practices of verbal prompts and extended wait times to answer questions during group discussions (Dogoe & Banda, 2009). Frequent verbal prompts increase on-task behavior and correct task responses (Lancioni et al., 2000). Extended wait times help to increase fewer inflected responses (Rowe, 1986; Ingram & Elliot, 2013). Therefore, the leading faculty were asked to integrate these practices.

For example, during small group discussions, the leading faculty member would say, "Alaina, I will ask you the next question about..." Not only did this give her time to prepare a response mentally, but it also gave her extra time to place her hand on the mouse to unmute herself. Overall, the extra preparation time, verbal prompts, and increased wait time allowed Alaina to be more engaged with her pre-determined answers and decreased the lag time in responding. Additionally, Alaina increased the number of appropriate responses. The negative side to her answering the next question appeared to cause her not to focus

on the response being given as she prepared herself.

Alaina gives her perspective on the evening sessions.

I found a few things particularly useful. At the beginning of the program, I sometimes did not answer because I was put on the spot or felt nervous. Other times, I simply did not answer because I could not think of an idea. As the program progressed, I became more enthusiastic and sometimes added to the discussion without someone specifically asking me a question. Discussing the overview and reviewing the session's slides helped me feel better prepared and ready to answer questions.

What I really liked about the sessions was that every trainee and staff member supported me, and their words of encouragement made me feel good. At the end of the semester, several of the trainees and faculty were amazed at how far I had come in being able to share about my disability. I was able to make connections with trainees and become their life-long friends.

Mentor-Mentee Relationship

According to Patrick and Wessel (2013), the mentor-mentee relationship for first-year college students with intellectual disabilities holds many positive characteristics, such as providing individualized support, increasing awareness of campus resources, and getting to know faculty. These characteristics were true in our experience. As we spent more time together, Alaina felt more comfortable asking questions, which provided me with opportunities to support her with programming needs and other campus resources.

As typical for successful mentorships, our relationship evolved into a friendship (Heckman et al., 2007). Alaina and I found that we have common interests and developed a close and trusting relationship (Patrick & Wessel, 2013). This relationship allowed me to support her further, as I became an engaged and supportive member of her person-centered planning. We continued our relationship after Alaina finished the program and continued to work on self-advocacy projects together, such as this one.

To add to the mentor-mentee relationship, Alaina has advice for mentors on how to make a mentee feel supported:

To be a mentor to a person who has a disability, the mentor must support them and be their friend. The mentor has to be nice to the person with disabilities, or the mentor will not be trusted. If the person is non-verbal, that does not mean talking poorly to them. Studies have shown that people with autism have a sixth sense of what others are thinking or can still understand, to an extent, how something is being said to or about them (Molko, 2022).

So be their advocate, support them, make them feel good, and praise them. They will appreciate it and feel more comfortable sharing their struggles and stories. Do not be afraid to say "fix this" or to be firm at times. If needed, say, "Hey, this needs to be done." Julie had to do this to me; it stung but she meant well. She did it because she cared about me and wanted to prepare me for how other professors expected things to be done. I do not think I could have completed the program without her continuous support throughout the year and with the LEND faculty and staff pushing me to work hard.

Mentor Reflections

As a mentor, I learned more about Alaina and her needs to help her reach her fullest potential. Equally important, I was reminded of my own assumptions, expectations, and the need to prioritize student meetings for consistency. Through this reflective process, I have implemented new approaches to improve myself as an educator.

Assumptions

During the program, I became more cognizant of my assumptions about learner avoidance. For example, in the first few weeks, Alaina was tardy in submitting her assignments. I began to assume that she either did not care if she completed the work or that she was not able to do the work. Through our one-on-one conversations, I found that Alaina was missing the necessary skills and tools to complete her assignments. She did not have Office 365 downloaded to her laptop, did not know how to copy and paste text into a Word document, or attach a document to an email. Once the barriers were removed, her timeliness improved.

Through this experience, I have generalized my understanding of my assumptions into my practices as an adjunct professor. My approach to working with students with and without disabilities now focuses more on the individual student. Since I see every student as a mentee, I offer time to meet individually to determine the tools and skills each student has and needs to succeed in the classroom. Increasing my one-on-one communication has become particularly useful in supporting younger students. This at-risk population has experienced most of their college careers online due to the Covid pandemic, which has denied them experiences to learn classroom etiquette and expectations, along with being denied access to academic resources (Aguilera-Hermida, 2020; Daniel, 2020).

Therefore, creating risks for this group of students to be missing tools necessary for postsecondary success that need supported.

High Expectations

Questioning my assumptions has not thwarted my high expectations, as research repeatedly has shown that high expectations produce high outcomes (Boser et al, 2014; Rosenthal, 1968). Through seeing what Alaina achieved, my expectations have become even higher for all students. The experience has reinforced my approach to the learner's needs through the lens of the social model by focusing on removing the barriers which prohibit the person with disabilities from being independent, having choices, and having control over their decisions (Disability Loop, 2023). However, once the barriers are removed, the learner has a responsibility to accomplish the expected goal.

Pre-determined Meetings

While the positives of mentorship outweighed the negatives tenfold, the mentoring process took significant time and motivation. Throughout the academic year, Alaina and I spent on average 5.5 hours together a week. For us, keeping consistent meeting times became particularly difficult as the semester went on, and the stressors of semester deadlines, tests, and assignments became more demanding. Because of this added pressure, prioritizing our meetings became essential. I found that setting a pre-determined meeting time, agreed upon by both parties, held each other accountable and provided consistency, as each meeting had a specific goal to achieve.

Mentee Reflections

As the mentee, Alaina has several reflective points she wants to share about her LEND experience. She writes about her experience becoming a more knowledgeable self-

advocate, her improved writing skills, and our mentee-mentor relationship. She also discusses how LEND has impacted her as she goes forward.

Self-Advocacy

Through the LEND program, I had a few things from which I gained knowledge and experience. I gained the most from the lessons on how to best advocate for others with disabilities and how to speak in a professional manner. Another thing that impacted me as a self-advocate trainee was mentoring others in the Youth Advocacy Council, a youth program for those wanting to get involved in advocacy work. At first, the youth were quiet but then eventually spoke out after I shared my own experiences. Another thing that I found insightful was going to community agency visits that specialized in therapy programs and educational aspects for children with intellectual disability.

Writing Skills

My writing skills were not the greatest coming into the program. I had to take what I learned in high school and turn it into college-level writing, format, and structure. I had a decent vocabulary but poor comprehension skills. However, I have improved my skills through academic coaching and Julie's help. I learned how to edit my papers and critique them again and again with practice. Julie was the main foundation of my improved writing skills.

Mentor-Mentee Relationship

Lastly, I will touch on the mentor-mentee relationship. I think when I first came into the program and met Julie, I was very reserved and quiet. It took me a while to warm up to her, but we gained a close relationship quickly. Without Julie's support, I am 100 percent certain I would

have quit LEND. I needed the motivation to move forward because she knew the program was difficult for me and knew I could accomplish it with positive reinforcement and encouragement. She had an amazing ability to know what I needed. Most of the time, without me telling her, she knew how to resolve the issue. Julie is proud of my dedication and how I grew to feel comfortable speaking to my group. I think improving my communication skills has helped to prepare me for future jobs.

Going Forward

I was fortunate to be in a program like this and to take classes for credit as a non-degree-seeking student with Access ETSU, both of which are helping me go forward. This spring, I graduated from Access ETSU, the non-degree-seeking program. In the fall, I will start taking classes as a degree-seeking student.

Julie and I will continue to share our story so others can understand what having a disability is like and the advantages of having a mentor to support someone with disabilities. I am so glad we get to continue our journey as an advocate and mentors to each other. I want to give a special thanks to my mentoring faculty member, the LEND faculty, and especially my mentor, Julie, for a rewarding experience as a self-advocate trainee.

Implications

Our relationship and experience cannot be exactly replicated, as Alaina is one person with strengths and individualized needs. Coming into the program, Alaina had the foundational skills to complete the LEND program. Most students with intellectual disabilities do not spend much time in the general education classroom (Bouck & Satsangi, 2015; Shelton et al., 2019). Alaina

is an exception, as she spent more time in general education classes than is typical for students with intellectual disabilities. Alaina's background of participating in the general education classroom, being an avid reader, and having parents educated in health fields likely contributed to Alaina's ability to engage with the more complex health-related expository texts and basic writing skills. Additionally, participating in her medical appointments may have exposed her to health-related terminology (Jordan, 2020).

With the growth of postsecondary education programming for students with intellectual disabilities, lessons learned from other educators and students can be beneficial but not enough. In reflection, two important factors supported a post-secondary learner with intellectual disabilities. First, mentoring allowed for a trusting relationship and open communication, which provided the mentor with an understanding of what appropriate educational support and other resources were needed by the mentee (Patrick & Wessel, 2013). Educational support often was provided by evidence- and research-based practices that have been found effective in K-12 settings because there is a lack of available research focused on the academic success of postsecondary students with intellectual and developmental disabilities (Becht et al., 2020). Therefore, there is a great need for

educators and researchers to continue to implement educational support practices and research what is already known to be effective for this population.

Conclusion

Even though our experience cannot be replicated, our experience provided us with lessons learned. For me, it was to remove my assumptions and keep my expectations high. My role as the mentor was to provide a supportive learning environment, remove any barriers, and implement evidence- and research-based practices to help the mentee to be as successful as possible. Alaina, the mentee, found that through her LEND experience, she was a valuable member because she could teach others about her experience of having a disability. Alaina also improved her self-advocacy skills through her writing. We both grew from the mentor-mentee relationship, which continues to impact us today. The time involved in building the mentor-mentee relationship and determining the appropriate educational supports did take time and effort, which was not always easy to manage. However, the lasting positive impacts were well worth the effort. By sharing our experience, we hope to ignite creativity for other postsecondary educators as they develop more inclusive programs, as such initiatives can positively impact everyone involved.

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Corresponding concerning this article should be addressed to Julie A. Sears, P.O. Box 70547, Johnson City, TN 37614. E-mail: searsja@etsu.edu

Using Disney Films to Create Trauma-Informed Classrooms for Students with Autism

Kristina Scott
Salem State University

Laurie Dickstein-Fischer
Salem State University

*Abstract: Disney films have long been regarded as cultural icons, captivating audiences of diverse ages and backgrounds. This article examines using Disney films as a foundation for trauma-informed counseling and teaching practices for students with autism. It presents a case study vignette that illustrates how the film *The Lion King* can be utilized to help a student with autism understand the trauma of losing a loved one. This real-world traumatic event is broken down into a teaching sequence that utilizes a collaborative school counseling approach to help students with autism understand character emotions, relate character emotions to self, and then manage emotions in healthy ways. Furthermore, the article explores the broader implications of using Disney films to identify and process complex emotions, behaviors, and rituals associated with the experience of losing a loved one. The findings shed light on the significant value of integrating Disney films into trauma-informed interventions for students with autism.*

Disney films have captivated audiences across generations, becoming an integral part of popular culture. It is important to acknowledge that some of these films have depicted negative stereotypes and mistreatment of individuals from diverse backgrounds. However, beyond their role as entertainment, these movies possess untapped potential as educational tools in creating trauma-informed classrooms, particularly for students with autism spectrum disorder (ASD). ASD is a complex neurodevelopmental condition that impacts social interaction, communication, and behavior. It is a spectrum disorder, affecting individuals differently and to varying degrees. The prevalence of ASD has been increasing in recent years and is estimated to affect 1 in 44 children (Center for Disease Control and Prevention, 2022).

Forty-six million children experience violence, crime, physical and psychological trauma yearly in the United States (Listenbee et al., 2012). Trauma can significantly

increase the risk of mental health problems, poor school performance, difficulties with social relationships and behavior, and physical illness (Gerrity & Folcarelli, 2008). Children with autism have an increased risk of exposure to traumatic events, with a three-fold increase compared to their typically developing peers (Fuld, 2018; Hibbard & Desch, 2007). Some researchers (Brenner et al., 2018; Kerns et al., 2015; Michna et al., 2023) suggest that individuals with autism may be more susceptible to traumatic stress because of difficulties with language comprehension, informational processing, emotional dysregulation, and increased rates of social isolation.

The adverse childhood experience (ACE) studies examine the development in understanding the impact of stress and trauma on mental health (Fuld, 2018). This important work has led to greater awareness and research into trauma-informed care practices and prevention. Berg et al. (2016) examined and identified rates of ACEs in

children with autism. Their seminal work suggests that a diagnosis of ASD is significantly associated with a higher probability of reporting one or more ACEs. Trauma can significantly impact the academic, behavioral, and mental health outcomes of children with autism. Children with autism who have experienced trauma may have difficulty with concentration, memory, and organization, making it difficult for them to succeed academically (Bell et al., 2013; Romney & Garcia, 2021). In addition, children with autism who have experienced trauma are at a greater risk for mental health challenges, such as anxiety and depression (Kerns et al., 2015; Kerns et al., 2017; Romney & Garcia, 2021)

Numerous evidence-based approaches (cognitive-behavioral intervention for trauma in schools [C-BITS], support for students exposed to trauma [SSET], and trauma-focused cognitive behavioral therapy [TF-CBT]) for trauma have been addressed in the neuro-typical population (Bell et al., 2013; Jaycox et al., 2010). These empirically supported treatments, however, may not translate to effective trauma-informed practices and treatment for individuals with autism. The presence of social and communication differences in individuals with autism calls for scaffolded interventions to understand trauma. The use of video modeling and video-social stories has been well-researched in the population with autism but using videos to approach discussions around trauma and how to advocate is limited. This paper explores how Disney-animated videos may be used to help individuals with autism discuss and process trauma. Trauma-informed classrooms can provide a safe and supportive learning environment for students with autism, and Disney films can be used as a medium to facilitate this process.

Using Video-based Modeling

Video-based modeling is founded in observational learning theory, which believes that individuals observe a skill or task and then imitate the behaviors they see (Bandura & Walters, 1977). With video-based modeling, individuals can watch and rewatch videos of exemplar models performing specific skills (Mason et al., 2013). Video-based modeling interventions often combine video demonstrations, live in-person modeling, and explicit instruction with visual cues (Bellini & Akullian, 2007). Individuals watch a model, then an instructor explicitly talks about the behavior and skill, and then with guidance and support, the individual performs the behavior (Bellini & Akullian, 2007). Video modeling has been used to change behaviors or to teach new behaviors. Research has been published on video modeling and its effectiveness in teaching various skills to students with autism. These skills include social skills, play skills, vocational skills, imitation skills, and safety skills (Akmanoglu & Tekin-Iftar, 2011; Kellems, 2010; Mason et al., 2012; Nikopoulos & Keenan, 2007; Sani Bozkurt & Ozen, 2015; Treshko et al., 2010). Video modeling is an evidence-based practice for teaching students with autism and developing social, communication, joint attention, play, school-readiness, academic, motor, adaptive, and vocational skills (Wong et al., 2015). Limited studies have focused on how individuals with autism could use video modeling or videos to respond to trauma.

Components of Disney Films

Disney films in the classroom can be an effective tool for creating a trauma-informed classroom for students with autism. Disney films have relatable characters and themes that can help students with autism understand and express their own emotions and better understand the emotions of others. One possible reason why children with autism

may prefer Disney films is that they provide a sense of predictability and routine. Children with autism often struggle with change and uncertainty, and Disney films often have a familiar and consistent narrative structure. The characters and stories in Disney films are also often simple and easy to understand, which can be beneficial for children with autism who may have difficulty processing complex information. Another reason why children with autism may prefer Disney films is that they provide a means of socialization and communication. Children with autism often struggle with social interactions and communication (Kasari & Patterson, 2012), and Disney films can provide a non-threatening way to learn and practice social skills. Disney films' relatable characters and themes can also be used as a starting point for discussing emotions and social interactions. Below is a case study that illustrates how teachers and counselors can use videos and concepts from video modeling to respond to trauma surrounding the loss of a loved one in a student with autism.

Case Study: Charley's Response to Trauma

Charley, an 8-year-old with an autism diagnosis, recently had a close relative, Nana, pass away. This is the first death that Charley has encountered. The family decided Charley would attend the religious service and the after-life celebration. Since attending these events, Charley has been asking many questions and is hyper-focused on "birth to death." Charley has not been crying but does seem angrier than usual. The questions Charley asks are very process and fact-oriented, such as, "How does Nana get to heaven?", "Why is she in a box?", "When I go to heaven in a box, will you go with me?", "How do people become angels?", "What is a soul?", etc. Once Charley starts asking questions, he perseverates on this line of questioning for at least thirty minutes or until

a distractor enters the environment. This questioning has become part of Charley's nightly bedtime routine. The adults in Charley's world answer some of the questions, but after extended periods of time, they look for distractors and ways to change the interaction. Even when Charley is satisfied by answers from adults, the same questions are asked the next time he starts asking questions about Nana.

When Charley attends school, sometimes this line of thinking comes up if he works one-on-one with an adult, but it has also come up as he speaks with peers during recess. The adults in the school environment try to refocus Charley on the work. His peers, however, often run away after hearing one or two questions that they do not have the answers to. Charley seems distracted by his thoughts around his nana's passing and cannot focus on schoolwork because of this. When not asking questions, Charley has been seen doodling pictures of 'heaven' and the 'box' that Nana was in for the religious ceremony. Before Nana's passing, Charley would often be seen drawing pictures of outings he and Nana had together or telling stories of what he did over the weekend with Nana. Charley is no longer telling these stories of the past and is not remembering Nana through these memories.

The adults in Charley's world know that the questioning is how Charley processes the information. They also believe that the answers they give Charley do not seem concrete enough to satisfy him. They are looking for a way to help Charley constructively process his nana's passing. After Charley's mom and schoolteacher discussed what they have been seeing over the last three weeks with Charley, they decided to meet with the school counselor, Ms. Eva, seeking ways to help Charley process. Ms. Eva asked questions about

Charley's interests before Nana's passing and, through this learned about Charley's love of animated movies, especially Disney films.

Ms. Eva then creates an individualized lesson on trauma and grief using *The Lion King*. This movie tells the story of Simba, a young lion cub destined to become king of the Pride Lands. However, after the death of his father, Mufasa, Simba must come to terms with his grief and accept his role as king. The film deals with the complex topic of death in a way that is appropriate for children and can be used as a tool to help them process their feelings about loss.

Ms. Eva plans for the lesson by finding the clip of Simba processing his father's passing to think about framing her conversation with Charley. In this one-on-one lesson with Charley, Ms. Eva begins by showing a small clip from *The Lion King*, where Simba sees his father, Mufasa, falling and then runs to him and knows he has passed. This visual image is used to start a conversation about Simba's feelings and will allow Charley to see that others have experienced loss. Simba's emotions are easily seen as he is scared, in disbelief, crying, and feeling lost. These emotions should be explicitly called out, and some questions could be asked to see how Charley is processing this. This processing and guided questions can segway into "The Circle of Life" concept that *The Lion King* begins with. After understanding the character (Simba) and feelings that Simba has, the school counselor can then help Charley start to make connections to himself.

Ms. Eva planned the above lesson and delivered it to Charley. This conversation happened with Ms. Eva once. Then, Charley's parents and teachers began to use this scripted lesson and conversation with Charley every time he asked questions about

his nana's passing. After several days of relating to *The Lion King* and Charley viewing the movie, Charlie began to stop asking questions. However when he did ask a question, he followed up by saying, "Nana did the circle of life."

Case Analysis

To best meet the needs of students like Charley, trauma-informed approaches to address the complex needs of children need to be individualized. Each student's strengths and interests need to be acknowledged and incorporated into an intervention. This will often require consultation with school-based professionals with in-depth content knowledge of how to address trauma. Such individuals include school counselors and school psychologists. These specialists should work with the special education teacher and parents to provide opportunities to integrate approaches. Hence, there is a unified approach to working with the child and supporting them throughout their day and in various environments. This is especially important for individuals with autism that need consistency (Azad et al., 2020).

Consultation and Collaboration for Trauma-Informed Interventions

Trauma-informed instruction should be approached by using evidence-based practices. This should involve collaborations between teachers and school counselors in today's schools. For students diagnosed with autism, it often means collaboration between a special education teacher and a school counselor. School counselors are trained masters-level professionals who are also certified, licensed educators. The qualifications of school counselors include working with students in a K-12 setting to provide and enhance career, academic, and personal/social competencies (ASCA, 2012). School counselors must provide the foundational knowledge, attitudes, and skills

to promote students' personal/social growth and development (ASCA, 2004). The American School Counselor Association (2012) identifies school counselor consultation and collaboration with parents, teachers, other educators, and community organizations as an indirect service that school counselors should utilize to support students' personal/social development further.

Collaboration between a school counselor and a special educator occurs when both parties interact directly to reach a common goal through shared decision-making (Kampwirth & Powers, 2012). The collaborative consulting relationship is unique because it "demonstrates equal power, authority, and status. Consultants are not better or more expert" (Kurpius, 1978, p. 336). Kampwirth and Powers (2012) define collaborative consultation as "a process in which a trained, school-based consultant, working in an egalitarian, nonhierarchical relationship with a consultee, assists that person in her efforts to make decisions and carry out plans that will be in the best educational interests of her students" (p.2).

In the collaboration model, school counselors and teachers work together to gain understanding, explore possible solutions, and implement chosen solutions to problems (Baker et al., 2009). Just as school counselors bring their expertise in trauma-informed interventions to the consulting relationship, special educators also bring many areas of expertise to the consulting relationship. Special education teachers often have developed knowledge of students' interests, strengths, weaknesses, and preferred learning modalities. When school counselors and special educators build upon each other's strengths and resources, they can provide the most comprehensive support for their students (Baker et al., 2009). Collaboration

aids school counselors and special educators in providing culturally responsive and trauma-informed interventions to their students. School counselors and special educators can support one another to ensure that evidence-based trauma-informed interventions and instruction are considered within the context of the student and their processing, learning needs, and social skill development (Dickstein-Fischer et al., 2019).

Collaboration in Charley's Case

This collaboration between the school counselor and special education teacher happened in Charley's case. The teacher, in this case, listened to Charley's mom's concerns and then used observation data from the classroom and realized that she did not have the skill set to best address Charley's struggle with losing his grandmother. The special educator then went to Ms. Eva, the school counselor, to help devise a strategy to help Charley process his nana's death. Ms. Eva asked some questions about Charley's interests and then utilized what she learned about his love for animated Disney films to devise an intervention to help Charley. Ms. Eva explicitly guided Charley using a short *Lion King* clip. Ms. Eva first had Charley watch this short clip to preview it and then went back and watched the same clip--stopping and explicitly talking about what was happening in this short movie clip—drawing attention to Simba's reactions. It was then watched a third time with guided questions asking Charley what he thought was happening in this clip, guided questions helped elicit a play-by-play of the plot. After watching this clip thrice, Charley was asked to retell what happened to Mufasa and Simba. This teaching approach focuses on explicit instruction initially and then utilizes gradual release and scripted role-play. This will then translate to having Charley "be" Simba and having "Mufasa" represent Charley's nana.

As Eva works directly with Charley, the special educator should be present to learn how to best help Charley and transition the narrative and skills Ms. Eva is using with Charley into the classroom and home environment. The special educator will then repeat the lesson to help Charley understand and process his nana’s passing. When the special educator repeats this intervention, the school counselor should help the special educator by continuously checking in with them and coaching them to provide additional support, if needed. This special educator, in turn, will teach the parents these skills so that home-school collaboration and a comprehensive approach are utilized. This collaboration between the school counselor, special educator, and parent works best to promote continued rehearsal of these skills over time and across different settings and contexts (Feuerborn & Tyre, 2009). Uniformed efforts by the school counselor,

special educator, and parent regarding trauma-informed approaches further reinforce and helps a student, like Charley, process trauma. An example of how to approach these collaborative lesson-planning efforts can be seen in Table 1.

Implications and Recommendations for Practice

Although this was solely one case that shows how a Disney film, *The Lion King*, can be used to address one student’s struggle with death, there are implications for how other Disney films could be used to process trauma and may be the best way to do so for some individuals with autism. *The Lion King*, as illustrated above, can help individuals with autism process the absence of a caregiver and the grief this creates. The social and emotional impacts of ASD make it often challenging to navigate through grief and respond to others’ processing of grief

Table 1. *An Example of Collaborative Lesson Plan Objectives and Descriptions for Charley*

Lesson/Instructor/Time	Description	Goal of The Lesson
#1, Eva (school counselor), 15 minutes	Show a clip from <i>The Lion King</i> . Explicitly talk about Simba, what he saw, and his concrete response.	To identify Simba’s actions.
#2, Eva (school counselor) 15 minutes	Show the clip from <i>The Lion King</i> . Ask Charley what happened? Ask probing questions to have Charley talk about Simba’s concrete response (a play-by-play of the movie’s plot).	Charley will retell Simba’s response via a comic strip
#3 Eva and teacher, 15 minutes	Begin with seeing the comic strip produced last lesson. Ask questions about Simba’s response and whether Charley has felt this way. Ask probing questions about Charlie’s own emotions, as appropriate.	Scaffolding Charley’s perspective-taking. Making movie-to-self connections with prompting.
#4 Teacher with Eva watching	Use the comic strip, prompt with perspective taking questions about Charley and Nana. Asking probing questions as appropriate. Explicitly talk about the Circle of Life.	Scaffold Charley’s perspective taking and helping form the narrative of “Circle of Life” and create a picture depicting this.
#5 Teacher & Charley’s caregivers	Continue to reinforce the “Circle of Life” narrative with Charley when questions are asked, using the visual created. This narrative and visual are shared with caregivers.	Charley will retell the Circle of Life narrative about Nana. If appropriate, may relate to life cycle of plants/animals.
#5 Teacher and Charley’s caregivers	The teacher and Charley’s caregivers will repeat lessons 3-5, as necessary.	A social script and story about Nana’s “Circle of Life” is predictable and is being reinforced.

(Bartolini, 2016). Simba, the animated character in *The Lion King*, can be used to provide a concrete example of how the individual with autism feels as they go through all the emotions of grief (from self-blame to anger to sadness and acceptance that his life goes on).

For children with autism who may struggle with managing their emotions, Disney films, in general, can provide a safe and controlled way to explore and understand different emotions. Disney films have familiar and predictable storylines as they follow a predictable formula with a clear beginning, middle, and ending. For children with autism, this predictability can be comforting and can help them better understand and anticipate what will happen next in the story. Disney films also often contain positive themes and messages that can be helpful for children with autism. For example, films that showcase the importance of friendship, perseverance, and self-acceptance can help children with autism develop social skills, self-esteem, and a sense of belonging. Since Disney films are animated, they also provide visual and auditory stimulation that can engage children with autism and other visual learners. This helps sustain their attention which can be capitalized on to facilitate learning. Disney films can provide children with autism opportunities to practice social skills when coupled with explicit instruction centered on identifying characters' emotions and perspectives and breaking down how characters interact with each other.

Many Disney films contain characters who experience a range of emotions, which can allow children with autism to learn about and practice recognizing and managing their own emotions and begin to form the foundation for teaching skills related to emotional regulation. The exaggerated emotions of animated Disney characters are excellent

primers for recognizing human emotions, especially for children on the spectrum. Some other Disney films and future studies that could help process other forms of trauma for individuals with autism interested in Disney animation include movies such as *Inside Out*, *Finding Nemo*, *Big Hero Six*, and *Frozen*.

Using *Inside Out* to Teach Identifying Emotions Associated with Grief

Children with autism feel everything that neurotypicals do, even if they do not express identical outward actions. The Disney film, *Inside Out*, can be used to have students with autism first learn how to identify the emotions of others. After identifying these emotions, some perspective-taking skills can be worked on, and students with autism can begin to generalize that everybody experiences emotions. This movie could also help students identify their feelings, emotions, and changes as they grow up and how to self-regulate their behaviors during and after trauma. Emotional regulation is onerous for children with autism (Totsika et al. 2011), so having *Inside Out* lay the foundational work for emotional regulation could be a starting point in social-emotional instruction. This movie takes the abstract concept of an emotion, like sadness, and creates a visual to relate to (Tenzek & Nickels, 2019). The first step in emotional regulation is identifying one's emotions and identifying an emotion's intensity, which *Inside Out* does through their personified characters. This is important for students with autism trying to make sense of their own feelings associated with grieving, and the emotions others may be displaying, as well. Typical social norms for grief involve sad facial expressions, anger, crying, and disbelief (Kübler-Ross & Kessler, 2005). Individuals with autism, however, may react counter to these typical norms, by laughing, talking about what others may perceive as insensitive topics, and appearing happy

(Faherty, 2008). These counter responses do not indicate a lack of grieving, and may in fact be a response to change and a feeling of loss. School counselors and teachers need to explicitly deconstruct the individual with autism's emotional response and then help the individual with autism identify, understand, and explain their response (Blackman, 2008). Through using the movie *Inside Out* as the foundational social narrative, school counselors and teachers can explicitly talk about the characters (Joy, Fear, Sadness, and Anger) and the feelings each character displays. The characters show concrete emotional responses and questions can be asked to guide students towards both receptive and expressive identification of emotions in others and in oneself. The collaborative lesson plan (seen in Table 1) for this type of lesson could begin with this explicit character identification and then gradually move towards a social narrative around grief responses and how these differ for everyone.

Using *Big Hero Six* to Teach Support through Concrete Terminology

Big Hero Six unequivocally tackles the “psychological pain and grief associated with the death of a loved one and the important role of social support” (Tenzek & Nickels, 2019, p. 61). The movie explores themes of loss and grief as Hiro copes with the death of his older brother, Tadashi. While the movie does not focus solely on death, it does show how Hiro and his friends work through their grief and come to terms with their loss. Through this story, children can see how finding comfort and support from friends and family is possible after experiencing a loss. Individuals with autism are affected by the death of loved ones and need to work through this loss (McClean & Guerin, 2019). When individuals with autism discuss loss related to death, it is helpful to have discussions using concrete terms (Hume et al., 2016). There

should be an effort to avoid abstract terms such as “loss,” “passed away,” and “in a better place” when discussing the death of a loved one. These abstract terms can be confusing to someone with autism who may begin to look for a “lost” individual or may wonder when they can go on vacation to “the better place” (Lipsky, 2013). To best find comfort and support with loved ones, a discussion should begin in the concrete, such as “We will not see nana again.” In addition to this concrete language, if the individual with autism typically demonstrates a need for consistency and rigidity, comfort is found in routine environments and with familiar people and interaction styles (Hume et al., 2016). The collaborative lessons using *Big Hero Six* could focus on identifying family and friends' support that people find comfort in during grief and how these supports are used.

Using *Finding Nemo* to Teach the Importance of Rituals

Finding Nemo also addresses family dynamics, loss, adversity, and celebrating difference. *Finding Nemo* tells the story of a young clownfish named Nemo who gets separated from his father, Marlin, and must navigate the dangers of the ocean to find his way home. While the movie is primarily an upbeat adventure story, it also deals with the theme of death in a way that can help children understand and cope with the concept.

The film opens with a traumatic event: Nemo's mother and all his siblings are killed by a barracuda. This sets the stage for a story in which Nemo must learn to navigate the dangers of the ocean and fend for himself, even as his father struggles with his own fears and anxieties about losing his remaining family (Frankel, 2004). Through the character of Dory, a forgetful blue tang who becomes Marlin's unlikely ally, the film introduces the idea that while death is a sad

and scary thing, it is also a natural part of life that can be accepted and even celebrated.

One of the most powerful scenes in *Finding Nemo* comes when Marlin and Dory encounter a school of fish mourning the loss of a community member. Rather than shying away from the topic of death, the film uses this scene to show children how it is possible to grieve for those we have lost while also celebrating the life that they lived. The school of fish sings a song about their fallen friend, and the scene ends with a sense of closure and acceptance. A disability, in general, does not shield someone from grieving and does not preclude an understanding of death (Chow et al., 2017). In 2019, McClean and Geurin, found that children with developmental disabilities were affected by the death of loved ones, even if comprehension of the death varied compared to their typical peers. Despite these findings, often through good intentions, many try to protect individuals with developmental disabilities from loss they are often excluded from family rituals around death (Clute & Kobayashi, 2012). When individuals with disabilities are shielded from explanations and rituals about death this can impact their ability to cope with this type of trauma (Bonin, 2022; Clute & Kobayashi, 2012). Faherty's (2008) research also challenged the thought that individuals with autism could truly comprehend death and began to question how to approach trauma around death with this population. Individuals with autism do grieve and have the capacity to do so, and including individuals with autism in the grieving process and rituals may help them understand death and reduce the complicated grief where they anxiously ruminate about the death of a loved one (Dodd et al., 2008). The direct connection to death, rituals, and the grieving process can come to life for individuals with autism through using the scene in *Finding Nemo* when the community member's death

is acknowledged, and the ritual of singing is performed. The same collaborative lesson plan format, showcased in Table 1, could be used to parallel the symbolic death rituals in this movie with the family's rituals after a loved one has died. Forrester-Jones and Broadhurst (2007) found that including and understanding these rituals is even more critical for children who have difficulty expressing their emotions.

Using *Frozen* to Teach Moving Beyond Internalizing Emotions

The Disney movie, *Frozen*, also looks at emotions and how bottling emotions up, closing oneself off, and living in isolation all have negative effects. *Frozen* tells the story of two sisters, Anna and Elsa, who live in the kingdom of Arendelle. Elsa has the power to create ice and snow, but after accidentally hurting her sister when they were children, she becomes afraid to use her powers and isolates herself from everyone, including Anna. One of the themes explored in *Frozen* is death and how to cope with it. The film addresses this issue in a way that is appropriate for children and can help them understand and process their own feelings about loss.

The first instance of death in *Frozen* is the death of the girls' parents. While the viewer never sees this event on screen, it is revealed through a song that Anna sings at the beginning of the movie. The song, "*Do You Want to Build a Snowman*," shows Anna trying to connect with Elsa, who has locked herself in her room. Anna sings about how she feels alone and misses their parents, who have passed away. This scene helps children understand that it is normal to feel sad when someone dies and that it is okay to talk about their feelings.

Later in the film, there is another instance of death. When Elsa accidentally freezes Anna's heart, the troll king tells Anna that there is no

cure for her and that she will die. This is a heartbreaking moment, but it also shows children that death is a part of life and that sometimes we cannot control what happens to us or our loved ones. Furthermore, the film also offers practical strategies for coping with loss. For example, when Anna feels alone after her parents' death, she tries to reach out to Elsa and build a connection with her. Children can learn from this example and understand that it is important to talk to others and seek comfort when they are feeling sad or lonely.

One of the most significant ways that *Frozen* relates to children with autism is through the character of Elsa. Elsa has difficulty communicating and connecting with others, and she struggles to control her emotions and impulses. Elsa, due to her powers, felt different and was an outcast. In the research on individuals with autism's personal experiences, many autistics note how they see the world differently. Qualitative studies focusing specifically on the experiences of young girls with autism have themes of isolation (Cridland et al., 2014). Using a character like Elsa to explore feeling 'different' gives individuals with autism a concrete model of how to embrace being different and begin to appreciate it. Elsa's story also teaches children with autism that it is okay to be different and that everyone has unique strengths and talents.

Frozen can also be used to help individuals with autism who are at increased risk of comorbid conditions, like anxiety and depression, that include internalizing behaviors (Bauminger et al., 2010). There has been a paucity of studies related to trauma and autism, but the studies that do exist provide initial evidence of internalized behaviors related to mental health (Bleil Walters et al., 2013; Hoover, 2015; Mandell et al., 2005). Using the movie *Frozen*, the

internalizing behaviors the character Elsa display can be explicitly called out, as she tries to "conceal and not feel." This may be important when working with females with autism, who are at a heightened risk for internalizing symptoms and camouflaging who they are (Hull et al., 2020; Solomon et al., 2012). To address this the collaborative lesson plan could begin by explicitly talking about how Elsa is camouflaging who she is, and how she is shutting everyone out of her life. From here probing questions to have the individual with autism make sense of Elsa's actions and in time relate these actions to self can be scaffolded with the end result of 'unmasking' and self-acceptance.

Conclusion

In today's schools, it is expected that teachers can respond in trauma-informed ways to meet students' emotional needs and continue to help students progress with their academic knowledge, as well. This, skill, however, is not well-developed in pre-service teacher training and therefore requires working with school-based mental health professionals, like school-counselors to create evidence-based interventions (Dickstein-Fischer et al., 2019). This can begin through using a collaborative lesson plan where a school counselor works with a teacher to facilitate interventions. By using Disney movies in these lesson plans educators can encourage understanding and dialogue around tough issues, like those involving trauma, thus creating, and sustaining trauma-informed classrooms. Since these movies are often first viewed in the home, it can also be a way to build strong home-school partnerships and allow students to reflect further on these tough situations and social-emotional aspects of their lives through a Disney character and experience they are familiar with. It is always important, however, to note that every child with autism is unique and will have different needs and preferences. Some children with

autism may find Disney films enjoyable and helpful, while others may not. It is always a good idea to consider the individual needs

and interests of a child with autism when selecting films or other forms of media for them to watch.

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Correspondence concerning this article should be addressed to Kristina Scott, Special Education, Salem State University, Salem, MA. E-mail: kscott@salemstate.edu

Teaching Behavioral Intervention Strategies to Parents of a Child with Autism Spectrum Disorder: Effects on the Child's Behavior

Myriam Rousseau

Integrated University Health and Social Services
Centre of Mauricie-and-Centre-du-Québec

Suzie McKinnon

Integrated (University) Health and Social Services
Center(IUHSSC) of Saguenay-Lac-St-Jean, IHSSC of
Bas-St-Laurent and IHSSC of Côte-Nord

Julien Lafleur

Université du Québec à Trois-Rivières

Jacinthe Bourassa

Integrated University Health and Social Services
Centre of Mauricie-and-Centre-du-Québec

Béatrice Balmy

Integrated University Health and Social Services
Centre of Mauricie-and-Centre-du-Québec

Mathieu Mireault

Integrated University Health and Social Services
Centre of Mauricie-and-Centre-du-Québec

Abstract: Because the challenging behaviors of young people with autism spectrum disorder (ASD) lead to additional challenges for certain parents and make it even more difficult to access various services (Pickard & Ingersoll, 2016), it's important to empower parents to deal with their children's behavior. The program The ABCs of Behavior in Children with ASD: Parents in Action! (Ilg et al., 2016) Version for children 6 to 12 (L'ABC-ASD 6-12 years') was developed in response to the growing need for a "parent-mediated intervention" program (PMI) aimed at parent training. The present article is the result of a broader research conducted to examine the program's reliability of implementation, impacts and social validity. More specifically, the article proposes to evaluate the program's impacts, according to the parents, concerning: 1) children's challenging behavior, 2) children's adaptive behaviors, and 3) the achievement of objectives determined by parents at the start of the program. Accordingly, 17 parents took part in the program, which was offered in three public institutions in Quebec providing services for those with intellectual disabilities and ASD in 2018-2019. Qualitative and quantitative data were collected from several questionnaires and a semi-structured interview. Overall, the results resembled those of former studies. The ABC-ASD 6-12 program can produce: 1) significant changes in the challenging behavior of children with ASD, 2) significant positive changes, at the program's end, regarding the majority of subdomains evaluated in terms of adaptive behaviors, and 3) an impact on the behaviors of children previously identified by the parent as representing a day-to-day challenge for the family.

Autism spectrum disorder (ASD) is a developmental disorder characterized by deficits in social communication as well as restricted and repetitive behaviors (American Psychiatric Association [APA], 2013). The prevalence of this diagnosis has increased in recent years and now affects 1 in 44 eight-year-old children in the United States

according to the Centers for Disease Control and Prevention (Maenner et al., 2021) and 1 in 50 children and youth aged 1 to 17 years in Canada (Public Health Agency of Canada, 2022). In addition to the main characteristics mentioned above, a number of children also present challenging behavior. The proportion of children with this type of behavior varies

depending on studies, but may reach 50% to 94% (Hartley et al., 2008; Mazurek et al., 2013). To be considered a challenge, a behavior must present a danger to the child him/herself or to others, risk worsening in the absence of intervention, hinder social integration and make learning impossible (Willaye & Magerotte, 2013). Examples of such behaviors include temper tantrums, noncompliance, physical aggression, self-injury, agitation, hyperactivity, impulsivity, lack of respect for current requirements, lack of social reciprocity, and stereotypies (Kasperzack et al., 2019). Bertello et al. (2020) report that the majority of children with ASD also present deficits in adaptive behaviors. Close to three-quarters experience difficulties in at least one area of functioning, with the main ones being communication, acceptance of change and the ability to make friends. Indeed, their skill set may be affected, thus limiting their capacity to perform tasks and meet the everyday expectations of their social environment without assistance.

The presence of challenging behavior and deficits in adaptive behaviors impacts both the child and their family (Baghdadli et al., 2014). In children, these impacts translate into fewer community outings, fewer interactions with peers and, at times, even less access to interventions or schooling (Matson & Nebel-Schwalm, 2007). In parents, the severity of challenging behavior is strongly associated with high levels of stress and a poorer quality of life, as demonstrated in the review by Vasilopoulou and Nisbet (2016). Conversely, adaptive behaviors are positively associated with better parental quality of life (Hatta et al., 2019), underscoring the importance for the child of developing adaptive behaviors as an alternative to challenging behaviors.

To date, several types of intervention, including parent-mediated intervention (PMI), are acknowledged as effective vectors of change for decreasing challenging behavior and promoting the development of adaptive behaviors in children with ASD (Steinbrenner et al., 2020). PMI are advantageous because they offer home and community-based intervention, enabling the transfer of skills into real life. They recognize parents as agents of change invested in their child's life and is centered on their knowledge and intrinsic motivation (Oono et al., 2013). These interventions represent a clear opportunity for cost-effective intervention, with numerous possibilities for implementation and generalization in everyday life and in different contexts (Shalev et al., 2020). The main objective of these programs is to increase parents' knowledge of ASD and teach them recognized behavioral modification strategies conducive to their child's optimal development (Frantz et al., 2018). Many such strategies are rooted in applied behavioural analysis (ABA; Baer et al., 1968). In this type of program, for example, parents can learn to promote social interaction, communication, imitation and play skills to stimulate their child's development (Bearss et al., 2015). This accepted method consists of decreasing challenging behavior by analyzing and modifying the environment while promoting the development of the child's adaptive behaviors through the use, notably, of reinforcement and incentives (Turnbull & Knapp, 2014).

Although several PMI programs have been introduced, they differ significantly regarding format (self-guided, private training with a therapist, group programs, etc.), intensity, and duration as well as anticipated results for children, namely social and/or communicational improvements or fewer challenging behavior (Ratliff-Black &

Therrien, 2020). The variability and low number of formally evaluated programs make it difficult to conduct literature reviews or meta-analyses of PMIs to evaluate their impacts (Ratliff-Black & Therrien, 2020). Further, most PMI programs evaluated focus on preschool children with ASD (Oono et al., 2013; Ratliff-Black & Therrien, 2020), which underscores the need to include school-age children in the populations studied.

Although the number of PMIs and services for parents of children with ASD increases with the years, many parents encounter long waiting lists when seeking services for their child (Pickard & Ingersoll, 2016). The average waiting time, from the time of diagnosis to the start of interventions, is estimated at 3 years for young people with autism (Yingling et al., 2018). In Quebec (Canada), in 2013, over 1000 children were waiting for services (McKinsey et al., 2014). In recent years, clinical teams working in the Integrated University Health and Social Services Centre of Quebec have recognized the strong need for access to PMI-type parent training programs, particularly for parents of 6-12 year-old-children with ASD. To meet this need, a number of researchers and professionals have collaborated to adapt the program *The ABCs of Behavior in Children with ASD: Parents in Action!* (Ilg et al., 2016) to the needs of parents of school-age children. The original program, aimed at parents of children under 8, was evaluated for implementation (Rousseau et al., 2021), effects and social validity (Rousseau et al., 2018). The current version of the program was also evaluated for effects among parents (Rousseau et al., 2022, 2020).

Objectives

This article focuses on one component of a larger research project to examine the reliability of implementation of *The ABCs of Behavior for Children with ASD: Parents in*

Action! program for children aged 6 to 12 (ABC-ASD 6-12;), the program's impact on parents and children, and its social validity (Rousseau et al., 2020). More specifically, the article aims to evaluate the impacts, according to parents, of: a) children's challenging behavior, b) children's adaptive behaviors and c) the achievement of the objectives identified by the parents at the start of the program.

Method

Participants

Three public institutions in Quebec offering services for intellectual and developmental disabilities took part in the project. The program was offered on a voluntary basis to four groups of parents of children with ASD who were 6 to 12 years old and receiving services from a participating institution. A total of 30 French-speaking parents (26 women and 4 men) agreed to participate in the research related to the program. It should be noted that, for various reasons (e.g., work overload, family problems, lack of time), 13 participants failed to complete the evaluation instruments at times 2 and 3 of the study. Thus, the final sample consisted of 17 participants including two parents of the same child, which explains the difference between the number of parents ($n = 17$) and children ($n = 16$). The individual and family characteristics of the participants are presented in Table 1. There were 16 children ($F = 2$ and $M = 14$) whose parents took part in the *ABC-ASD 6 to 12* program. Their average age was 8.25 years ($SD = 1.57$), with the youngest being 6 and the oldest, 11.

Instruments

The selection of measuring instruments was determined by considering practical and conventional considerations such as the duration of the administration, the instrument's availability, and its utilization with pediatric clients diagnosed with ASD.

Table 1. *Description of Participants*

Variable	<i>n</i>	%
Parents	17	
Sex of respondent		
Female	15	88.2
Male	2	11.8
Age		
20 to 29	0	0.0
30 to 39	11	64.7
40 to 49	6	35.3
50 to 59	0	0.0
Level of schooling ^a		
DES obtained	1	6.7
DEP obtained	1	6.7
College studies partially completed	1	6.7
DEC obtained	6	40.0
University studies partially completed	0	0.0
University degree obtained	6	40.0
Family	16	
Family income		
\$25 001 to \$40 000	1	6.3
\$40 001 to \$60 000	5	31.3
\$60 001 to \$80 000	0	0.0
\$80 001 to \$100 000	2	12.5
Over \$100 000	8	50

Note. Percentage total does not equal 100% because values are rounded out.

^a 2 missing data

The purpose of the *Questionnaire sociodémographique (Sociodemographic questionnaire)* designed by the research team was to gather information to develop a profile of the participants (sex, schooling, family income, etc.) and their child (sex, diagnosis, etc.).

The French translation of the *Aberrant Behavior Checklist – Residential (L’ABC-2; Aman & Singh, 2017)* was used. This questionnaire, which evaluates behavioral disturbance, includes 58 items grouped into five subscales: 1) irritability/agitation/crying (15 items); 2) lethargy/social withdrawal (16 items); 3) stereotypic behavior (7 items); 4) hyperactivity and noncompliance (16 items) and 5) inappropriate speech (4 items). Parents must indicate if a stated behavior applies to their child by rating the behavior from “not a problem” (0) to “severe in degree” (3) on a 4-

point Likert-type scale. A summary score was calculated for each scale, with high scores indicating more challenging behavior. Internal consistency was satisfactory, with alpha coefficients varying from 0.82 to 0.94. Interrater analysis varied from one subscale to another, but was relatively low ($r = 0.39$ and 0.61; Rojahn & Helsel, 1991).

The *Vineland Adaptive Behavior Scales, 2nd edition*, (VABS-2; Sparrow et al., 2005) was used to measure the child’s adaptive behaviors by specifically examining the domains of communication (receptive, expressive and written), daily living skills (personal, domestic, community), socialization (interpersonal, play and leisure time and coping skills) and motor skills (gross and fine). It includes 117 questions for parents. A research assistant rated responses based on the following scale: “never

performs the behavior or never performs it independently” (0), sometimes performs the behavior independently or partially” (1) and “usually performs the behavior independently (2). The items “not applicable” and “don’t know” can also be rated. A raw score per subdomain was converted into equivalent age using conversion tables. Regarding internalized and externalized behaviors, a raw score of less than 18 shows an average level of maladaptive behavior, a score of 18 to 20 indicates a high level, and that of 21-24 is clinically significant. Cronbach’s alpha coefficients varied from 0.77 to 0.93. The fidelity coefficient estimated via the test retest method varied from 0.76 to 0.92. The interrelater analysis, for its part, was adequate to excellent ($r = 0.71-0.81$; Sparrow, 2011).

The *Questionnaire sur l’atteinte des objectifs identifiés par les parents en début de programme* (Questionnaire on the Achievement of Objectives Identified by Parents at the Start of the Program) was developed by the research team. Parents were asked to identify one behavior to increase and another to decrease in their child. These behaviors are not necessarily listed in other evaluation scales used in the present project (e.g., remaining seated at the table). This questionnaire includes two items addressed to parents to evaluate the progress of the objectives targeted during their participation in training: 1) “What objective was chosen to increase a behavior?” and 2) “What objective was chosen to decrease a behavior?” The parent had to indicate if the objective had not progressed (0), was in process of achievement (1) or had been achieved (2).

At the end of the program, a *semi-structured telephone interview* was conducted with each parent who participated in the research. The purpose of the interview, which lasted 20

minutes, was to gather qualitative information from parents concerning, notably, their perception of the program’s potential impacts on their child’s behaviors.

Procedure

Ethical approval was obtained from the Research Ethics Committee of Integrated University Health and Social Services Centre of Mauricie-and-Centre-du-Québec (CÉRC–2018-001). The project was initially presented by administrators in the targeted institutions. The research team then contacted the stakeholders ($n = 15$) involved to provide details concerning the project and obtain their consent. Almost all these stakeholders ($n = 14$) have a college or university degree in special education and the majority ($n = 12$) have between 5-15 years’ of experience working with autistic children. Once their consent has been obtained, they attended a one-day training session on facilitation of the program, which was offered in person or remotely depending on geographic situation. Next, the parents were contacted to confirm their interest in participating. Each stakeholder sent the research team the list and contact details of parents who agreed to be contacted. A team member then communicated directly with all parents to explain the nature of the project and solicit their consent. Parents’ participation in the research was voluntary and had no impact on the chance to participate in the program. Like the stakeholders, they were free to end their participation at any time. A research team member was available throughout the proceedings to answer questions and provide information. Data were collected in three stages. First, a month prior to the first workshop, parents completed questionnaires associated with the research (pre-intervention) concerning the description of sample data and the behaviors and skills of their child. Second, a questionnaire on their

child's behaviors and skills and another on the achievement of objectives were completed at the program's end (post-intervention), and again three months later (follow-up). Third, parents participated in a semi-structured telephone interview (post-intervention).

Program

The *ABC-ASD 6-12* program, an adaptation of the *ABC-ASD 0-7* (Ilg et al., 2016), is rooted in the psychoeducational model (Renou, 2005) and designed for parents of children with ASD aged 6-12. Its main objective is to offer educational support and assistance to parents by considering their specific needs and those of their child and thus allow them to properly assume their parental role. The aim, notably, is to equip parents to improve their interactions with their child, decrease challenging behavior and teach positive behaviors consistent with certain principles of applied behavior analysis (ABA). The program, designed to last 14 weeks, is based on a predefined sequence of activities during which parents learn to describe and observe their child's behaviors and better plan their interventions. All in all, it includes nine two-hour group

meetings and five individual meetings at the home of each parent. The different group and individual meetings are separated into three blocks (see Table 2). Parents are given a *Participant's Guide* containing the activities and content discussed in the workshops to help them track their progression, observations and learning.

Analyses

A program description involving quantitative and qualitative evaluations was used to evaluate the impacts of the *ABC-ASD 6 to 12* in the children of participating parents. Quantitative data were analyzed using SPSS 26 software. Nonparametric analyses of paired samples (Friedman) and contrast samples (Wilcoxon) to measure the changes linked to challenging behavior and adaptive behaviors in children were conducted because data distribution did not pass the Shapiro-Wilk test for normality. Finally, the study of outliers, as suggested by Tabachnick and Fidell (2013), was done in advance to identify excessively high data. According to the winsorization method, these data must be replaced by extreme scores (Kirk, 1995). In the present case, three data were exposed to this method.

Table 2. *Training Module Content of the ABC-ASD 6 to 12.*

Block	Week	Modality	Theme
Block 1: Understanding behavior of children with ASD	1	Home visit 1	Program presentation
	2	Workshop A	Overview of ASD
	3	Workshop B	Understanding ASD
	4	Workshop C	How to describe and observe a behavior?
	5	Home visit 2	Checking in: workshops A - B - C
Block 2: Behavior modification	6	Workshop D	Helping effectively by modifying the environment
	7	Workshop E	Increasing a desired behavior or teaching a new behavior
	8	Home visit 3	Checking in: workshops D - E
	9	Workshop F	Decreasing unsuitable behavior
	10	Home visit 4	Checking in: workshop F
Block 3: Everyday strategies for long term change	11	Workshop G	Maintaining and generalizing desired behaviors
	12	Workshop H	Everyday social communication
	13	Workshop I	Identifying future objectives
	14	Home visit 5	Checking in: workshops G - H - I

Qualitative data collected during individual meetings were audio-recorded and retranscribed in QDA Miner Lite software, and thematic content was analyzed using Bardin's approach (2003). Categories were determined consistent with the study's objectives. Thus, the issue here is a closed approach to evaluating and translating study indicators (Andréani & Conchon, 2005). To this end, the analysis grid was developed based on pre-established themes associated with objectives. Coding therefore made it possible to explore the texts of individual interviews line by line, step by step (Berg, 2003, cited in Andréani & Conchon, 2005). Performed by the main researcher and a trained research assistant, it resulted in an overall interrater agreement of 82%, varying from 80% to 84% for each category. The coders discussed and recoded elements of disagreement.

Results

To meet objectives 1 and 2, namely, evaluating children's challenging and adaptive behaviors, Friedman rank analyses followed by Wilcoxon analyses were performed. Descriptive analyses allowed us to meet objective 2, namely, to evaluate the achievement of objectives identified by the parents at the start of the program. The thematic content of parents' comments was also analyzed (Bardin, 2003).

Challenging behavior

Regarding the severity of children's challenging behaviors as reported by their parents using the ABC-2, the results of contrast analyses (Wilcoxon) show that the average results for behaviors of irritability/agitation/crying obtained at pre-intervention ($M = 16.81$, $SD = 9.47$), post-intervention ($M = 13.13$, $SD = 9.08$) and follow-up ($M = 15.50$, $SD = 8.54$) are significantly different. They attest to a decrease of these behaviors at post-

intervention ($z = 2.48$, $p = .013$) but an increase of the same behaviors at follow-up compared with the post-intervention measurement ($z = 2.08$; $p = .038$). Significant differences regarding lethargy/social withdrawal are likewise observed between the average results obtained at post-intervention ($M = 5.25$, $SD = 6.62$) and follow-up ($M = 7.25$, $SD = 7.24$), revealing, moreover, an increase of these behaviors ($z = 2.34$, $p = .020$). Furthermore, results show no significant difference regarding the challenging behaviors measured by the VABS scale. Results from the Friedman and Wilcoxon analyses are presented in Table 3.

An analysis of parents' comments ($n = 17$) collected during the individual semi-structured interview also allowed us to identify some of the impacts they perceived relative to their child's behaviors. In this respect, parents report that some of their child's challenging behaviors decreased following parents' participation in the program. Parent 200, for example, states that: "My child is less impulsive." Another parent (003) notes that: "The problem behavior decreased when the environment was adapted." More specifically, certain parents point to improvements in hyperactive behaviors, as illustrated by parent 201:

"Remaining seated at the table, it's better, he respects that. He doesn't keep getting up all the time. He manages to stay seated to eat a good part of his meal. And as far as throwing garbage on the floor in the living room, things have improved."

Some parents say their child had fewer temper tantrums after they used the strategies in the program. Parent 220 reports that: "We used it every day at our place, especially when he was in a temper. And it works." A similar degree of success is reported by parent 218: "My boy reacted well to the

Table 3. Means, Medians, Standard Deviation and Three-way Paired Samples (Friedman) and Contrast Samples (Wilcoxon) Analyses Regarding Children's Challenging behaviors

Domain	n	Pre-intervention			Post-intervention			Follow-up			Friedman	Wilcoxon
		M	Md	SD	M	Md	SD	M	Md	SD	χ^2	Z
ABC												
Irritability/agitation/ crying	16	16.81	18.00	9.47	13.13	11.50	9.08	15.50	15.50	8.54	8.03*	pre > post
Lethargy/social withdrawal	16	7.88	5.00	7.45	5.25	2.00	6.62	7.25	6.00	7.24	6.93*	post < FU
Stereotypies	16	3.56	3.00	3.10	2.50	1.50	2.66	2.13	1.50	2.50	5.76	
Hyperactivity	15	17.20	16.00	8.36	14.40	12.00	8.00	14.00	12.00	7.34	5.19	
Inappropriate speech	12	2.50	1.50	2.47	2.33	1.00	3.20	2.58	2.00	3.23	1.09	
Vineland												
Internalized challenging behaviors	17	9.47	10.00	5.21	8.29	8.00	3.75	7.88	8.00	4.18	0.45	
Externalized challenging behaviors	17	11.53	13.00	4.43	10.35	10.00	4.70	10.41	12.00	5.76	0.82	

Note. FU = Follow-up.

* $p < .05$.

Table 3. Means, Medians, Standard Deviation and Three-way Paired Samples (Friedman) and Contrast Samples (Wilcoxon) Analyses Regarding Children's Challenging behaviors

Domain	n	Pre-intervention			Post-intervention			Follow-up			Friedman χ^2	Wilcoxon Z
		M	Md	SD	M	Md	SD	M	Md	SD		
ABC												
Irritability/agitation/crying	16	16.81	18.00	9.47	13.13	11.50	9.08	15.50	15.50	8.54	8.03*	pre > post post < FU post < FU
Lethargy/social withdrawal	16	7.88	5.00	7.45	5.25	2.00	6.62	7.25	6.00	7.24	6.93*	post < FU
Stereotypies	16	3.56	3.00	3.10	2.50	1.50	2.66	2.13	1.50	2.50	5.76	
Hyperactivity	15	17.20	16.00	8.36	14.40	12.00	8.00	14.00	12.00	7.34	5.19	
Inappropriate speech	12	2.50	1.50	2.47	2.33	1.00	3.20	2.58	2.00	3.23	1.09	
Vineland												
Internalized challenging behaviors	17	9.47	10.00	5.21	8.29	8.00	3.75	7.88	8.00	4.18	0.45	
Externalized challenging behaviors	17	11.53	13.00	4.43	10.35	10.00	4.70	10.41	12.00	5.76	0.82	

Note. FU = Follow-up.

* $p < 0.05$.

charts I gave him. He's willing to cooperate with procedures, he tantrums less"; by parent 001: "When he has problems, he screams, so I wanted to change that. The program let me establish a better routine and manage time better. And there's almost no more screaming." (parent 001); and by parent 211:

"We've worked a lot on her aggressiveness and impulsivity. She's less quarrelsome with her sister. Her actions are less aggressive and impulsive. She talks more instead of getting angry. She's more relaxed, more autonomous and more focused."

Despite a certain decrease in challenging behaviors, one parent (214) comments that: "Things are still difficult, but we constantly give him concrete options and chances to participate, and the situation has improved."

Adaptive behaviors

Regarding children's adaptive behaviors evaluated with the VABS-2, contrast analyses conducted a posteriori (Wilcoxon) reveal differences over time for the majority of these behaviors. With the exception of behaviors related to expressive communication and interpersonal relations, average results increase significantly at post-

intervention and follow-up for all adaptive behaviors, testifying to the skills learned three months after the program's end. Significant increases are also noted between measurements taken at post-intervention and follow-up regarding average scores for behaviors pertaining to domestic skills. ($M_{post} = 102.06$, $SD_{post} = 31.94$, $M_{follow-up} = 117.35$; $SD_{follow-up} = 31.18$; $z = 2.39$; $p = .017$) and those for play and leisure time ($M_{post} = 98.53$, $SD_{post} = 27.40$; $M_{follow-up} = 112.76$, $SD_{follow-up} = 36.34$; $z = 2.40$; $p = .017$). Moreover, although the results for receptive communication behaviors show a significant increase at post-intervention, a significant decrease is observed at follow-up ($M_{post} = 97.94$, $SD_{post} = 62.88$; $M_{follow-up} = 86.18$, $SD_{follow-up} = 68.10$; $z = 2.27$; $p = .023$). Results from the Friedman and Wilcoxon analyses are presented in Table 4.

As with challenging behaviors, analyses of the parents' comments ($n = 17$) collected during the individual semi-structured interview allowed us to identify certain impacts observed by the parents relative to their child's adaptive behaviors. In this regard, some say their child learned new behaviors. Parent 304, for example, reports that: "The tools learned are useful for modifying the everyday environment, and

Table 4. Means, Median, Standard Deviation and Three-way Paired Samples (Friedman) and Contrast Samples (Wilcoxon) Regarding Children's adaptive behaviors

Subdomains	n	Pre-intervention			Post-intervention			Follow-up			Friedman χ^2	Wilcoxon Z
		M	Md	SD	M	Md	SD	M	Md	SD		
Receptive communication	17	72.88	55.00	49.59	97.94	66.00	62.88	86.18	59.00	68.10	13.44***	pre < post post > FU
Expressive communication	17	100.53	67.00	81.16	106.00	79.00	69.64	120.65	103.00	77.39	5.55	
Written communication	17	98.12	94.00	25.60	110.88	96.00	37.65	112.94	118.00	26.77	20.06***	pre < post pre < FU
Personal skills	17	97.00	89.00	46.18	105.53	90.00	45.85	109.88	102.00	45.32	9.72**	pre < post pre < FU
Domestic skills	17	94.24	96.00	31.05	102.06	103.00	31.94	117.35	112.00	31.18	17.52***	pre < post pre < FU post < FU
Community skills (in society)	17	95.94	90.00	40.38	108.82	96.00	36.52	117.12	114.00	36.76	18.58***	pre < post pre < FU
Interpersonal relations	17	57.41	54.00	32.02	63.24	59.00	29.31	63.82	66.00	29.87	5.82	
Play and leisure time	17	80.59	79.00	32.80	98.53	100.00	27.40	112.76	108.00	36.34	23.72***	pre < post pre < FU post < FU
Coping skills	17	59.71	54.00	34.30	75.41	77.00	47.13	109.29	89.00	68.12	8.59*	pre < post pre < FU
Gross motor skills	17	124.41	82.00	93.95	181.47	264.00	102.40	214.41	264.00	92.45	11.85**	pre < post pre < FU
Fine motor skills	17	129.00	78.00	89.98	196.53	264.00	94.23	207.76	264.00	89.97	12.41**	pre < post pre < FU

Note. FU = Follow-up. * $p < .05$. ** $p < .01$. *** $p < .001$

Table 4. Means, Median, Standard Deviation and Three-way Paired Samples (Friedman) and Contrast Samples (Wilcoxon) Regarding Children's adaptive behaviors

Subdomains	n	Pre-intervention			Post-intervention			Follow-up			Friedman χ^2	Wilcoxon Z
		M	Md	SD	M	Md	SD	M	Md	SD		
Receptive communication	17	72.88	55.00	49.59	97.94	66.00	62.88	86.18	59.00	68.10	13.44***	pre < post post > FU
Expressive communication	17	100.53	67.00	81.16	106.00	79.00	69.64	120.65	103.00	77.39	5.55	
Written communication	17	98.12	94.00	25.60	110.88	96.00	37.65	112.94	118.00	26.77	20.06***	pre < post pre < FU
Personal skills	17	97.00	89.00	46.18	105.53	90.00	45.85	109.88	102.00	45.32	9.72**	pre < post pre < FU
Domestic skills	17	94.24	96.00	31.05	102.06	103.00	31.94	117.35	112.00	31.18	17.52***	pre < post pre < FU post < FU
Community skills (in society)	17	95.94	90.00	40.38	108.82	96.00	36.52	117.12	114.00	36.76	18.58***	pre < post pre < FU
Interpersonal relations	17	57.41	54.00	32.02	63.24	59.00	29.31	63.82	66.00	29.87	5.82	
Play and leisure time	17	80.59	79.00	32.80	98.53	100.00	27.40	112.76	108.00	36.34	23.72***	pre < post pre < FU post < FU
Coping skills	17	59.71	54.00	34.30	75.41	77.00	47.13	109.29	89.00	68.12	8.59*	pre < post pre < FU
Gross motor skills	17	124.41	82.00	93.95	181.47	264.00	102.40	214.41	264.00	92.45	11.85**	pre < post pre < FU
Fine motor skills	17	129.00	78.00	89.98	196.53	264.00	94.23	207.76	264.00	89.97	12.41**	pre < post pre < FU

Note. FU = Follow-up. * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$

new behaviors in my child along with generalized learned skills.” Others say it became easier to interact with their child. Parent 208, for example, explains that:

“[...] he [the child] feels better looked after and safer. He’s more open and affectionate. He tends to come to us. He’s calmer and tells us he loves us. He seems to feel much safer and better understood.”

Some parents reported their child was more autonomous. Parent 300 said “The presence of charts and visual supports in the house allowed [child’s name] to increase her responsibilities.” Parent 002 added “Thanks to the mesh method we learned in the program, my child made progress with certain behaviors. He shows greater autonomy in every area.” Others recognized the program taught them to allow their child to do more things without their help. Parent 206, for example, stated “Right away, he was ready to tackle his challenges. He wanted to do this. We just assumed he couldn’t, so we did things for him. He does things more on his own now and he’s happy about that.”

Certain parents felt the program impacted the performance of their child’s everyday activities. Parent 304, for example, commented “The program suggested working on the evening routine so he can help with household chores” while parent 308 mentions “positive impacts with respect to making the bed right.”

Several parents also observed positive impacts on their child’s communication. For some, impacts translated into fewer tantrums: Parent 001 noted “There are fewer meltdowns, he expresses himself correctly or asks for help”, while parent 207 reports that: “we’re all less confrontational. We have more exchanges and discussions. It’s very positive.”

Despite the reported improvements in children’s adaptive behaviors, some parents feel work still needs to be done. For parent 201, for example, things are: “[...] still difficult ... but the face washing routine is coming along.” Parent 213 added “We tried to discourage her from speaking too loudly,

but we're still working on it. There's been some improvement."

Objectives determined by the parents

At the start of the program, parents emphasized two objectives for their child, namely: a) increasing certain behaviors (e.g., getting dressed, brushing teeth, remaining seated at the table, asking for help, etc.), and b) decreasing/stopping other behaviors (e.g., screaming, disobeying instructions to stop playing, tantrums and aggressive behaviors, etc.). According to the parents, the first objective was achieved for 56.3% ($n = 9$) of the children at the post-intervention evaluation, and for 75% ($n = 12$) of the children at follow-up to the program. The second objective, on the other hand, it was in the process of being acquired for 81.3% of children ($n = 13$) at both measurement times. Figures 1 and 2 demonstrate the evolution of the objective's achievement over time (post-intervention and follow-up) for each child. Three statuses were identified: regression, stability and progression. Regarding the first objective, one child (12) shows regression in achieving the objective identified by their parent, going from "objective achieved" (post-intervention) to "in the process of achievement" (follow-up). For two-thirds of the children ($n = 11$), the status remains stable. More specifically, for three children, the objective is in process of being achieved (2, 5 and 6), and for eight others, the objective has been achieved (8 to 11 and 13 to 16). Four children show an evolution in the achievement of objectives over time: one (1) goes from "no progress" at post-intervention to "objective achieved" at follow-up, while three others (3, 4, 7) go from "in process of achievement" to "objective achieved."

For the second objective, three children show regression regarding achievement of the

objective identified by their parent. One child (12), going from "in process of achievement" (post-intervention) to "no progress" (follow-up), while two others (6, 15) going from "objective achieved" to "in process of achievement." As with the first objective, objective achievement remains stable for many children ($n = 11$). In contrast, all these children are in the process of achieving the second objective, unlike the first. Furthermore, the achievement of objectives evolves over time for two children: one child (1) goes from "no progress" at post-intervention to "objective achieved" at follow-up, while another (8) goes from "in process of achievement" to "objective achieved."

Discussion

The parents of children with ASD can face extra challenges because of their children's problematic or atypical behaviors. Because services may become more and more difficult to access (Pickard & Ingersoll, 2016), it's important that parents be empowered to intervene on their child's behalf. Moreover, due to the constant increase in the prevalence rate of ASD, the authorities recognize that difficulties in accessing services remain a major issue (Ministère de la Santé et des Services sociaux, 2017). A method that has proved effective is parent-mediated intervention (Kasperzack et al., 2019). The *ABC-ASD 6 to 12* program was designed as a concrete tool to help parents cope with challenging behaviors. Results of the quantitative and qualitative data from the present research were used to measure the program's impacts on children with ASD. They reveal parents' view of the impacts on: 1) children's challenging behaviors, 2) children's adaptive behaviors and 3) the achievement of objectives determined by parents at the start of the program.

Figure 1. *Evolution of desired behaviors*

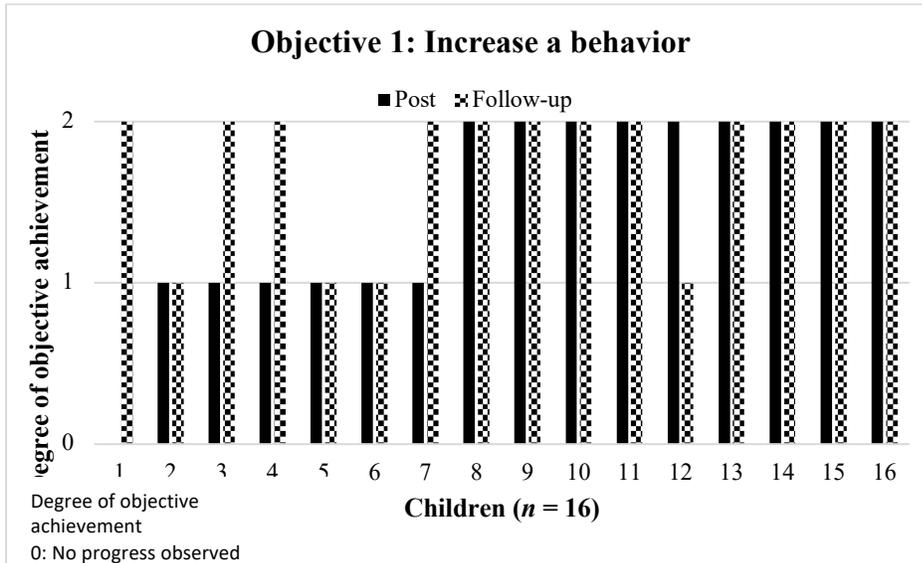
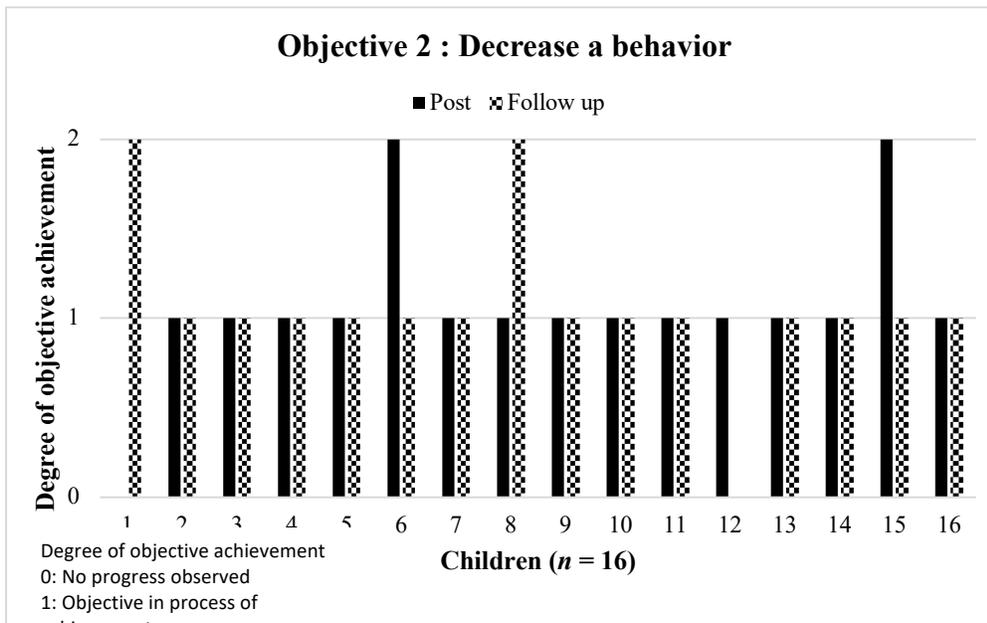


Figure 2. *Evolution of inappropriate behaviors*



Challenging behaviors

In keeping with the study by Kasperzack et al. (2019), the present study concluded the *ABC-ASD 6 - 12* program can lead to significant changes in the behaviors of children with ASD. More specifically, the

results obtained show a significant decrease in behaviors related to irritability/agitation/crying. Parents' comments likewise testify to a decrease in such behaviors. These results are consistent with those of Bearss et al. (2013), who report

a significant average decrease of 54% in irritability behaviors (tantrums, aggressions and self-injury). However, an important increase is observed at follow-up in terms of irritability/agitation/crying and lethargy/social withdrawal. The fact that children were no longer attending school three months after the program ended possibly impacted these challenging behaviors.

Although behaviors of hyperactivity and noncompliance reveal no statistically significant change, parents' comments nevertheless point to a decrease in these behaviors in their child. Parents report, notably, that after taking part in the program, they managed to apply strategies that encouraged their child to decrease impulsivity, temper tantrums and agitation. As for stereotypies and inappropriate speech, results show no change over time. Other studies have obtained similar results using the ABC-2 (Bearss et al., 2015; Bearss et al., 2018).

Since the children of participants already exhibited maladaptive behaviors (externalized and internalized) to an average extent, it's not surprising that no significant change was observed regarding this type of behavior. Moreover, even if more than 90% of the children exhibit challenging behaviors according to parents, only one parent in two mentions having to manage them. Thus, there's a possibility that the parents, during the VABS-2 interview, and in the sections on maladaptive behaviors, underestimate their child's behaviors. Other studies, including that of Matsumura et al. (2022) on the evaluation of a PMI-type program for the parents of teenagers, arrive at similar results. These researchers report no significant improvement in the externalized and internalized behaviors of teenagers with ASD.

Adaptive behaviors

Results obtained for adaptive behaviors confirm the significant positive impacts at the program's end, as at follow-up, in the majority of subdomains evaluated, with the exception of expressive communication and interpersonal relations. Receptive communication behaviors, for their part, decrease significantly three months after the program. Although studies have shown that PMI-type programs can lead to significant changes in communication (Sandbank et al., 2020; Wang et al., 2021), it's clear that no change was observed as regards expressive communication in children in the present study. On one hand, although a workshop offers strategies for everyday social communication, the program's first concern is with change in problematic and adaptive behaviors. On the other hand, in a similar clinical study on communication (Siller et al., 2013), positive results were obtained relative to communication skills in children whose expressive language was below 12 months, but not for children with more advanced language skills, as was the case in the present sample (as shown by the VABS pre-intervention results). Moreover, the majority of studies yielding positive results focus on children 3 years old and under, not on school-age children (see Edmunds et al., 2019, for a recent review). Otherwise, results concerning the subdomains of receptive and written communication are encouraging.

With respect to personal, domestic and community skills related to parents' comments, results suggest that the program has positive impacts because it gives parents confidence in their competencies and their child's capacities. A 2022 systematic review, indicated parental *empowerment* is a key reason for the effectiveness of PMI (Jurek et al., 2022). Consistent with the foundations of these interventions, it is assumed that parents, because they have more experience with

ASD and a fuller understanding of their children's behaviors, are better able to accompany them and adapt the environment to their needs. These conditions supposedly offer children more room and time for self-determination, that is, for developing their autonomy and skills at their own pace, and therefore generate positive impacts. This idea supports the significant results obtained for the domain of autonomy and the subdomains of play/leisure time and coping skills on the VABS-2.

Objectives determined by the parents

Early in the program, parents identified a desired behavior to increase and a challenging behavior to decrease in their child. Results demonstrate that the former are easier to achieve than the latter, which is consistent with ABC-2 and VABS results. Effectively, desired behaviors targeted by the parents are more in line with the domain of autonomy in daily living; VABS results show significant gains in this area. Results also show that 11 objectives regarding decrease of behaviors (second objective) are in process of achievement at post-intervention or follow-up. These behaviors are more in keeping with the domains of hyperactivity and stereotypies on the ABC-2 and did not show significant gains.

All the same, these data show the program can impact behaviors identified as representing a problem in the family's everyday life. The same results are also observed in the study by Bearss et al. (2013), who report that, in addition to the positive changes in scores on standardized evaluations, several families stated they had achieved specific objectives for their children (e.g., maintaining good hygiene, remaining seated at the table at dinnertime). The study by Ilg et al. (2017), for its part, reports that behaviors targeted by parents allowed them to teach one child to sleep in her own bed and

another to accept taking a bath without screaming. Sockeel and Anceaux (2008) argued when an intervention is implemented, what's important is the change that occurs in the life of the child and their family.

Limitations

Although results of the present research are consistent with the current state of knowledge on parent-mediated interventions, the study has certain limitations. Regarding participants, notably, the most obvious limitations include the small sample size and the absence of a control group, which do not allow for separating the impacts of the intervention from the impact of time or attention on maladaptive behaviors. Nor is it possible to determine the impacts of potentially moderating or mediating variables such as parents' motivation, parallel services, or medications. Despite the absence of a control group, we note that similar studies demonstrate positive impacts for intervention groups versus control groups (Azari et al., 2019; Kuravackel et al., 2018) relative to the decrease of challenging behaviors in children. Additionally, this study does not allow for evaluating the impact of behavioral interactions. It would have been interesting to see if the increase in adaptive behaviors moderates the frequency or density of challenging behaviors, given that results are shared in the literature (Hartley et al., 2008).

Future studies could examine the effect of this program on variables such as parent-child interaction and feelings of parental efficacy. Besides, since those programs recognize both parents as agents of change, future studies should maximize the involvement of both parents, in order to foster stability in parenting interventions. In addition, to better meet the diverse needs of parents, one avenue to explore is the use of this type of program in other modalities, such

as one-on-one or telehealth, distance or hybrid modes.

In conclusion, parent training appears to positively impact children's challenging and adaptive behaviors. Among other things, this training encourages the majority of children, via the strategies implemented by their parents, to increase an adaptive behavior and decrease, or work on decreasing, a challenging behavior. Parents' comments

point to a pleasant and effective experience in several areas of their relationship with their child. That further studies are needed to better understand the operational modalities of this type of parent-mediated intervention is certain; however, the accessibility and practicality of the training program are encouraging. Additionally, it's possible the program may be offered online to accommodate participants' schedules and make more services available.

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Neurodiversity in Graduate School: An Exploration of Perspective

Amanda L. Mazin
Teachers College, Columbia University

Jessica F. Riccio
Teachers College, Columbia University

Jordin Luxenberg
Teachers College, Columbia University

Allison Tearney
Teachers College, Columbia University

Abstract: Expansion of the defining characteristic of autism, the encapsulation of neurodiversity, societal changes, and an amplified acceptance of diversity, have led to an increase in individuals who identify as neurodivergent in higher education. This interpretive phenomenological analysis explores the available and accessible supports for students who identify as neurodiverse through a perspectives-based review of literature. This is the first phase of an exploratory model to determine accommodations that go beyond the standard modifications often provided in college classes, and methods to become more inclusive teachers of neurodivergent students in higher education.

Neurodiversity focuses on differences in individual brain function and behavioral traits, regarded as part of normal variation in the population (Clouder et al., 2020). Neurodiversity simply means being 'wired' in a different way rather than 'wrongly'. The paradigm suggests that we take the positive attitudes and beliefs that most people hold about biodiversity and cultural diversity and apply them to differences among human brains (Armstrong, 2012).

As the neurodiversity movement becomes more popular within the wider autism community, there has been a shift in definitions and approach. Strengths-based approaches to intervention and support are increasingly accepted as best practice, and treatment goals are increasingly focused on issues of concern for individuals with autism (den Houting, 2019). Late 20th century models of autism strove to identify a single core cognitive feature that could explain all observable behaviors. These models fell victim to their own need to explain autism in one clear theory, as the variability among people with a diagnosis is not easily

explained (Fletcher-Watson & Happe, 2019). Much of this work adopted a view of autism that is no longer accepted, describing autism in terms of deficit, and disregarding the strengths of, and contributions made by, autistic people. By identifying features of autism which were outside the reach of these attempted explanations, researchers exposed the heterogeneity and complexity, which is now a focus of much of the research and community interest (Fletcher-Watson & Happe, 2019). This shift resulted in an increase in adults self-identifying as neurodiverse, finally having a title for their identified collection of social and communicative behaviors. Expansion of the defining characteristic of autism, societal changes, and an increased acceptance of diversity, have caused an increase in individuals identifying as neurodivergent. The voice of self-advocates has increased. Autistic people have been some of the most powerful advocates for increased understanding of, and attention to, the viewpoints of people with disabilities (Milton & Martin, 2017).

Neurodiversity

Neurodiversity is viewed as an advocacy position where autism and related conditions are natural variants of human neurological outcomes that should be neither cured nor normalized and is based on the assertion that autistic people have unique neurological differences (Sarrett, 2016). The neurodiversity framework conceptualizes autism as a natural form of human variation, inseparable from individuals' identity (Bottema-Beutel et al., 2021). There is a connection to the wider disability rights movement and the field of disability studies, which explore the social, cultural, and political dimensions of the concept of disability and what it means to be disabled. The extent to which differences constitute impairments, which can in turn be disabling, requires reference to the supports that are provided (or not), and the value particular abilities in sociocultural contexts (Bottema-Beutel et al., 2021).

The wider disability rights movement has struggled to define themselves, given the high variability within the group and the differing goals of its members. Some advocates assert the universality of disability, noting that everyone will experience disability in their lives, and others focus on definitions that include specific impairments and biological states of being. Definitions depend on overall aim: gaining specific accommodations based on type of disability or developing a large, unified front with a powerful voice (Siebers, 2008). For example, there is a split between people with physical disabilities and those with cognitive disabilities. Often, individuals with physical disabilities do not want to be associated with the stigmas connected to psychiatric and intellectual disabilities and those with psychiatric and intellectual disabilities find that efforts towards infrastructural modifications to improve access to space

does little to address their needs (Ali et al., 2016).

Proponents of the autistic-led neurodiversity movement conceptualize autism in such a way that autism itself can be celebrated while still recognizing impairments and support needs (Bottema-Beutel et al., 2021). Neurodiversity scholars and activists: (1) recognize that barriers imposed by society hinder the fulfillment of autistic people and assert that it is society's responsibility to remove these barriers (Chown et al., 2017); and (2) acknowledge the relationship between the weaknesses of autism and the social environment, viewing autism as both a difference and a disability (Kapp et al., 2013).

Autistics often experience significant barriers to formal diagnosis in childhood, adolescence, or young adulthood, particularly girls and women (Bargiela et al., 2016). Due to misdiagnosis, co-occurring diagnoses, and stereotyped perception of autism, there is increasing recognition of a lost generation of undiagnosed adults (Lai & Baron-Cohen, 2015; Stagg & Belcher, 2019). This has led to an increase in adult self-diagnosis. This study will use the broadest definitions of neurodiversity and place value in self-identification and self-diagnosis.

Neurodiversity in Higher Education

Neurodiversity is an umbrella term, including dyspraxia, dyslexia, attention deficit hyperactivity disorder, dyscalculia, autistic spectrum, Tourette syndrome and other groups who have self-selected this defining term. The increasing number of students with learning difficulties associated with neurodiversity entering higher education poses a shared and growing challenge internationally for teachers and institutional leaders (Clouder et al., 2020). While research has not specifically identified the rates of autism within higher education, there has

been a notable increase in the prevalence of students identifying as neurodiverse in colleges and universities from 2010 to 2019 (McConkey, 2020; Pino & Mortari, 2014). While neurodiversity is an umbrella term, individuals who identify as or have a formal diagnosis of autism are the most visible group in higher education. Autistic people may have skills particularly suited to higher education (Van Hees et al., 2015). However, even when exhibiting some of these skills, autistic students have been reported to have a heightened risk for academic and personal challenges while in college (von Below et al., 2021). Because autism presents heterogeneously, there are also significant differences in coping mechanisms and skills (Gobbo & Shmulsky, 2014). Research suggests that autistic students are likely to be disadvantaged while in higher education, with only 27% reporting that their social needs were met and 40% reporting that their academic needs were met (Cai & Richdale, 2016).

Many students are hesitant to share their diagnosis and receive accommodations, fearing discrimination, bullying, stigmatization, and a lack of understanding (Cai & Richdale, 2016). If a diagnosis is shared with an office of disability services within higher education, adjustments to teaching methods or assessments can be included in course plans. However, accommodations are often denied, and even when granted they can be overly generic and fail to address sensory, social, academic, or psychiatric needs (Jansen et al., 2018; Kuder & Accardo, 2018; Sarrett 2016).

Need for Multiple Perspectives in Research

There is a need to hear the voices of individuals with disabilities, who are experts in their own right, to truly understand their current experiences and what family

members and advocates can do to empower them (Knox et al., 2000; Mactavish et al., 2000). Qualitative research is a profound way to advocate for and address disability-related issues by giving a voice to those who have been marginalized (Pugach, 2001). People with disabilities also express the importance of their voice as they advocate for themselves and join together to spread the message from the disability rights movement: “Nothing about us without us” (de Beco, 2021).

Further, much of the autism research uses an ableist perspective, describing autism in this way has negative effects on how society views and treats autistic people and how autistic people view themselves. Despite recent positive changes in how researchers write and speak about autism, ableist language is still used (Bottema-Beutel et al., 2021). Understanding the concept of ableism, and how it manifests in language choices, is critical for researchers who focus on marginalized groups such as the autistic community (Bottema-Beutel et al., 2021).

The aim of this study is to gain insight into participants’ lived experiences from their point of view, to try to capture the emotions surrounding the experience, and to understand and make sense of the experience (Smith & Nizza, 2022). The personal meanings associated with lived experience are considered particularly important in this research, as is how the experience relates to people’s views of their world and their relationships. Language used in this study reflects the changing vocabulary used by members of the community. To the fullest extent possible, authentic language is prioritized.

This paper will highlight the process of gathering evidence to investigate the phenomenon of the neurodiverse experience

in higher education. The research questions guiding this study are:

- (1) What supports are needed, available, and accessible for students who identify as neurodivergent?
- (2) What is the impact of a disability diagnosis on the higher education experience?

Theory

The theoretical model for this synthesis combines both the medical model and the identity model of disability. While we understand and acknowledge the significant flaws with the medical model because it defines disability in a fundamentally negative way (Retief & Letšosa, 2018), coupled with the history of viewing disability as a personal tragedy for both the individual and family, as something to be prevented and, if possible, cured (Carlson, 2016). It is within this model of disability that the key pillars of diagnosis and intervention stand. The medical model of disability is the foundation for IDEA (2004) and basis for modifications and accommodations. While the medical model did not guide this research, to provide accommodations and modifications within the system, we must consider the medical model as a relevant perspective.

The identity model, within the social model of disability and not without its own faults, provides a more accurate theoretical framework for this research. This model shares the social model's understanding that the experience of disability is socially constructed but differs to the extent that it claims disability as a positive identity (Brewer et al., 2012). We recognize that people do have impairments and suggest academia has the means to instigate changes that mitigate many of the hindrances caused by impairment, which create disability (Clouder et al., 2020). Under an identity model, disability is primarily defined by a

certain type of experience in the world – a social and political experience of the effects of a social system not designed with disabled people in mind (Brewer et al., 2012).

When the world is based on the notion of “normal” society standards, the lens of disability is often taken out of the picture. The disability movement has fought for the right to be seen as equal to non-disabled peers. The collective expression of frustration and anger, a realization that there is nothing wrong with people with disabilities embracing an identity as ‘outsiders’, but people with disabilities should have the right to be ‘insiders’ if they prefer. Group identity has inspired many people with disabilities to endeavor for revolutionary visions of change, often under the flags of civil rights and equal opportunities (Swain & French, 2000).

Phases of Information Gathering

This paper is situated in phase one of a sequential, multiphase, iterative research project. Figure 1 shows the phases of this project. In Phase 1, information was gathered from current research. A perspectives-based literature review was conducted to gain insight into current research and areas of interest. Participatory models of research include individuals within the community in all parts of research. Editorial decisions, made by members of the community, elevates the voices of neurodiverse participants, can help break down conventional barriers, and lead to research that better matches the preferences and priorities of the neurodiverse community (Bottema-Beutel et al., 2021). This project sought to include the voice and perspectives of members of the neurodiverse community in all areas of research.

This interpretive phenomenological analysis (IPA) will examine the lived experiences of individuals who identify as neurodiverse

within the context of graduate school. IPA is a method designed to understand people’s lived experience and how they make sense of it in the context of their personal and social worlds (Smith et al., 2009).

Perspectives-Based Literature Review

Phase 1 of this research involved a perspectives-focused review of current literature. Using a self-selection process of inclusion in the research process, Participant-Researcher 1 completed a self-directed literature review. This review was conducted from a self-advocate perspective. Participant-Researcher 1 identifies as neurodiverse, more specifically, neurodivergent. The term neurodivergent has been defined as “having a brain that functions in ways that diverge significantly from the dominant societal standards of normal” (Walker, 2023) and describes themselves as

A driven individual who wants to ensure that students with disabilities are given a fair chance and not overlooked in the higher education setting. I am a master’s student with a learning disability who does not let failure or frustration win. I have learned how to work with my learning disability, self-advocate for my needs, and know when to ask for help. But that does not mean I do not have hard

days; I do, which is okay, but I get back up and start again. The social model of disabilities, I believe, helps students with disabilities see their real potential and see themselves for who they are, not just their label of disability. My disability is just a fraction of who I am; it does not define me as an individual.

Literature Review

The Participant-Researcher completed a review of current literature. The prompt for the literature review was “conduct a review of current literature on students with disabilities in higher education.” The initial literature search included electronic databases: ERIC, Taylor & Francis Online, Routledge Taylor & Francis Group, APA Psychnet, and SAGE Journals. The terms used were Learning Disabilities AND Higher Education, Student with Disabilities AND Higher Education, Students with Disabilities AND Success in Higher Education. Criteria for articles: (1) conducted in the IHE setting, (2) focusing on learning difficulties and neurodiversity, (3) ways to help students succeed in IHE, (4) research studies from the student’s perspective, (4) methods and data, (5) written in English, (6) published between 2008 to 2022.

Figure 1 Phases of Information Gathering

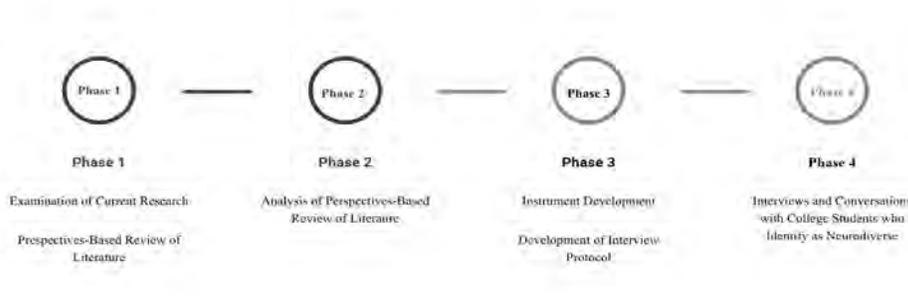


Table 1. *Perspectives-Based Literature Review Article Summary*

Source	Purpose	Relevant Findings
Del Visco (2009)	This is a personal piece by the author, who has LD and is now enrolled in a doctorate program, advising students with LD on various skills they need to succeed in HE. He speaks in great detail about how teachers, parents, and special education personnel need to help students understand how to use learning supports and tools for success in HE.	Students should learn how to self-advocate for themselves, understand their accommodations and how they learn best, and what techniques work for them to succeed in HE.
Denhart (2008)	This phenomenological study that was part of a doctoral dissertation looked at 11 college students with learning disabilities and the various barriers they faced and used their voices as first-person data. The author used the lens of disability theory to examine perspectives of the student's experience.	A theme in this phenomenological research that was recurring was for faculty and staff to have training on what LDs are and how to not make such quick judgments about a different student, for instance, calling a student lazy or not trying hard enough when they are putting in more work to get the same result as students in HE who do not have LDs.
Fleming et al. (2017)	The researchers of this study wanted to find out what factors predicted academic success for college students with learning disabilities. They looked at modifiable factors such as peer support, professor support, class structure, disability services support, campus climate, and self-advocacy.	The researchers found that self-advocacy was the only significant correlation to academic success.
Kimball et al. (2016)	Disability activism was a significant theme that emerged in this article. The researchers interviewed 59 college students, and they were asked to develop their definition of disability through their lens. The researchers wanted to learn how the students found a sense of purpose and drive to achieve when times got tough.	Through the interview questions with the students, there were significant findings: the need for parental involvement in their child's education; role modeling and teaching about self-advocacy to others; decreasing the stigma about disability through storytelling and educating others; activism through various disability clubs on and off campus and the student's interests and desires besides their disabilities.
McCarron (2020)	This study looked at faculty from a northeast university and how they responded to providing accommodations for students with disabilities in their classes. The researchers sent an online survey to the participants, which examined two measures: 1. Willingness to accommodate students with learning disabilities in their classrooms 2. Action- how much work it is to provide the accommodation.	They did not see accommodations as helpful to the student. There was insufficient knowledge and low action; they believed that providing the accommodations would be too much work and had little knowledge about why and how accommodations can help students with disabilities.
Moriña (2022)	This research article examined invisible	This journal article goes back to how the

	disabilities like ADHD, learning disabilities, mental illness, and various health problems. This journal highlighted the idea of taking the initiative and being proactive to receive your needed support. The research examined the negative side of students disclosing their disability to professors and other university personnel.	HE institutions view disability as a whole and how the individuals themselves saw who they were.
Russak & Hellwig (2019)	This study was conducted by asking eight students who were part of the learning center at their university to find out how they define success and what factors they think went into that success.	The authors broke up the student's answers by internal and external factors of success and what led to their success. An example of some internal definitions of success was: success as a process, success as doing something you love, and success as helping others by paying it forward. The external definitions of success were: success as getting positive feedback from others and success as measurable outcomes.
Shine & Stefanou (2022)	This study examined the faculty's perception, understanding, willingness to provide documented accommodations, and how faculty perceive students with disabilities. The researchers spoke about how transitioning from high school to higher education can be difficult because students now have to look for support to help them achieve academic success.	The big takeaway from this article mentioned that when faculty have professional development opportunities and learn about how to support students with disabilities in their classes, the faculty have higher self-efficacy and a more positive outlook in working with students with disabilities.
Troiano et al. (2010)	The researchers examined data over five years from 262 college students with learning disabilities who attended a Learning Support Center.	The researchers wanted to determine if there was a correlation between the student's success and how often they visited the academic support center. This data showed that the students who went to the academic support center regularly had more academic success than those who did not attend regularly.

The review of literature resulted in an analysis of nine articles. Results were organized into two, self-directed parts: applicability of the information in the article in IHE and opinions on the research findings. While this was not a saturated search, we felt it was important to capture the exact findings of the participant. Table 1 contains the results of the perspectives-focused literature review.

This first part of the first phase of the interpretive phenomenological analysis will provide a foundation to move forward with a robust discovery of the experiences of students who identify as neurodiverse within the context of graduate school. In this study, we seek to understand how they make sense of their experiences in the context of their personal and social worlds (Smith et al., 2009).

Initial Interpretations of Perspectives-Based Literature Review

After the completion of the perspectives-based literature review a qualitative analysis was completed using interpretive phenomenological analysis (IPA). The data were organized into two categories by the Participant-Researcher: applicability and opinion. The data were independently coded for themes using open coding by the other members of the research team. The data were read and re-read, ensuring that any new ideas and insights were generated, and semantic content and language use were explored. Overall, ten unique themes were identified. The two reviewers independently analyzed the data. There were no disagreements in data or theme development. There were sixteen instances where only one reviewer identified data. After a second analysis, there was 100% agreement. Table 2 contains a list of themes.

Results

The overall goal of this analysis was to gain insight into the perspectives of current

research to see what is valued and prioritized as the foundation for the next phases of the study. Using the overall study research questions as an organizational guide, themes are organized and described below.

Research Question (1) What supports are needed, available, and accessible for students who identify as neurodivergent?

Participant-Researcher analysis of the literature and subsequent thematic analysis of the selected literature review revealed key components of experiences in HE. This research question can be answered by examining three themes: parental involvement and supports; external HE supports; and self-advocacy. There were a notable number of references to the need for early and continued parental involvement and support ($n=4$). This was viewed both in the research articles (Kimball et al., 2016; Russak & Hellwig, 2019) and opinions as necessary for success in HE. There were four independent mentions of the need for early

Table 2. *Themes*

Theme	Data
Activism	$n=1$
Parental Involvement and Support	$n=4$
Opinions	$n=9$
Purpose/Motivation/Success	$n=14$
Self-Advocacy	$n=10$
More than a Disability/Stigma	$n=12$
Research/Theory	$n=6$
Higher Education (HE) Supports	$n=10$
Faculty and Staff Perspectives	$n=9$
External Support	$n=3$

parental involvement as both a method of increasing self-advocacy for individuals with disability and for assisting in navigating the systems of HE.

External supports ($n=9$) emerged as a valued and often essential component of a quality education experience. These supports were identified broadly as a learning resource center. There was a need for self-advocacy and disclosure of disabilities to access the available resources. The theme of stigmas associated with identifying oneself as disabled emerged ($n=10$) as a significant barrier to access services. Related to stigma as a lack of faculty and staff awareness of disabilities, specifically around invisible disabilities. This was a consistent barrier to fair and equitable access to academic services at colleges and universities ($n=9$). The opinions of the Participant-Researcher aligned to the research with specific mentions of experiences with faculty and staff who were barriers themselves due to lack of knowledge. It was acknowledged that supports are available, but not for all disabilities and not equitability. While the services provided by HE were valued, the language surrounding access and need was determined to need an update to change perspectives (Shine & Stefanou, 2022).

The article used a word that I feel is more admirable than accommodations: Academic Adjustments. I feel it is nicer. I do believe that professional development for HE faculty about how to implement accommodations and the whole idea of disability as a structure could change the way disability is viewed in the classroom and at an institution.

Self-advocacy ($n=10$) emerged as a consistent theme in both the research and analysis. The need for advocacy to access supports and the need for advocacy to make changes to the system of supports were

valued by the Participant-Researcher.

In the other research articles, I have read, the researchers cite self-advocacy is one of the most beneficial skills for a student with a learning disability. Being able to self-advocate for yourself and your needs will help you negotiate accommodations. More specifically, letting professors know what you need, understanding yourself, and your learning style, which allows you to shape your education.

While it is not surprising self-advocacy was a constant in the research and opinion, the link of self-advocacy to external supports was also prevalent. I firmly believe that when students with disabilities have the option of an LRC on their college campus, they will have more success and support in their college education. This reflects the need for external support to facilitate self-advocacy.
Research Question (2) What is the impact of a disability diagnosis on the higher education experience?

This question was analyzed using the themes purpose/motivation/success and more than a disability/stigma in combination with the underlying theme of Participant-Researcher opinion. The theme purpose/motivation/success is broadly defined as how individuals with disabilities define success in HE and more specifically as the motivations, needs, and drive to succeed. This theme was evident throughout the literature and in the opinion of the Participant-Researcher ($n=14$). The factors that contribute to success in HE are personal. The inclusion of first-person perspectives in the research was the foundation for the development of this theme.

Some of the most valuable information when deciding on disability supports and services is to go to the student with the disability. I like reading first-person experiences and

related to some of them. The student can tell you what supports they need and potentially help change the support services as an individual or a whole community.

The value of listening to the individual with a disability to make decisions about accommodations is threaded into opinions. The help of teachers and mentors is essential to finding tools to “get over learning hurdles”. Capturing the data and information directly from the experts themselves (first-person perspectives), can provide higher education institutions with various support and benefits for not only the student with disabilities, but all students.

The positive impacts were highlighted, but the resistance to disclosing disability, invisible disability, and stigma surrounding disability influenced the experiences in HE. Stigma was found to be related to lack of faculty and staff knowledge ($n=9$). Throughout my educational journey, I felt like the professors and faculty who understood more about disabilities, had the knowledge about accommodations, and knew how to work with students who were neurodiverse; their classes were just an overall better experience. Faculty and staff self-efficacy impact the college experience for all students, but the willingness to accommodate students with disabilities can be a significant barrier to educational access for students with disabilities (McCarron, 2020).

Discussion

The aim of this study was to examine the lived experiences of one individual who identifies as neurodiverse within the context of graduate school to provide a foundation for future phases of the study. Through a perspectives-based literature review and subsequent analysis, the researchers were able to identify themes in the selection of

research and priorities of practice. The inclusion of first-person perspectives in all phases of research is essential to the design of the overall project. The impact of this literature review and analysis is small, but the insights gained from viewing literature through the lens of an individual who has experienced higher education with a disability is invaluable. There was an expectation that themes such as self-advocacy would emerge. It was not expected that a strong link to parental involvement and support would be relevant to higher education experiences. The influence of faculty self-efficacy and knowledge was present in the research (McCarron, 2020) and emphasized by the opinions of the participant-researcher. The links from internal motivations such as purpose/motivation/success to external sources such as learning resource centers and the positive correlation to success was enlightening. Modifiable factors such as peer support, class structure, disability services, and campus climate were found to be ineffective as compared to self-efficacy (Fleming et al., 2017). This is an interesting finding and is reflected by the participant-researcher as consistent with experiences.

Consistent with current research, the findings of this review highlight the need to shift the way we think about disability categories. The basic premise of neurodiversity is that there is no "typical" mental capacity—no "normal" brain to which all other brains are compared—and because this is the case, we should look at students not in terms of their deficits, but primarily in terms of their strengths. By focusing on assets rather than labels, educators can develop better ways of helping all students succeed (Armstrong, 2012). A supportive environment focused on assets rather than deficits that challenges a one-size-fits-all ethos that can prevail in higher education (Clouder et al., 2020).

Participant-Researcher's Final Thoughts

Many research articles discussed ways to help students with disabilities in higher education. A vital idea that was the most constant throughout almost every study was the importance of faculty and staff professional development targeted explicitly toward working with students with disabilities. Professional development is not only beneficial for faculty and staff who work with students with disabilities, but for the whole higher education system. Some thoughts about how to help professors in higher education feel more confident working with students could be a workshop that allows professors to understand accommodations and how to appropriately give the requested accommodations. These professional development opportunities can teach professors about the different types of disabilities that students may present with, provide them with tips on how to work with students successful, and guide professors in

becoming familiar with the disability office faculty on campus. Once the professors understand disabilities and how disabilities affect students in their classes, the students will be able to build a better relationship with their professors and have a more rewarding education because they will feel seen and heard.

Conclusions

This study explored the perspectives of one participant-researcher. The inclusion of individuals who have the lived experiences we are researching is essential to process. We are committed to exploring the experiences of graduate students who identify as neurodiverse/neurodivergent through participatory research. This study provides a starting point for further analysis of the experiences of neurodiverse/neurodivergent graduate students with the intended goal of creating more equitable and accessible learning environments.

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Correspondence concerning this article should be addressed to Amanda Mazin, 525 West 120th Street, Box 223, New York, NY 10027. E-mail: amanda.mazin@tc.columbia.edu

Students with Autism Quality of Life and Satisfaction with College Life

Jacqueline Lubin
University of Hartford

Jerrie Brooks
Fort Hays State University

Marsha Simon
University of West Georgia

Abstract: Using the World Health Organization Quality of Life- BREF (1998), the study examined the perceptions of college students with autism on their quality of life (QoL) and satisfaction with college life. The study is exploratory in nature and is intended to provide professionals with a glimpse into the postsecondary experiences of students with autism spectrum disorder (ASD). The data were analyzed using descriptive statistics and multivariate analysis of variance (MANOVA). Results demonstrated on average, participants reported slightly above mid-level QoL and satisfaction with college life. The researchers found differences among groups based on sex/gender, race/ethnicity, college level, disclosure status, and disability within the individual domains of QoL, including Physical Health, Social Relationships, Psychological, and Environment. Educational implications and recommendations for future research are discussed.

Autism spectrum disorder (ASD) is a neurodevelopmental condition that impacts one's quality of life (QoL) over a lifetime. However, most research has focused on the QoL of children with ASD at elementary and secondary levels and not at the college level. The limited research on the developmental trajectory of the quality of life as children with ASD transition into adulthood is concerning, as studies have highlighted that students with autism in K-12 settings often experience a low quality of life (de Vries & Geurts, 2015; Eaves & Ho, 2008; van Heijst & Geurts, 2015). As they approach adulthood, some individuals with ASD may plateau in their development while others decline (McGovern & Sigman, 2005; Seltzer et al., 2004). The questions remain: what is the QoL for students with ASD in higher education institutions? and how satisfied with college life are these students?

The general characteristics of individuals with ASD include marked impairments in social interaction and communication skills, restricted interests, and repetitive behavior

(Barneveld et al., 2014; Dijkhuis et al., 2017). At the college level, these difficulties may be evident in daily life in social relationships and independent living (Anderson et al., 2017; Barneveld et al., 2014; Dijkhuis et al., 2017). Studies have highlighted that adults with autism may display lower social and communicative skills levels than their linguistic and cognitive abilities (Renty & Roeyers, 2006; Underhill et al., 2019). In a longitudinal study, Eaves and Ho (2008) reported young adults with ASD displayed limited independence, poor adjustment to relationships, and few employment opportunities. As students with ASD enter higher education institutions, they encounter more complex situations in their personal relationships, leisure pursuits, employment/education, community involvement, and physical and emotional health, which have a direct effect on their overall quality of life (Anderson et al., 2017; Cronin et al., 2007). Other researchers confirmed these findings, reporting that adults with ASD experience a significantly reduced QoL compared to typically developing peers (Dijkhuis et al.,

2017; Gurbuz et al., 2018; Hillier et al., 2018; Nasamran et al., 2017).

Quality of life (QoL) is a multidimensional concept that includes objective and subjective well-being. However, little research has investigated the QoL of college students with ASD (Chao, 2018; Renty & Roeyers, 2006). The World Health Organization (1995) defines QoL as one's perception of their position in life considering culture and value systems concerning their goals, expectations, standards, and concerns. In this study, quality of life refers to a set of factors based on the World Health Organization (WHO) Quality of Life domains of Physical Health, Social Relationships, Psychological, and Environment that contribute to one's well-being while at college. Physical Health includes an individual's college activities of daily living, dependence on medicinal substances, energy and fatigue, mobility, pain and discomfort, sleep and rest, and work capacity. The Psychological domain involves the individual's body image and appearance, feelings, beliefs, self-esteem, spirituality, thinking, learning, memory, and concentration while at college. The Social Relationships domain encompasses the individual's personal relationships, social support, and romantic relationships at college. Lastly, the Environment domain comprises the individual's financial resources, freedom, physical safety and security, accessibility, school environment, opportunities for acquiring new information and skills, participation in and opportunities for recreation/leisure activities, physical environment, and transport (Chao, 2018; World Health Organization, 1998).

Few studies have investigated the QoL of and the satisfaction with the college life of students with ASD. Hillier et al. (2018) noted a wide gap in identifying strategies and models that work for college students with ASD. Dijkhuis et al. (2017) explored whether

students with ASD in postsecondary institutions experience problems and how these problems impact their QoL. When they compared individuals with ASD in postsecondary higher education to typical peers, they discovered that individuals with ASD reported a significantly lower QoL. In fact, students with ASD reported lower satisfaction with school life. Hillier et al. (2018) confirmed these findings when evaluating the effectiveness of a support group model for university students with ASD. Examining the domains of QoL, students with ASD rated all but one (living arrangement) domain slightly above the midpoint, including education, physical condition, relationship partner, social relations, state of mind, and future perspective (Dijkhuis et al., 2017).

The factors contributing to the quality of life of individuals with ASD and satisfaction with school life have received relatively little attention (Dijkhuis et al., 2017; Renty & Roeyers, 2006). Some studies have examined the quality of life of adults with autism compared to individuals without disabilities; others have focused on one dimension of QoL, but fewer studies have investigated the quality of life of college students with ASD in the context of their postsecondary setting (Dijkhuis et al., 2017; Renty & Roeyers, 2006). This study aimed to examine the quality of life of college students with ASD and their satisfaction with college life in regard to four domains: Physical Health, Psychological, Social Relationships, and Environment. The differences among students based on sex/gender, race/ethnicity, college level, disclosure status, and disability were also examined. The following research questions guided this study:

1. What is the quality of life of college students with ASD?
2. What is the level of satisfaction with school life of college students with ASD?

3. What are the differences in QoL and satisfaction with school life among college students with ASD based on sex/gender, race/ethnicity, disability type, college level, and disclosure status?

Method

The researchers used a survey to gather the perceptions of college students with ASD on their quality of life. Past research has stated that it is essential to focus on the perspective of individuals with ASD on their well-being and that self-reports can be reliable and valid (Dijkhuis et al., 2017).

Participants

Convenience sampling was used to recruit participants, resulting in 56 responses from college students with autism who attended 4-year universities. The respondents included 27% women, 66% men, and 7% who identified as non-binary. Participants' race/ethnicity identification included White (71%), Hispanic/Latino (14%), African American/Black (9%), and Asian (5%). In regards to exceptionality, 43% reported a diagnosis of ASD only, while 57% noted ASD with comorbid disabilities such as attention deficit hyperactivity disorder, hearing impairment, multiple disabilities, auditory processing disorder, visual impairment, irritable bowel movement, and emotional and behavioral disorder. Respondents' college year included 38% first-year students, 14% sophomores, 13% juniors, 21% seniors, and 14% graduates. Eighty-eight percent of the participants disclosed their disability to their university.

Instrument

The instrument used in the study was the WHOQOL-BREF survey designed to measure the quality of life of individuals globally (World Health Organization, 1998). The WHOQOL-BREF contains a total of 26 items, with two items assessing the overall quality of life and satisfaction of life (which

was modified for this study to measure satisfaction with college life). The remaining 24 items fell into four domains, including Physical Health (7 items), Psychological (6 items), Social Relationships (3 items), and Environment (8 items). Each item was rated on a 5-point Likert scale, with higher scores representing a better quality of life. The raw scores of each domain were converted into a transformed score from 0-100 (midpoint=50) according to the WHOQOL-BREF guidelines. The overall QoL scores were generated by adding the transformed scores in each of the four domains with a possible maximum total of 400 (midpoint=200).

Procedure

The researchers first obtained approval from the Institutional Review Board and then sent a recruitment email to an available pool of university-based educators requesting distribution to the student population. The email included the study description, consent form link, and survey access (i.e., WHOQOL-BREF). Intermittent follow-up emails were sent to educators to resend the standard participation invitation. The invitation was sent to various four-year universities across the USA.

Data Analysis

Data on quality of life, satisfaction with college life, and the differences in satisfaction with school life among college students with ASD based on sex/gender, race/ethnicity, college level, disability type, and disclosure status were analyzed using descriptive statistics and multivariate analysis of variance (MANOVA). Researchers examined the demographic characteristics of the participants in the study using descriptive statistics. Then they conducted a MANOVA to test for statistically significant differences in respondents' quality of life and satisfaction with college life based on demographic characteristics.

Results

In response to research question one on the overall quality of life (QoL) of college students with ASD and research question two on student satisfaction with college life, the findings from the two 5-point Likert scale survey questions showed that on average, respondents rated both questions slightly above mid-level. Students rated quality of life marginally higher ($M = 3.68$; $SD = .936$) than satisfaction with college life ($M = 3.27$; $SD = 1.228$). However, when QoL was evaluated per domain, the results showed that students rated three of the four domains below the midpoint (Physical Health: $M = 46.94$; $SD = 14.98$; Psychological: $M = 49.26$; $SD = 19.86$; Social Relationships: $M = 49.33$; $SD = 22.36$). The only domain rated above the midpoint was Environment ($M = 60.08$; $SD = 22.51$).

In reference to research question three on differences in QoL and satisfaction with school life among college students with ASD based on sex/gender, race/ethnicity, college level, disability type, and disclosure status, results varied (see Table 1). QoL was measured using Likert scale that ranged from 1 to 5 (1 = very poor, 2 = poor, 3 = neither poor nor good, 4 = good, 5 = very good). Satisfaction with school life was rated using a scale ranging from 1 to 5 (1 = very dissatisfied, 2 = dissatisfied, 3 = neither satisfied nor dissatisfied, 4 = satisfied, 5 = very satisfied).

Regarding sex/gender, on average, all groups rated QoL and satisfaction with school life above the midpoint, except women who rated satisfaction with college life below mid-level ($M = 2.93$; $SD = 1.223$) which shows some dissatisfaction with school life. See Table 1. Concerning the individual domains of QoL, men rated three (Physical Health, Psychological, Environment) of the four domains above the midpoint. In contrast, participants who identified as non-binary

rated the same three below the midpoint (see Table 2).

Women rated all domains below the central point. Overall, men were the only group whose combined rating of the four domains was above the midpoint ($M = 218.54$; $SD = 55.37$). Multivariate analysis revealed there was a significant difference in respondents' Environment, $F(2, 53) = 5.18$, $p < .01$, and Physical Health, $F(2, 53) = 4.972$, $p = .01$, scores based on sex/gender. In the Environment domain, a Tukey post hoc test revealed that there was a significant difference between men ($M = 66.43$) and women ($M = 49.26$). For Physical Health, Tukey post hoc test results showed a significant difference between men ($M = 52.76$) and respondents who identified as non-binary ($M = 33$).

On average, based on race/ethnicity, participants who identified as Black/African American rated both QoL and satisfaction with school life the highest (see Table 1). In fact, Black/African American respondents were the only group who evaluated QoL as good. The findings revealed a pattern where a high rating of QoL was followed by a high satisfaction rating with school life. Respondents who identified as White rated QoL ($M = 3.80$; $SD = .853$) and satisfaction of school life ($M = 3.40$; $SD = 1.128$) the second highest. Hispanic/Latino participants rated QoL ($M = 2.88$; $SD = .991$) and satisfaction with school life ($M = 2.50$; $SD = 1.309$) the lowest. For the Hispanic/Latino group, both areas were rated below the mid-level, showing a rating of poor QoL and dissatisfaction with college life. See Table 1. In individual domains of QoL, White participants were the only group who rated all domains (Physical Health, Psychological, Social Relationships, and Environment) above the midpoint, while Hispanic/Latino respondents rated all domains below the

Table 1. Overall Quality of Life and College Satisfaction

Demographic	Quality of Life		Satisfaction with School Life	
	Mean	<i>SD</i>	Mean	<i>SD</i>
Sex/Gender				
Men	3.67	.966	3.43	1.237
Women	3.71	.756	2.93	1.223
Non-Binary	3.25	.957	3.00	1.155
Race/Ethnicity				
White	3.80	.853	3.40	1.128
Black	4.20	1.095	3.80	1.643
Asian	3.33	5.77	2.67	1.155
Hispanic/Latino	2.88	.991	2.50	1.309
College Year				
First-Year	4.10	.768	3.86	1.014
Sophomore	4.13	.641	3.88	.354
Junior	3.29	.488	2.00	.577
Senior	3.33	1.231	3.17	1.337
Graduate	3.00	.756	2.38	1.302
Disclosure				
Yes	3.67	.966	3.27	1.238
No	3.71	.756	3.29	1.254
Disabilities				
ASD Only	3.71	.908	3.33	1.308
ASD +	3.66	.971	3.22	1.184

midpoint (See Table 2). Overall, among the race/ethnicity groups, those who identified as White ($M = 220.52$; $SD = 44.09$) and Asian ($M = 200.33$; $SD = 65.85$) were the only groups whose combined rating of the four

domains was above the midpoint. Multivariate analysis revealed there was a significant difference in respondents' Environment $F(3, 52) = 3.05$, $p < .01$, Physical Health $F(3, 52) = 4.86$, $p < .01$, and

Table 2. Means and Standard Deviations of Quality-of-Life Domains Per Demographic Area

Demographic	Physical Health		Psychological		Social Relationships		Environment		Total	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Gender/Sex										
Men	52.76	15.02	51.37	22.11	47.97	18.71	66.43	20.98	218.54	55.37
Women	43.80	11.73	46.80	14.18	48.00	29.03	49.26	19.66	187.86	47.35
Non-binary	33.00	10.73	39.00	13.83	67.00	24.16	42.00	26.15	181.00	35.34
Race/Ethnicity										
White	52.70	13.23	51.45	19.78	51.37	20.27	65.00	19.15	220.52	44.09
Black	45.20	16.49	50.20	10.82	36.40	28.15	55.20	35.81	187.00	87.66
Hispanic/Latino	32.87	11.84	36.00	21.70	49.25	29.20	40.75	17.91	158.87	46.94
Asian	48.00	19.31	54.00	22.06	44.00	25.00	54.33	31.72	200.33	65.85
College Year										
First-Year	55.61	11.79	54.52	21.76	56.85	20.87	70.71	18.14	237.71	46.01
Sophomore	58.75	16.06	57.87	15.09	52.37	20.56	69.00	18.16	238.00	27.40
Junior	43.00	11.28	53.57	24.57	50.00	22.60	51.85	24.36	198.42	44.18
Senior	38.58	9.16	37.58	11.30	40.08	25.72	48.00	22.80	164.25	45.48
Graduate	42.37	18.86	40.62	17.06	39.87	18.84	48.62	22.08	171.50	48.63
Disclosure										
Yes	48.65	15.26	48.53	20.23	49.73	22.39	60.38	22.90	207.30	55.24
No	51.00	13.75	54.42	17.37	46.57	23.72	58.00	21.03	210.00	44.87
Disabilities										
ASD Only	47.08	14.00	50.33	21.81	50.04	22.21	61.66	24.45	209.12	59.19
ASD +	50.34	15.75	48.46	18.56	48.81	22.81	58.90	21.26	206.53	50.14

Total QoL $F(3, 52) = 3.71, p < .01$ scores based on race/ethnicity. Tukey post hoc test revealed there was a significant difference between White and Hispanic/Latino participants in the Environment domain (White: $M = 65$; Hispanic/Latino: $M = 40.75$),

Physical Health domain (White: $M = 52.7$; Hispanic/Latino: $M = 32.87$) and Total QoL (White: $M = 220.52$; Hispanic/Latino: $M = 158.87$).

Based on their college year, on average, first-

and second-year students had the highest level of QoL and satisfaction with college life (see Table 1). In fact, both groups had high levels of QoL, which included a rating of good (first-year students: $M = 4.10$; $SD = .768$; sophomore: $M = 4.13$; $SD = .641$) and slightly above midpoint satisfaction with school life (first-year students: $M = 3.86$; $SD = 1.014$; sophomore: $M = 3.88$; $SD = .354$). Although juniors ($M = 3.29$; $SD = .488$) and graduates ($M = 3.00$; $SD = .756$) had above midpoint QoL, they (juniors: $M = 2.00$; $SD = .577$; graduates: $M = 2.38$; $SD = 1.302$) reported below mid-level satisfaction with school life which showed that they were dissatisfied with college life (see Table 1). Regarding individual QoL domains, seniors and graduates rated all domains the lowest (See Table 2). In fact, seniors and graduates rated all domains below the midpoint as compared to first- and second-year students who rated all domains above the midpoint. In summary, only two of the five college groups' combined rating of the four domains was above the midpoint (first-year students: $M = 237.71$; $SD = 46.01$; sophomore: $M = 238.00$; $SD = 27.40$).

Multivariate analysis revealed a significant difference in respondents' Environment, Physical Health, and Total QoL scores based on college years. The analysis included the following: Environment domain $F(4, 51) = 3.71$, $p < .01$, Physical Health domain $F(4, 51) = 5.21$, $p < .01$, and Total QoL $F(4, 51) = 7.76$, $p < .01$. In the Environment domain, a Tukey post hoc test revealed there was a significant difference between first-year students ($M = 70.71$) and seniors ($M = 48$). For Physical Health, results from a Tukey post hoc test showed a significant difference between first-year students ($M = 55.61$) and seniors ($M = 38.58$), and also a difference between sophomores ($M = 58.75$) and seniors ($M = 38.58$). Regarding Total QoL, a Tukey post hoc test showed a significant difference between first-year students ($M = 237.71$) and seniors ($M = 164.25$) and graduates ($M =$

171.50), respectively. Additionally, there was a difference between sophomores ($M = 238$) and seniors ($M = 164.25$), and between sophomores and graduates ($M = 171.50$).

On average, participants who self-disclosed to their universities and those who did not rated QoL and satisfaction with school life slightly above mid-level, where QoL was neither poor nor good, and they were neither satisfied nor dissatisfied with college life (see Table 1). When individual domains were compared, those who disclosed had below the mid-level QoL in three domains (Physical: $M = 48.65$; $SD = 15.26$, Psychological: $M = 48.53$; $SD = 20.23$, Social Relationships: $M = 49.73$; $SD = 22.39$) and those who did not self-disclose rated only one area below the midpoint (Social Relationships: $M = 46.57$; $SD = 23.72$). Overall, both groups' combined rating of the four domains was above the midpoint (see Table 2). Based on disclosure status, a multivariate analysis revealed no significant difference in respondents in any of the four domains.

When participants with only ASD were compared to those with ASD and comorbid disabilities, both groups had slightly above midpoint ratings for QoL and satisfaction with college life, which showed that their QoL was neither poor nor good, and they were neither satisfied nor dissatisfied with college life (see Table 1). In terms of individual domains, those with ASD only rated all but Physical Health ($M = 47.08$; $SD = 14.00$) above the midpoint, while those with ASD plus other disabilities rated two domains above the midpoint (Psychological: $M = 50.34$; $SD = 15.75$, Environment: $M = 58.90$; $SD = 21.26$). Overall, both groups' combined rating of the four domains was above the midpoint (see Table 2). Multivariate analysis, based on disabilities (ASD only or ASD with comorbid disabilities), revealed no significant difference among respondents in any of the four domains.

Discussion

Despite the growing population of college students with ASD, there is very little research on their quality of life (QoL) and their satisfaction with life in postsecondary settings. This study is one of the few that provides important insight into students' self-evaluation of their QoL and satisfaction with college life as they navigate higher education. The results of the study indicated that, on average, participants had a mid-level QoL and satisfaction with college life.

However, in regard to the QoL domains, this study found that students with ASD rated all domains of QoL (Physical Health, Social Relationships, Psychological), except Environment, slightly above the midpoint. Dijkhuis et al. (2017) highlighted similar findings in their study where Living Arrangement (which falls under Environment) was rated the highest, which was above the central point. Previous research reported college students with ASD experience lower QoL compared to typically developing peers (Gurbuz et al., 2018; Hillier et al., 2018; Nasamran et al., 2017; van Heijst & Geurts, 2015). Since there are limited studies examining QoL per domain, future investigations may examine the QoL of not only students with ASD but also students with other disabilities per domain and students without disabilities.

Little to no research exists on differences in QoL and satisfaction with school life among college students with ASD based on sex/gender, race/ethnicity, college level, disability type, and disclosure status. Based on all demographic areas examined, this study revealed that in most groups, students reported slightly above mid-level QoL and satisfaction with school life. However, differences exist among QoL domains. Men reported higher QoL than women and participants who identified as non-binary, specifically in Environment and Physical health domains. The Tukey post hoc test

revealed a significant difference between men and women in the Environment domain and between men and non-binary respondents in the Physical Health domain. The results from this study differ from the findings proposed by Renty and Roeyers (2006) as they reported that bivariate analyses yielded no significant relationship between gender, education, living arrangement, and intimate relationship on quality of life. Since there is limited research on the area, future investigations may delve into the predictive relationship of sex/gender on the QoL of college students with ASD. Additionally, no studies (to the authors' knowledge) have examined students with ASD who identify as non-binary, so future studies may assess this population to gain a more comprehensive view of their QoL. Although these findings are limited, it provides informative knowledge to college personnel who may use the data as a starting point to intentionally examine and develop support systems for students with ASD who identify as women and non-binary, as they seem to report lower QoL.

A pattern in ratings of QoL and satisfaction with college life was seen among race/ethnicity groups where a high rating of QoL was followed by a high rating of satisfaction with school life and vice versa. This pattern is evident between respondents who identify as white and Hispanic/Latino, where white participants rated all QoL domains above the midpoint and Hispanic/Latino respondents rated all below. The Tukey post hoc test confirmed a significant difference between participants who identify as white and Hispanic/Latino in the Environment domain, Physical Health domain, and Total QoL, where White respondents reported higher QoL. de Vries and Geurts (2015) explained predictors, such as sociocultural factors and ethnicity, may influence QoL in individuals with ASD. With such limited literature on the topic, further research is needed in the area. These findings

give a glimpse into the life of students with ASD based on race/ethnicity, which highlights the need to purposefully support students from diverse backgrounds to help improve their QoL. Colleges may also want to establish strategies/programs to increase satisfaction with school life, as this will inadvertently improve QoL.

In regard to college years, first- and second-year students rated overall QoL and satisfaction with school life the highest. This trend was also evident per domain, where seniors and graduates reported the lowest QoL. The MANOVA and Tukey post hoc test showed a significant difference between first-year students and seniors/ ~~and~~ graduates and among sophomores and seniors/graduates in the Environment domain, Physical Health domain, and Total QoL. This ~~implication of this~~ finding shows that university personnel may need to examine ~~the~~ current support systems as a one-size-fits model may not be effective in enhancing students' QoL across the years. As students gain more experience in postsecondary institutions, their needs seem to change. Graduate students and seniors may need different forms of support than first-and-second year students. Further research may delve into why first-year students and sophomores with ASD report higher QoL and why that rating may decrease as their college years increase.

Overall, disability and disclosure status did not seem to impact students with ASD ratings of their QoL and satisfaction with school life. On average, both were slightly above the midpoint. An interesting finding was that per individual domain, those who self-disclosed rated three domains below the midpoint - Physical Health, Psychological, and Social relationships. However, those who did not self-disclose rated only the Social Relationships domain below the central point. Studies have reported that many students with ASD fail to self-disclose for fear of being stigmatized and the need to

“feel” independent at college (Anderson et al., 2017; Hillier et al., 2018; van Hees et al., 2015). Some who did not self-disclose believed success in high school would automatically transfer into postsecondary, but many disclosed when stress was too great and needed support (Anderson et al., 2017; Hillier et al., 2018; Underhill et al., 2019; van Hees et al., 2015). Participants in this study who had not self-disclosed may have reported higher QoL because they have not reached the “stress levels” reported in other studies.

This study provides emerging data to help understand the quality of life and satisfaction with school life of students with autism in postsecondary settings. Understanding students' QoL is crucial to improving the outcomes of college students with ASD (Elias et al., 2019). However, more work is needed with a larger representative sample of students with ASD and without disabilities from varying size institutions to help understand their QoL. This research shows the great need to understand the QoL of college students while they attend classes with peers without disabilities. The data garnered in this study provides researchers with a foundation to build future research. The findings also provide university personnel with some data on the QoL of various populations, which can be used during planning and modifying/creating support services for targeted groups of students with ASD to help improve the college experience. To the researchers' knowledge, no other study has reported on these variables, so further research is needed to delve more deeply into the level of QoL of college students with ASD per domain.

Limitations and Future Directions

Some limitations might complicate the interpretation of our findings. The participants in this study included primarily students who had self-disclosed their disability, which may not be representative of

college students with autism (van Heijst & Geurts, 2015). Also, the study included a small number of participants selected through convenience sampling, which limits the generalizability of the results (Elias et al., 2019; van Hees et al., 2015).

Another limitation of the study is all data were collected using a survey format and so self-report bias exists. Additionally, data analysis was limited with the interpretation including solely descriptive and multivariate statistics. Future research engaging more complex statistical analysis such as predictive analysis with larger samples can be used for further examination of demographic characteristics on the QoL of students with ASD and satisfaction with school life. Subsequent studies may examine and mediate for confounding variables such as college programs, academic discipline, institution type, college size, class size, socio-economic status, instructor rank, and instructor teaching experience/efficacy to gain a deeper understanding of the QoL of college students with ASD. Despite these

limitations, this study examined the opinions of students with ASD in post-secondary education settings which adds a needed perspective to the field and provides foundational work for further investigations, which is pivotal to informing an area with mental research (White et al., 2016).

Conclusion

To conclude, this study of college students with ASD adds to the body of evidence that QoL and satisfaction with school life plateaus in postsecondary settings. Further research to discover strategies to improve the QoL of students with ASD in shifting from the midpoint to higher levels of QoL. Higher education personnel need to be strategic in developing support programs to foster greater satisfaction with school life. These support programs/initiatives must take into consideration and cater to the differences among group needs. This might mean developing and implementing specific support for students with ASD at each step in their college journey.

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Correspondence concerning this article should be addressed to Jacqueline Lubin, College of Education, Nursing, and Health Professionals, University of Hartford, 200 Bloomfield Ave, West Hartford, CT 06117. Email: jacyves@gmail.com or jlubin@hartford.edu

Effects of a Special Olympics College Course on Attitudes Toward Intellectual Disability

Dennis P. Garland
Niagara University

Abstract: Valid and reliable assessments are well established means by which educators evaluate student learning and program effectiveness. The Attitudes Toward Intellectual Disability Questionnaire (ATTID) was developed from a multidimensional model that examines three dimensions of attitudes, including emotional, cognitive and behavioral components (Morin et al., 2019). In a repeated measures study, the researcher used the questionnaire to examine whether participating in a Special Olympics basketball coaching and games management college course among adults and children with intellectual and developmental disabilities (IDD) had any effects on undergraduate students' (n=33; 100%) attitudes about intellectual disabilities. Results reflect that after participating in the course, the students had more positive attitudes across all dimensions measured by the instrument. Limitations and implications for practice and further research are discussed.

People with intellectual and developmental disabilities (IDD) remain among the most marginalized groups in our societies and are disadvantaged on many levels (Mithen et al., 2015). Compared to the general population and even to other people with disabilities, they are less financially secure (Emerson & Parish, 2010), are in poorer physical and mental health (Mithen et al., 2015; Taggart & Cousins, 2014), have lower levels of community participation (Mithen et al., 2015), and are more socially isolated (van Asselt-Goverts et al., 2015). They are still largely excluded from regular environments such as schools (Sermier-Dessemontet & Bless, 2013) and the workplace (Bush & Tassé, 2017). They often live in protected environments or with family members, even as adults (Ross et al., 2013).

Literature related to sport frameworks suggest that positive psychosocial growth can occur when programming includes (a) appropriate environments that engage participants (context), (b) mentors and positive group dynamic (external assets), (c)

opportunities to learn skills (internal assets) and (d) possess systems of evaluation (Petitpas et al., 2004). Further, sport programming can result in reductions of behavioral problems and increases in sport skill and life skill development (Petitpas et al., 2005). Implicit within the global appeal of Special Olympics (SO) is that participation has significant physical and psychosocial benefits for participants and perhaps also provide pathways to an experienced sense of belonging (Tint et al., 2017).

An important factor that contributes to the social inclusion of people with IDD is a positive public attitude among community members to welcome them and consider them as full members of the community (Morin et al., 2019; Scior et al., 2013). Conversely, negative attitudes constitute obstacles to the social inclusion and participation of people with IDD by limiting their access to services and regular living environments (Simplican et al., 2015). Despite the prevalence of efforts related to diversity, equity, and inclusion at institutions

of higher education (IHEs) and national and international policies promoting the social inclusion and participation of people with disabilities (United Nations, 2020), many authors believe there is still a long way to go to achieve these goals where it relates to including individuals with IDD in educational settings (McConkey et al., 2013; Morin et al., 2019). Therefore, it is essential to develop an understanding of attitudes toward people with IDD in order to bring about social changes that will foster their inclusion and social participation across educational settings and ultimately ensure that all their rights are respected.

Purpose of the Current Study

Fundamental to the ongoing success of the Special Olympics basketball coaching and games management course and the multiple related partnerships is understanding the impact that the course has on those who participate. Many of the athletes and their family members have been involved in Special Olympics activities for several years. Feedback from these family members has reflected that the regional basketball competition is a highlight of the athletic year. Feedback from regional Special Olympics officials has also been positive and supportive. Students who take the course have consistently stated in their reflective video journals that the course is one of the favorite courses they have ever taken. They further stated they can apply the knowledge and skills they attain during their coaching experience to areas in their chosen career fields. The qualitative feedback about the effects the Special Olympics course has had on the lives of those who participate in it has been positive. However, until recently, no quantitative measures of impact have been administered.

Among the areas of research related to Special Olympics are health research and

volunteer research. The former includes studies related to physical aspects of health such as vision (Gothwal et al., 2017); nutrition (Gibson et al., 2011); and grip strength (Cuesta-Vargas & Hilgenkamp (2015) of athletes. Self-esteem and attitudes towards individuals with IDD among volunteers in China were examined by Li and Wu (2017). The volunteers in the Li & Wu (2017) study participated in a one-day Special Olympics event. This study examines change in attitude among participants who engage with athletes with IDD over a university semester.

Method

During this study, the researcher utilized a survey to determine students' attitudes toward IDD. A repeated measures design was used to determine whether participation in the Special Olympics basketball coaching and games management course made a difference in their attitudes. Procedures, measures, and analysis follow.

Description of the College Course

The Special Olympics basketball: Coaching and games management course is available to all undergraduate majors as a cultural diversity option at a private Catholic university in the northeast. All colleges at the university typically have student representation in the course. The highest representation of students who take the course are pursuing degrees from either the college of education or the college of hospitality, sport, and tourism management. Since the course's inception in 2006, the course has been one of the most popular ones offered by the university. Partnerships within the university ecosystem including academic and athletic sectors and a variety of student clubs and organizations have developed to bolster the success of the course.

Excluding years that restricted activities due to the pandemic (2020 and 2021, respectively), the basketball tournament hosted by the university brings together an average of 300 athletes and family members from a dozen Special Olympics training clubs each year to compete. Federal, state, and local law enforcement lead the training clubs and a vast body of volunteer partners during the opening ceremonies. With the university president, they also present awards after the day of competition.

Procedure

Following Institutional Review Board approval, students enrolled in the Special Olympics coaching and games management course were invited to participate in a survey. The purpose of the study and the informed consent process were described to the students, who were informed that they were not required to participate and would not be penalized if they chose not to participate. After informed consent was endorsed, participants were asked to complete a questionnaire related to their awareness of and attitude toward individuals with IDD. Average completion time was approximately 10 minutes.

The researcher administered the Attitude Toward Developmental Disability (ATTID; Morin et al., 2013) Questionnaire to the coaches as one group pre-post measures of their attitudes toward individuals with IDD. The ATTID was administered on the first day of the semester when the students had no coaching preparation and before they met the athletes. During the semester long course, students learn about the characteristics of people with IDD and about their history of exclusion from society. Students also learn about the history of the Special Olympics and complete online learning modules and a background check to become certified as a

sport assistant. This is the initial coaching credential for Special Olympics and is valid for 3 years.

During weekly classroom meetings, the student coaches plan for weekly basketball practices with athletes with IDD and also discuss fundraising goals and event planning strategies. The second meeting of the week takes place in the gym of the university's recreation center. School district and agency partners travel to the university with their athletes for basketball practice. The coaches and athletes use the weekly practices to train for skills or team competitions during a sanctioned Special Olympics regional basketball tournament, which is the culminating experience for the course and training season. The ATTID was administered to the coaches again after the sanctioned Special Olympics basketball competition at the conclusion of the semester.

Participants

A total of 33 students took the course across two sections. During one section, Special Olympics athletes included children from ages 6-21 with IDD from a neighboring school district. The second section included adult athletes with IDD from regional nonprofit service providers. All 33 students completed survey in one group pre- and -post conditions. Participants were undergraduate students from a Catholic private university in western New York. Student respondents were from the Colleges of Education, Hospitality, Sport, and Tourism Management, Arts and Sciences, Business Administration, Nursing, and Academic Exploration. Table 1 characterizes participants, who were predominantly female (57.58%), White (87.9%), and enrolled in undergraduate programs (100%). Most participants were enrolled in either sports management (42.42%) or educational (27.27%) programs.

Table 1. Participant Characteristics (N=33)

Characteristics	n (%)
Age	23< (100%)
Gender	
Female	19 (57.58%)
Male	14 (42.42%)
Race and Ethnicity	
White Caucasian	29 (87.9%)
Hispanic or Latinx	1 (.03%)
Black or African American	1(.03%)
Asian	1(.03%)
French Canadian	1(.03%)
Academic Program*College	
Education	9 (27.27%)
Hospitality, Sports, and Tourism Management	14 (42.42%)
Criminal Justice	2 (.06%)
Nursing	3 (.09%)
Business	1(.03%)
Communications	2 (.06%)
Academic Exploration	1(.03%)
Biology*AS	1(.03%)

Measure

The Attitudes Toward Intellectual Disability Questionnaire (ATTID; Morin et al., 2013) measures attitudes toward people with intellectual disabilities (ID). The 67 items in the ATTID are grouped around five factors relating to the cognitive, affective and behavioral dimensions of the concept of attitudes. Factors 1 and 4 (F1: Discomfort; F4: Sensitivity or tenderness) represent the emotional dimension, Factors 2 and 5 (F2: Knowledge of capacity and rights; F5: Knowledge of causes) come under the cognitive dimension, while Factor 3 (F3: Interaction) reflects the behavioral dimension of attitudes. Factor scores are calibrated from 1 to 5, where a score of 1 indicates a more positive attitude and a score of 5, a more negative attitude. A score of 1 or 2 on an item indicates a positive attitude. A score of 3 indicates a neutral attitude. A score of 4 or 5 on an item indicates a negative attitude. Table 2 provides a visual synthesis of ATTID factors and associated dimensions of attitude.

Administration

For the first set of questions (Q1 to Q30), respondents indicated their degree of agreement with each statement using a five-point Likert scale ranging from “totally agree” to “do not know” to “totally disagree”. The second part of the questionnaire (Q31 to Q67), includes clinical scenarios about two individuals with IDD. Respondents indicate their degree of agreement with the statements in these sections based on the scenarios and using the same scale as in the first section. The last part of the questionnaire contains supplemental questions (S1 to S14). The first six questions concern their familiarity with IDD and their experience with people with IDD. The respondent assesses their level of knowledge about IDD using a 4-point Likert scale ranging from “none” to “a lot”. The respondent then answers eight questions used to document sociodemographic variables (gender, age, mother tongue, cultural community, marital status, education level, employment status and annual income).

Table 2. *ATTID Factors and associated dimensions of attitude*

Factor 1: Discomfort	Emotional dimension
Factor 2: Knowledge of capacity and rights	Cognitive dimension
Factor 3: Interaction	Behavioral dimension
Factor 4: Sensitivity or tenderness	Emotional dimension
Factor 5: Knowledge of causes	Cognitive dimension

Results

A total of 33 students (100%) responded to the request to participate in the survey. All participants complete the ATTID survey on the first day of the 14-week semester. Data (mean, standard deviation, percentage of respondents with positive, neutral or negative attitudes) for each item and each factor in the ATTID, was obtained using the ATTID Questionnaire-Results Microsoft Excel file from the authors (Morin et al., 2019) at www.attid.ca. Raw data were entered as provided by the respondents. The software automatically reverses the coding of the variables that must be transformed. Table 3 provides the results of one group pre-post administrations of the ATTID during the first and last class meetings of the semester.

of positive attitude scores increased and the percentages of negative attitude scores decreased. In Factor 1 (discomfort) percentages of positive attitude scores changed from 89.34% to 100% and percentages of negative attitude scores changed from 5.90% to 0.00%. In Factor 2 (knowledge of capacity and rights) percentages of positive attitude scores changed from 81.68% to 89.47% and percentages of negative attitude scores changed from 4.33% to 3.13%. In Factor 3 (interaction) percentages of positive attitude scores changed from 77.62% to 88.24% and percentages of negative attitude scores changed from 8.78% to 5.88%. In Factor 4 (sensitivity or tenderness) percentages of positive attitude scores changed from 45.15%

to 88.33% and percentages of negative attitude scores changed from 29.39% to 0%. In Factor 5 (knowledge of causes) percentages of positive attitude scores changed from 69.18% to 77.62% and percentages of negative attitude scores changed from 13.92% to 8.78%.

Discussion

This repeated measures study used a psychometrically validated survey to examine the effects of a Special Olympics college course on the attitudes of undergraduate students who took the course at a private Catholic university in the northeast United States. Results reflect increased percentages of positive attitude scores and decreases in negative attitude scores across each of the five factors related to intellectual disabilities after completing the semester with athletes with IDD. Other studies have focused on attitudes toward individuals with IDD. Li and colleagues (2014) examined the effects of an introductory disabilities course on college students' attitudes toward individuals with IDD. Later, Li and Wu (2017) examined the effects of a half day Special Olympics event on volunteers' self-esteem and their attitudes toward individuals with IDD. This study differs because the college students who participated practiced weekly with athletes with IDD during the semester. Further research is needed to examine how college students' attitudes may be affected by different forms of intervention among individuals with IDD.

Table 3. *ATTID One group pre-post survey results (N=33)*

	Mean		Deviation Standard		% positive Attitude score = 1 or 2		% neutral Attitude score = 3 or 4		% negative Attitude score = 5	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Factor 1: Discomfort	1.63	1.00	0.74	0.00	89.34	100.00	4.75	0.00	5.90	0.00
Factor 2: Knowledge of Capacity and Rights	1.84	1.58	0.43	0.86	81.68	89.47	13.99	7.4	4.33	3.13
Factor 3: Interaction	1.87	1.61	0.65	0.72	77.62	88.24	13.6	5.88	8.78	5.88
Factor 4: Sensitivity or Tenderness	2.68	1.82	0.80	0.44	45.15	83.33	25.45	16.67	29.39	0.00
Factor 5: Knowledge of Causes	2.30	1.87	0.59	0.65	69.18	77.62	19.42	13.6	13.92	8.78

Across each of the five factors, changes from the beginning of the semester (prior to instruction and meeting the athletes) to the end of the semester (after working with athletes), the percentages

Conditionalities and Limitations

Several conditionalities should be considered with regard to the current study. First, the relatively small class size limits the generality of the results. Given the fact that this survey was conducted at only one university and that the number of respondents represent a small number of the students at the university, this may not be a representative sample of this university or of all colleges and universities in the United States. However, partners within the university and in the region are involved with the activities associated with the course and are supportive of those activities. Also,

despite multiple resources and partnerships, the course remains an annual spring semester offering rather than an ongoing inclusive cultural effort across campus. However, in 2021, a memorandum of understanding (MOU) to develop strategies that include ensuring students with IDD have access to continue sports, fitness and leadership development beyond high school through Special Olympics programming with college/university and community partners was established between the university and Special Olympics. Another limitation is that a pretest-posttest design rather than a randomized clinical trial design was used due to setting-specific constraints that prevented randomization and a control group. Taken together, these limitations suggest that the results of this study should be generalized with caution. Additionally, more research is needed to explore the effectiveness of different forms of intervention programs

among university students (e.g., academic contexts, social clubs, peer mentoring, etc.) on their attitudes toward individuals with IDD.

Conclusion

Postsecondary institutions of higher education have been responding to the need for inclusive opportunities for individuals with IDD. Providing college students with inclusive experiences among individuals with IDD can increase their knowledge of causes of IDD, increase sensitivity and tenderness and reduce discomfort toward individuals with IDD, increase interactions with individuals with IDD, and improve

knowledge about their capacity and rights among college students. Previous research has found that when individuals with IDD are included and have a sense of belonging, they tend to be at lower risk for mental health difficulties and are more likely to have success in the workplace (Zhao et al., 2021). This initial research provided optimistic results about how a Special Olympics college course can make a positive difference in the attitudes of the students who take the course toward individuals with IDD. The results provide hope that the partnerships can evolve to include more postsecondary opportunities for individuals with IDD on college campuses.

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Correspondence concerning this article should be addressed to Dennis P. Garland, Department of Advanced Teacher Education, Niagara University, Niagara University, NY 14120. E-mail: dgarland@niagara.edu

Baseball is for Everyone! Evaluation of an Inclusive, Community-Based, *Baseball Challenge League* Pilot Program

Sarah Dunkel-Jackson
Michigan State University

Atikah Bagawan
Michigan State University

Emily Jensen
Michigan State University

Sarah N. Douglas
Michigan State University

Abstract: The Baseball Challenge League is a baseball division embedded within an existing community-based baseball program in Michigan developed on the requests of families of children with and without disabilities, the baseball and softball program's board of directors, and community members with expertise working with individuals with disabilities and coaching youth sports. The Baseball Challenge League provides accessible opportunities for children with unique medical and/or learning needs to play baseball. A description of the athletes, coaches, sponsors, and structure of the Baseball Challenge League including the integration of evidence-based practices (e.g., behavioral interventions, augmentative and alternative communication, Stay. Play. Talk) and program evaluation is provided. Future research related to implementation and program evaluation of inclusive sports programs is discussed.

Approximately 17% of children ages 3 through 17 have intellectual disability (Centers for Disease Control, 2022). Intellectual disability affects children in their day-to-day life functioning (World Health Organization, 2013) and can impact participation in community activities such as within cultural events and sports (Verdonschot et al., 2009). The social model of disability, adopted by the United Nations Convention on the Rights of Persons with Disabilities in 2006, posits that individuals with developmental disabilities should have equal access to the physical, economic, social and cultural environment within a community and that inclusive practices are essential to reach that goal (United Nations, 2006). Despite this, individuals with intellectual disability continue to experience lower levels of participation in all aspects of cultural life (Verdonschot et al., 2009), in large part because of the societal barriers that exist (Badia et al., 2011).

One area where barriers persist for individuals with disabilities is within sports (Taliaferro & Hammond, 2016). There are different opportunities to support the involvement of children with intellectual disability in sports, such as Special Olympics, and although these opportunities have been shown to have an increase in psychological wellbeing, including self-esteem (Crawford, 2015), they do not traditionally include neurotypical peers. New opportunities, such as the Youth Unified Sports League within Special Olympics (Hassan et al., 2012), and Little League Challenger division (Downs, 2007) have begun to emerge to fulfill the need for inclusive sports opportunities.

Researchers have shown the importance of providing opportunities for children with intellectual disability in sports. Participating in physical activity can improve health outcomes, support motor development, and

benefit overall well-being (Dinomais et al., 2010). This is particularly important as children with intellectual disability are a population at-risk for poor health outcomes (Heller & Sorensen, 2013). Participation can also benefit children with intellectual disability psychologically, cognitively, emotionally, behaviorally, and socially (Kapsal et al., 2019).

In 1989, the Little League Challenger Division was created as a separate division in community-based programs affiliated with Little League Baseball and Softball (Downs, 2007). Downs (2007) described the program as an option for children with disabilities to participate in baseball games with other children with disabilities. Downs highlighted the stories and anecdotes of several organizers and families and concluded that “The Little League Challenger Division provides the framework so Little League programs may offer a structured, athletic activity for all youths in their communities.” One challenge that community-based baseball and softball programs encounter is that not all are affiliated with the Little League organization. Therefore, boards are faced with developing, implementing, and evaluating programs for children with disabilities on their own. That is why it is important for programs to partner with local community members with expertise in youth sports and supporting children with disabilities and their families. Embedding opportunities within existing community-based programs is even more consistent with inclusive practices as it allows athletes with disabilities the same opportunities as their neurotypical peers including fields, equipment, and transitions to traditional teams.

There are many benefits in creating an inclusive environment for children with intellectual disabilities, including an increase

in social participation with their peers (e.g., Oh-Young & Filler, 2015). To effectively involve neurotypical peers, professionals need to ensure that they are provided with information that they need to communicate and build relationships with their peers with intellectual disabilities. One peer-mediated intervention that is widely used to increase social interaction is the Stay-Play-Talk intervention (English et al., 1997). Stay-Play-Talk teaches peers three simple strategies; to *stay* near their friend, to *play* with their friend, and to *talk* to their friend about the activities. These three simple strategies have shown positive results for both neurotypical children and children with intellectual disabilities during free play activities (Ledford & Pustejovsky, 2021).

Therefore, the purpose of the current study was to develop, implement, and evaluate a new baseball program, The *Baseball Challenge League*, for children with disabilities embedded within an existing community-based youth baseball and softball league. The *Baseball Challenge League* extended previous research by incorporating evidence-based practices to support athletes (e.g., behavioral interventions, augmentative and alternative communication, peer mentors) as well as to evaluate the program for effectiveness and social validity.

Baseball Challenge League Description

The *Baseball Challenge League* is a new baseball division embedded within an existing community-based baseball and softball program in Michigan. The *Baseball Challenge League* was developed based on the requests of families of children with and without disabilities, the baseball and softball program’s board of directors, and community members with expertise supporting individuals with disabilities and coaching youth sports. The goal of the *Baseball Challenge League* was to provide more

accessible and inclusive opportunities for children with unique medical and/or learning needs to play baseball. In this section we describe the athletes, coaches, sponsors, and structure of the *Baseball Challenge League* including the integration of evidence-based practices and program evaluation. A more thorough description of the program, which is based on several evidence-based practices, will be available from the first author.

Athletes

Athletes included *Baseball Challenge League* players and baseball buddies. As noted, inclusivity was an important factor in designing the league. Athletes were initially part of one large team of up to 16 players and 18 baseball buddies, based on registration numbers. The team was divided into two teams for the scrimmage (e.g., simulated game) and final game (see below). Players and baseball buddies were paired up based on information such as age, gender, support needs, and interests gathered through the registration process and pre-season parent/guardian conversations.

Baseball Challenge League Players

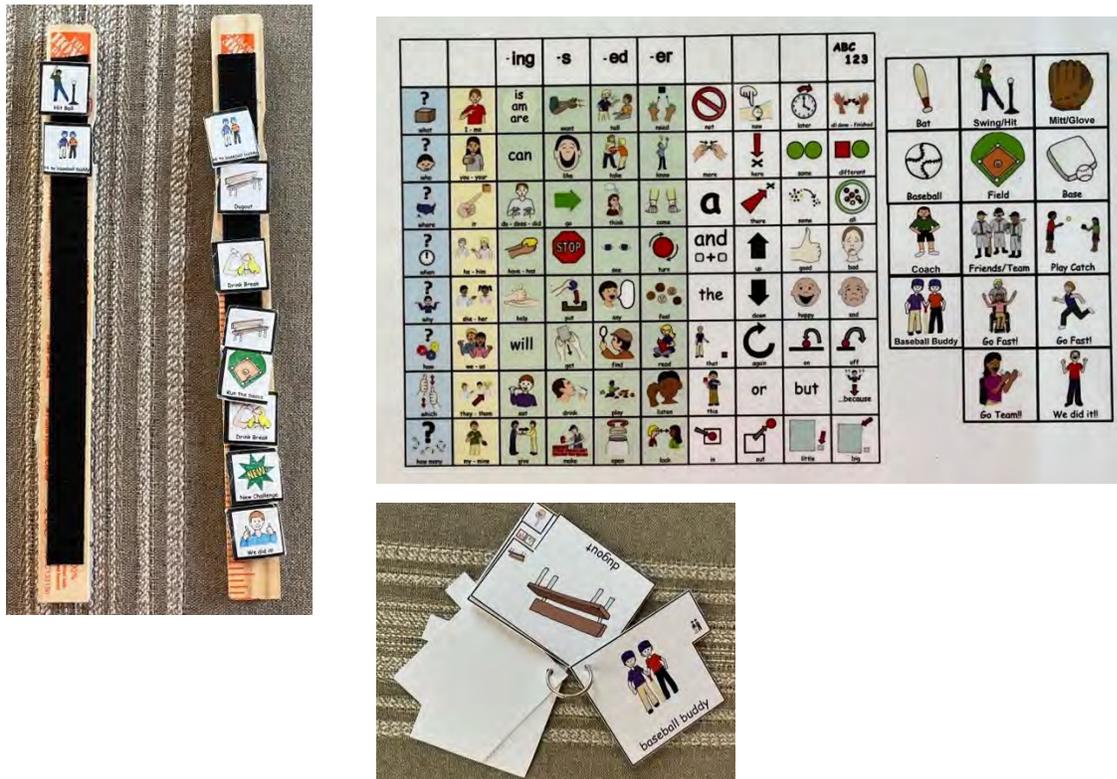
The community-based program recruited players with unique medical and/or learning needs who wanted to learn to play baseball in an inclusive setting with a higher level of individualized support compared to the traditional baseball divisions. Players were elementary and middle school students diagnosed with conditions such as autism spectrum disorder, cerebral palsy, Down syndrome, intellectual disability, epilepsy, genetic disorders, and motor impairments. Potential players with certain learning disabilities, attention-deficit hyperactivity disorder, or minor motor impairments and no intellectual disability were welcome to play in the *Baseball Challenge League* but were also encouraged to consider the traditional divisions (e.g., T-ball) with the offer of

coordinating coach supports. Most players did not have previous experience participating in youth sports and only one child had previously participated in organized T-ball.

Players used various modes of communication including spoken language and augmentative and alternative communication (AAC). AAC includes all the ways that individuals communicate besides talking (ASHA, 2022) and can include no-tech and low-tech options (e.g., gestures, facial expressions, modified sign language, pointing to pictures or written words) or high-tech options (e.g., using an app on a tablet with pictures, speech generating device with a computerized “voice”; ASHA, 2022). Figure 1 displays some of the visual supports and AAC systems available to players including a picture board specific to baseball terminology, a visual schedule of baseball-specific pictures with written words, and a coreboard (i.e., a laminated picture card with high frequency words which was used by all children receiving AAC supports from the local educational agency who served as one of the league sponsors).

Most players did not engage in challenging behavior except for some hesitance or initial refusal to try new drills. Severe challenging behavior was infrequent for most players and improved across the two seasons. At the beginning of the first season, one player engaged in aggression toward their parent and coaches, self-injury (i.e., lightly hitting their head with their own hand), and other minor challenging behavior (e.g., sitting on the field and refusing to move to a safer location, tipping over buckets of baseballs). Two other players eloped to other areas of the field. At the end of the second season, the challenging behavior exhibited by these players had decreased in intensity and frequency after the use of behavioral

Figure 1. *Augmentative and Alternative Communication and Visual Schedule Materials*



intervention strategies that were collaboratively identified by the families and coaches who had specific expertise with severe challenging behavior (i.e., Board Certified Behavior Analyst®, special education teacher, speech and language pathologist).

Baseball Buddies

The community-based program recruited baseball buddies who helped players with unique medical and/or learning needs learn to play baseball in an inclusive setting. Baseball buddies were elementary, middle, or high school students who played on a community-based, travel, or high school baseball or softball team. While most baseball buddies had limited experience in formal roles as a mentor to individuals with disabilities, some baseball buddies had participated in their school's peer mentoring program, and some

had a family member with a disability. Most baseball buddies were known to the board of directors but, to ensure a good fit, all were required to contact the director of the *Baseball Challenge League* to formally express their interest in serving as a baseball buddy. Parent/guardian consent and commitment was also required. All baseball buddies received an orientation prior to the start of the season (see EBP's section for orientation information). Two baseball buddies were promoted to junior assistant coach during their second season.

Coaches

Adult volunteers and supporters were essential to the success of the *Baseball Challenge League*. An application process including experiences and qualifications related to baseball or softball, youth coaching, and children with disabilities, and

a background check was required. The director, head coach, and assistant coaches had varying levels of expertise in coaching youth sports, working with individuals with disabilities, and project management / organizational leadership within human services and academic settings and included Board Certified Behavior Analysts®, special education teachers, paraeducators, parents, and college students with and without youth coaching experience. Assistant coaches helped lead baseball skills/drills stations and supported players with significant needs (e.g., elopement, aggression, limited communication) and their baseball buddies.

Sponsors and Volunteers

Other adults volunteered including family, friends, and employees associated with local businesses and organizations who sponsored the *Baseball Challenge League* (e.g., insurance agency, the local Arc, educational service agency, sheriff's department, marketing and promotions business). The local high school and university softball teams also served as volunteer umpires, announcers, and cheerleaders along with the high school pom team at the scrimmage and final game.

Structure

The general structure of the *Baseball Challenge League* included players and baseball buddies participating in four practices and challenges, one scrimmage, and one game with the support of coaches as part of a community-based baseball program that was held once per week. In this section we briefly describe the facilities, equipment, and events that helped make the *Baseball Challenge League* successful in our community. Again, a more thorough description of the program will be available from the first author.

Facilities

All practices and challenges occurred at the traditional fields maintained by the community-based baseball and softball program. The selected field was a Michigan High School Athletic Association (MHSAA) sized softball field which (a) was barrier free (e.g., dugouts and fencing allowed for wheelchair accessibility); (b) was closest to the disability parking spaces; (c) had shade trees available for those with sun sensitivity (e.g., medication side effects); (d) had plenty of space for fans; and (e) had access to an open area where athletes and families could take a break, if needed (e.g., when a player became over stimulated). During a rainout, a local indoor sports academy offered batting practice. The scrimmage was hosted by the local high school softball team on the varsity field and the game was played at the local university's outdoor, barrier-free, athletic stadium that featured artificial turf, stadium lighting, and a press box for announcements.

Baseball Equipment

Players, baseball buddies, and coaches received a jersey and were asked to wear pants and athletic shoes or cleats. Athletes were encouraged to bring their own gear, or they were able to borrow from the league for the season. Scholarships for equipment were available through generous sponsorships. The community-based program provided standard equipment available to all traditional teams and, based on the needs of the players as determined during pre-season conversations with families, additional equipment was purchased to help ensure the safety and success of all (e.g., foam bats, foam balls, t-balls, colorful whiffle balls, buckets with tight fitting lids).

Orientation

Baseball buddies received an initial 30-minute orientation before the first practice and two follow-up sessions before the second

and third practices. Coaches and two junior assistant coaches lead each session. The first session included discussion on the importance of peer mentors (Scheef & Buyserie, 2020), visible and invisible disability (e.g., not all disabilities are visible, kindness, empathy, importance of communication) as well as training to implement the Stay-Play-Talk strategy that was modified for the *Baseball Challenge League* (see English et al., 1997; Severini et al., 2019). During the Stay-Play-Talk portion, coaches provided a printout of the strategy (see Figure 2), introduced the strategies, and discussed the importance of each step (i.e., staying near the player, playing baseball with the player, and “talking” about baseball with the player in various modalities [see Severini on implementing Stay-Play-Talk with children who use AAC]). Coaches also answered questions on how they would implement the strategies on the field and provided feedback during a role-play practice session. The follow-up sessions (i.e., after the

first two practices and challenges) were used to answer questions, generate ideas on how to implement Stay-Play-Talk, and address any issues (e.g., reinforce how baseball buddies listened to coaches’ instructions when a player had a seizure at the field).

Practices

For 4 weeks, a regularly scheduled, 1-hour practice included a welcome, warmups, throwing drills, and station drills that focused on a targeted baseball skill (e.g., baserunning, fielding, hitting, pitching). Coaches lead each station and used evidence-based instructional strategies based on the principles of behavior analysis (e.g., applied behavior analysis [ABA], reinforcement, shaping, chaining, prompting, token economy, functional communication training). Small groups of players navigated through each station with their baseball buddies who used evidence-based strategies such as Stay-Play-Talk with the support of coaches. Table 1 outlines the general practice plan for each of the practices.

Figure 2. *Stay-Play-Talk Baseball Orientation Material*

The graphic is divided into three horizontal panels, each with a photograph on the left, an icon and title in the middle, and a list of instructions on the right.

- Stay Panel:**
 - Icon: A hand with fingers spread.
 - Title: Stay
 - Instructions:
 - ✓ Stay with your Baseball Buddy.
 - ✓ Take turns if you want to play different things.
- Play Panel:**
 - Icon: A baseball bat.
 - Title: Play
 - Instructions:
 - ✓ Share equipment.
 - ✓ Play by your Baseball Buddy.
 - ✓ Show your Baseball Buddy how you play baseball.
- Talk Panel:**
 - Icon: Two speech bubbles.
 - Title: Talk
 - Instructions:
 - ✓ Say your Baseball Buddy's name.
 - ✓ Talk about what you are doing.
 - ✓ Keep talking even if they don't answer.

Dunkel-Jackson (2021). Modified from allplaylearn.org.au

Baseball Challenges

At the end of each practice, coaches announced a 30-minute, sponsored baseball challenge focused on the week’s targeted baseball skill (e.g., baserunning, grounders, hitting, pitching). Table 2 outlines the various baseball challenges for each week. Coaches introduced and thanked the weekly sponsor who joined the team to assist with the baseball challenge. Coaches announced the rules and then “challenged” each player to successfully complete the baseball challenge activity. As needed, baseball buddies and coaches supported players as they participated. When each player completed their baseball challenge, assistant coaches provided a baseball sticker which was affixed to each player’s baseball challenge card—a token board in the shape of a baseball field that tracked each player’s progress on the baseball challenges (see Figure 3). When all players completed the baseball challenge, the winners were announced and, of course, fans celebrated their achievements.

Scrimmage and Game

During the final 2 weeks of the season, the players and their baseball buddies, head coaches, and assistant coaches were divided into two teams. A scrimmage was played at the local high school varsity field and the game was played at the local university

softball field where softball players served as umpires, announcers, and assistant coaches. At the game, sponsors provided concessions and fans filled the stands. The game began with all players, baseball buddies, and coaches lining up on their respective sidelines for the National Anthem. Then it was time to “Play Ball!” The game lasted two innings with a “halftime” show by the high school pom squad between innings.

On offense, every player and baseball buddy batted each inning (i.e., batted through the lineup). To ensure a “hit” every time, each player received several slow-pitch-style pitches from a Coach and, if required, soft-toss or a tee was available. Rule modifications were based on the skill level of each player (e.g., speed, accuracy of baserunning, understanding of “outs”). For example, a baseball buddy or assistant coach was allowed to help a player hit and/or run the bases and some players were allowed to remain on the bases even if an “out” was recorded. Baseball buddies were always called out if a play was successfully made. High school and travel team baseball buddies were asked to modify the power of their swings due to the age and skill level of the elementary and middle school players in the field.

Figure 3. Baseball Challenge Card



Every player played a defensive position with as much support as required from their baseball buddy and/or coaches. For example, one player played third base while their baseball buddy played (a short) left field and another player played second base along with their baseball buddy. If a player or younger baseball buddy played pitcher (alongside the coach who was pitching), they were required to wear a helmet or softball face mask for safety as is common in the traditional league. While competitive play was encouraged, the high school and travel team baseball buddies often took more time to field the ball and make a play at first base, especially if an opposing team's player hit the ball, which allowed more offensive players to reach first base. Although three outs were never recorded, coaches collaboratively decided when to end the inning.

At the end of the game, all players and baseball buddies lined up to shake hands. Then, players and baseball buddies returned to their dugout where they waited for their names to be announced for their celebration at home plate with the director, coaches, primary sponsor, and fans cheering. Each player received their baseball challenge card, complete with baseball stickers, and each baseball buddy received a certificate. The director then thanked all the fans, sponsors, and coaches for making the community event such a success.

Program Evaluation

Built into the *Baseball Challenge League* was a program evaluation component (e.g., structured interview, survey, checklists). The section below describes the formal program evaluation methods that were conducted as part of the current pilot study.

Pilot Program Evaluation Methods

The purpose of this program evaluation was two-fold: (1) we aimed to understand the

strengths and challenges of the program in order to improve the *Baseball Challenge League*; and (2) we wanted to generate knowledge on how the *Baseball Challenge League* supported this population of children with unique medical and/or learning needs, including intellectual disability. The Office of Medical Education Research and Development (OMERAD) at Michigan State University offers planning tools funded by the Office of Research Integrity for the evaluation of educational programming (Henry et al., n.d.). The current study utilized the OMERAD program evaluation tools to guide the six steps to developing an organized evaluation plan for the *Baseball Challenge League*.

To evaluate the *Baseball Challenge League*, we first specified the Goal (Step 1) and Objectives (Step 2) of the program (Henry et al., n.d.). We then briefly described the *Baseball Challenge League* in terms of content, organization, delivery method, the number of sessions (i.e., practices/games), and the activities and tasks for participants (Step 3) (see brief description above). Evaluation questions (Step 4) then guided formative and summative evaluation to identify areas of improvement and overall outcomes of the pilot program. The various sources of evaluation data were identified (Step 5) and included participants who directly participated in the *Baseball Challenge League* as well as indirect and/or external participants (e.g., community members, fans). We then selected data collection methods (Step 6) based on the type of outcomes, the resources available for implementing the evaluation, and the time frame. The OMERAD tools suggested structured interviews, surveys (Reaction), pre- and post-tests (Learning), and direct observations using checklists (Transfer and Results).

Consent, Design, and General Procedure

The present study was approved by a university institutional review board and the executive boards of both the community-based baseball and softball league and the local Arc. Prior to participation, a non-coach member of the research team received signed consent from caregivers of both players and baseball buddies as well as adult coaches and volunteers. The research team member also received assent from players and baseball buddies in the modality of their choice (e.g., verbally, gesturally, or by writing).

As suggested by the OMERAD tools, a mixed-method approach was used to evaluate the *Baseball Challenge League*. The analyzed data included observations, participant reports, and outcomes across two baseball seasons. Because participation in this program was entirely voluntary, the authors felt it was unethical to deny participation to interested children and families for the purposes of experimental control. Therefore, no comparative, non-participation group was included in this study.

Baseball Skills Evaluation Checklist

First, a pre-test / post-test baseball skills evaluation was used to evaluate the Players' skills at the beginning and end of the season. Head Coaches had experience evaluating baseball and softball skills of players in community-based, travel, and high school teams using a checklist of baseball and softball skills (e.g., hitting, throwing, catching, fielding, pitching, baserunning). A modified checklist was used during the first *Baseball Challenge League* practice to determine a baseline for each player. This helped Coaches adapt practice plans and group players by skill level for skills/drills stations. At the end of the season, head coaches re-evaluated the players based on their game performance. Coaches used the

following scoring criteria: 0= does not perform the skill, 1= emerging skill, 2= age appropriate / traditional community league level, 3= advanced / travel league level.

Satisfaction Survey and Structured Interview

A post-test-only, non-experimental, within-subjects design was used to explore the reported effect of the *Baseball Challenge League* pilot on baseball skills, peer relations, and participant satisfaction. At the end of the season, a non-coach member of the research team offered players, baseball buddies, their families, coaches, and volunteers the opportunity to participate in the program evaluation survey and structured interview. Coaches and volunteers were also asked to evaluate the program specific to their role using a similar survey and structured interview. Surveys were disseminated using Qualtrics® and paper versions were available as preferred by participants.

Three surveys were created – one for parents and players, one for baseball buddies and parents, and one for coaches. All surveys included open-ended questions such as “What did you and/or your child like most about the *Baseball Challenge League*?” and “How could we improve the *Baseball Challenge League*?” There were a variety of Likert-scale type questions such as “How likely are you to recommend the *Baseball Challenge League* to a friend, colleague, or family of a child with unique medical and/or learning needs?” or “Using the FUN-O-METER, how much FUN did your child have in the *Baseball Challenge League*?” (see Wells et al., 2008). Participants also had the chance to rate how satisfied they were with the *Baseball Challenge League* overall, as well as components of the league such as logistics and coaches' and buddies' performances.

Analysis

Quantitative analysis was conducted using Qualtrics® and IBM SPSS Statistics v. 29. Based on the scope of this project (i.e., pilot), the authors decided descriptive statistics would be sufficient for analysis. In addition to the quantitative analysis, the authors utilized conventional content analysis (Hseih & Shannon, 2005) to analyze the open-ended questions from the survey. The third author immersed themselves in the qualitative comments and, after fully reading all comments, began generating initial coding schemes. Once all comments were coded and categorized, peer debriefing with the entire team was used to clarify any uncertainties and to ensure credibility of the research (Lincoln & Guba, 1985). Comments were kept verbatim to ensure trustworthiness.

Results

In general, the *Baseball Challenge League* was successfully implemented with positive outcomes for players, baseball buddies, coaches, and the community. Nine players returned for season two and seven new players were recruited. Although most of the baseball buddies returned for season two, several new baseball buddies were recruited. One player joined a traditional team instead of joining season two of the *Baseball Challenge League*. One new player joined a traditional team during season two of the *Baseball Challenge League* with her baseball buddy. The following outlines the improvement in observed baseball skills and the social validity and feedback from participants and the community.

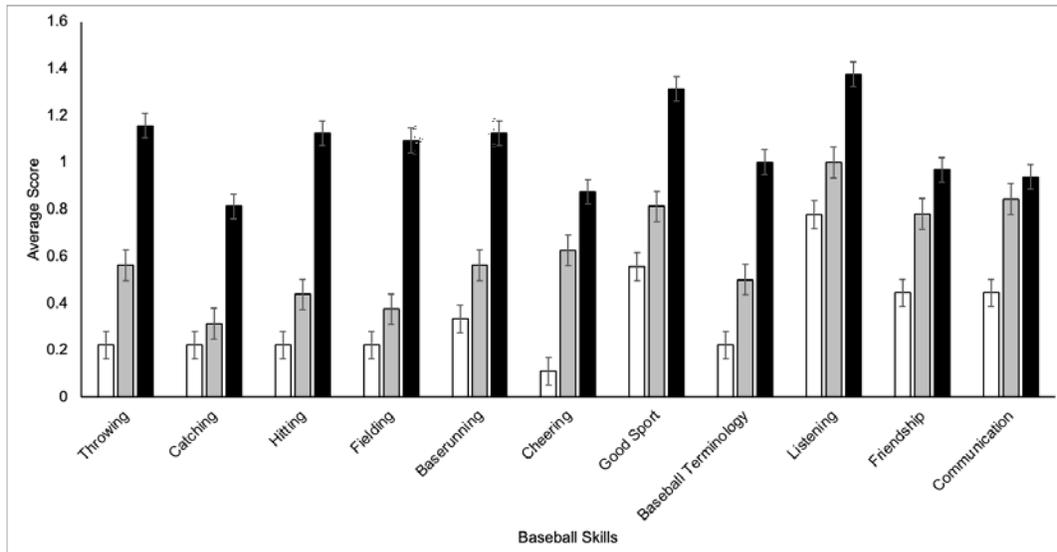
Baseball Skills

All participants improved their baseball skills across a single season and several players continued to improve several baseball skills across both seasons. Figure 4 displays the average baseball skills scores for all players at each evaluation point where the average

score in baseline was 0.11 to 0.77, 0.38 to 1 at the beginning of season two, and 0.81 to 1.31 at the end of season two. At the beginning of season two, four players demonstrated between one and four age-appropriate skills (e.g., cheering, listening, baserunning) and by the end of season two, seven players demonstrated several age-appropriate skills with one player showing age-appropriate skills in all areas.

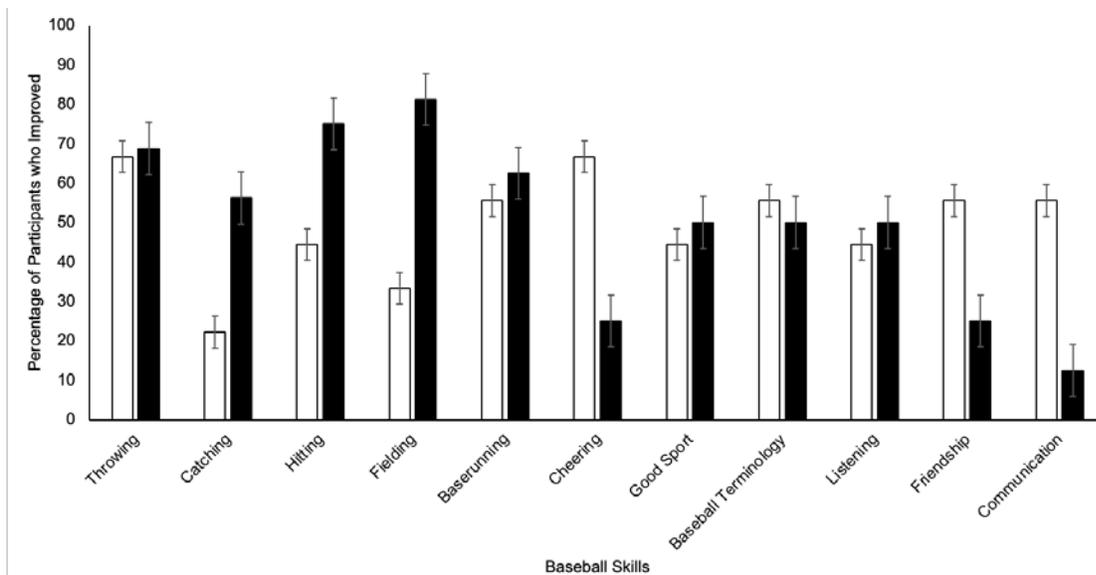
Figure 5 displays the percentage of participants who improved their performance across the various baseball skills targeted in the *Baseball Challenge League*. Throwing, hitting, fielding, and cheering were consistently low during baseline and show the most improvement across the season(s). Players also demonstrated improvements in catching, baserunning, and baseball terminology across season(s). There was also improvement in the more complex domains of being a good sport, listening, friendship, and communication. While social communication was not a specific target of the *Baseball Challenge League*, head coaches did observe changes in receptive communication (e.g., listening to instructions, following one- and two-step instructions), and sportsmanship / friendship behaviors (e.g., giving high-fives, shaking hands at the end of practice, participation in team huddles, and saying phrases like “Good play!”). Communication increased primarily for those players who were initially shy but had already developed vocal/verbal communication skills. Head coaches did observe communication improvements for one child who engaged in severe challenging behavior and did not yet have a successful communication system. For this child, coaches and baseball buddies implemented AAC strategies and visual schedules with non-contingent breaks as well as prompting and reinforcement of the player’s communication attempts.

Figure 4. *Average Score Across Baseball Skills*



Note. Average score for all players at the beginning of season one (white bars), at the beginning of season two (gray bars), and at the end of season two (black bars) across baseball skills.

Figure 5. *Player Improvement Across Skills*



Note. Percentage of players who improved baseball skills during season one (white bars) and season two (black bars).

Satisfaction

Although head coaches directly observed positive outcomes related to baseball skills, it was also important to evaluate the

perspectives and feedback of players, baseball buddies, other coaches, and the community. As outlined in Table 3, players, baseball buddies, parents, and coaches

reported the *Baseball Challenge League* to be a positive and fun experience that they would recommend to others. Logistics and design of the *Baseball Challenge League* were highly rated as were the coaches' friendliness, knowledge, and skill when adapting to the needs of players. Enjoyment of the *Baseball Challenge League* was measured on a scale of 0 to 100 (0 being "No fun at all" and 100 being "SUPER FUN!") with overall ratings close to a score of 100 for all participants. All coaches, players, and parents and most baseball buddies agreed that baseball buddies stayed, played, and talked with the players with one parent commenting, "Both years they [the baseball buddies] have gone above and beyond!!! Love them!"

When asked what they and their child liked most about the *Baseball Challenge League*, one players' parent commented, "We loved the community of coaches and buddies! So welcoming and accommodating to ALL! It was our first year and we were so impressed." One baseball buddy responded, "I loved getting to know my buddy and helping her play her first sport." Another baseball buddy commented, "I liked helping and being able to do an outside activity. Everyone should be able to play baseball." Coaches, too, reflected on what they liked most about the *Baseball Challenge League*. One coach said, "It was inclusive and gave the chance for the players to develop different skills." Another commented, "The kids had a blast – all the kids!... Baseball is for everyone!"

Recommendations for Future Inclusion Efforts in Sport

Overall, the *Baseball Challenge League* was a success. Local business leaders, community groups, and government officials contacted the organizers and praised the success of the *Baseball Challenge League*. The social media presence (e.g., radio, Facebook, newspaper) allowed the community-based

baseball and softball league to spread the word about this inclusive program for even more community members to enjoy. Based on players' baseball skill improvement and feedback from players, baseball buddies, coaches, families, and the community, another season of the *Baseball Challenge League* is already set. In fact, several individuals have already requested expansion of the *Challenge League* to other sports. We believe communities should work to create inclusive programs for all children. Below we outline several recommendations for communities looking to establish a more inclusive youth sports program including areas for future research and program evaluation.

Creating inclusive sports programs is simply the right thing to do. Communities *can* do it so, let's get going! It is okay to start small (we had one team to start with). Baseball is a *team* sport, and a team is exactly what communities need to implement programs like this. Collaborating with other community members to partner and build your team is important (U.S. Department of Health and Human Services, 2022). Listening to the needs of families in the community is a great place to start. Families may register their child with a disability in a traditional league at the suggestion of a teacher or pediatrician, but when the sport and social demands are too high, they may fail to bring their child back to practices and games citing their "*child's* misbehavior" (rather than the set-up of the league). Volunteer coaches, too, will recognize that the traditional league is often not set up to meet the needs of children requiring additional support. In our case, both families and coaches contacted the board of directors requesting approval to start a program to support children with disabilities. This partnership with families and coaches is highly recommended when developing,

implementing, and evaluating new youth sports programs.

Accessing expertise in the community is also strongly recommended. As Murphy and Carbone (2008) suggest, properly designed and implemented programs should focus on a variety of physical targets (e.g., cardiovascular endurance, flexibility, balance, agility, muscular strength) but also accessibility, safety, and fun! Organizers should seek out volunteer leaders with experience supporting the various needs of children with disabilities. Team members may include school administrators, teachers, paraeducators, Board Certified Behavior Analysts®, speech and language pathologists, and occupational and physical therapists. We caution organizers to examine the motives and values of each volunteer prior to accepting their assistance (e.g., a therapist with a poor reputation, a clinic with documented use of non-evidence-based practices, a clinic under investigation for fraud).

Once families and expert representatives are in place, seeking additional funding is helpful so that financial barriers won't exist for families who already incur higher direct costs and out-of-pocket expenditures compared to families without children with disabilities (Stabile & Allin, 2012). Families who want to try a sport will need to pay registration fees and purchase new equipment which may, or may not, need to be specially adapted for the child (e.g., medical braces on legs preventing cleats from fitting well). Identifying community organizations that support individuals with disabilities was a great resource for us. The local Arc (<https://thearc.org/>) not only wanted to spread the word about the program, they also wanted to provide generous support in terms of registration fees and equipment reimbursement. Public "thank you" were also important. Organizers were sure to thank

families for bringing their child and allowing them to play even if it might be difficult to arrange their schedules. Organizers also frequently thanked volunteers, sponsors, and coaches for their time and support using various social media outlets (e.g., radio, league Facebook page) and banners.

In addition to the amazing team members who organized and supported the *Baseball Challenge League*, what helped make this program a success was the reliance on evidence-based practices to support the players and baseball buddies. We look forward to continuing to evaluate the effects of peer-mediated interventions (e.g., modified Stay-Play-Talk Baseball) on baseball buddies and players including more innovative peer-mediated interventions (e.g., Martinez et al., 2019) with older children (e.g., Platos & Wojaczek, 2018) and those who use AAC (e.g., Severini et al., 2019). Identifying the most effective behavioral interventions and positive behavior supports is also an area for future research. Continuing the work on effective transition planning for players who begin in the *Baseball Challenge League* but then transition to a traditional league is such an important component of inclusive sports. For players with complex communication needs, we look forward to exploring the most effective communication supports, including augmentative and alternative communication (AAC). Lastly, seeking feedback from players, baseball buddies, coaches, families, and the community to evaluate the success of the program can only help to confirm the impact the program has on their lives. Therefore, we look forward to continuing a more robust evaluation of the *Baseball Challenge League* program and supporting other communities as they design, implement, and evaluate their own programs. After all, baseball is for everyone!

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Preparing Students with Intellectual Disability for Inclusive Higher Education: Email Skills

Christine M. Drew
Auburn University

Betty Patten
Auburn University

Isabelle Matthews
Auburn University

Madeline Howard
Auburn University

Carli Rossi
Auburn University

Claire Hebert
Auburn University

Abstract: Inclusive postsecondary education (IPSE) programs provide students with intellectual disability (ID) the opportunity to learn transferrable life skills post-high school. To be successful in IPSE programs, students require prerequisite skills that may not have been addressed in school and transition programs. This includes receiving and sending emails, a critical skill on college campuses. The researchers provided remote technology-assisted, parent-mediated, skill-building activities to teach basic email skills to students with ID admitted to an IPSE. Parents attended a 1-hour training and received weekly instructional emails. Parents recorded their student completing activities once a week for 4 weeks. The authors coded for both parent treatment fidelity and student correct responses. Parent treatment fidelity varied widely. All students who completed this low-intensity intervention ($n = 6$) increased their email skills compared with pre-intervention (independent) sessions across the three types of interventions: video modeling, task analysis, and prompting.

Inclusive postsecondary education (IPSE) programs for students with intellectual disability (ID) were recognized and included in legislation in 2008 with the reauthorization of the Higher Education Opportunity Act (HEOA, 2008) and serve students with ID in higher education settings. Students enrolled in IPSE program are integrated into the college experience across the domains of academics, social, employment, and independent living. These programs provide access to educational opportunities and are strategically designed to use the natural supports of a college community to explicitly teach comprehensive transition skills to students with ID (Vinoski Thomas et al., 2020). The number of IPSE programs has increased rapidly since the 2008

reauthorization of the HEOA. At the time of publication, there are 314 programs across 49 states with more than 6,000 students enrolled (Grigal et al., 2019; ThinkCollege, n.d.a).

The characteristics of and services offered by IPSE programs vary widely. For a college program to be considered an IPSE program, students should be enrolled at the university, have exited high school (not dually enrolled), and included in traditional experiences at the institution, with various levels of support offered to facilitate inclusion in coursework, social opportunities, and independent living including residential offerings (ThinkCollege, n.d.b). Students who have attended IPSE programs were more likely to be employed, employed at higher rates of pay, and employed in integrated settings

compared to their peers with ID who did not attend an IPSE program (Moore & Schelling, 2015). There are many potential benefits to attending an IPSE program including increased independence and self-determination in addition to improved employment outcomes (Singh & Gilson, 2020).

Preparation for postsecondary education is required through IDEA-mandated transition services to begin no later than age 16 (Individuals with Disabilities Act, 2004). While there are federal requirements that each individualized education program (IEP) include individualized transition goals and activities, there are still many students that do not receive adequate supports and services for a successful transition to employment, an IPSE program, or vocational training (Hetherington et al., 2010; IDEA, 2004). One area that differs significantly from the K-12 setting to the higher education setting is the reliance upon email and electronic communication. Many typically-developing high school students do not effectively use email, even when the communication comes from a university. This is of particular concern as many universities use email as their official means of communication (Rhodes, 2019). Email is widely used to disseminate information related to social events, classwork, university updates such as safety threats and notifications, and housing. Email also interfaces with course hosting websites like Canvas™, which allows for notifications of changes to assignment due dates, messages from peers, instructors, and faculty, and announcements (Canvas, 2020).

Email skills are also transferrable as vocational skills as many offices and workplaces rely upon email communication for interactions with customers and clients and contact between upper management and employees. Inability to draft and respond to

emails may limit the types of employment a student is eligible for when they complete their IPSE program of study. Students can also use email in their personal and social lives for maintaining contact with relatives or friends, signing up for listservs or newsletters for favorite restaurants, stores, and local organizations, and communicating with organizations for which they volunteer. On a college campus, everything from housing applications, class registration, social events, and meetings with professors are delivered via email (Auburn University email policy). Email services such as Outlook™ host calendar applications for meetings and classes. Additionally, students can set reminders and receive notifications to serve as a natural support for managing their day independently.

While there are many positives to increasing fluency with email prior to attending an IPSE program, there are also many barriers to students' acquisition of email skills. These skills may not be used with students in their high school or transition program. In general, people with ID are less likely to have a personal email account (Palmer et al., 2012). A student may be familiar with only one type of email account such as Gmail™ or Yahoo! Mail™ while the universities may employ Outlook™ or another service with a different interface and more features. Students may have practice using their smart device (phone, tablet, etc.) to reply to emails while longer and more formal emails are usually composed on a laptop or desktop computer. Students with ID require specific training or programming to generalize skills including transferring any existing email skills into the new service or from a smart device to a laptop computer (Cihak et al., 2015a). As a result of these barriers, students with ID who did not have practice opportunities to use email may be at a disadvantage when they apply for and are admitted to an IPSE program.

There is little research on the best ways to prepare students for matriculation into an IPSE program. This may be partially due to the relatively recent authorization of these programs and the small percentage of students with ID who can attend IPSE programs (Rusch & Loomis, 2005). Additionally, students may experience varying degrees of parent and school support in their IPSE program preparation. While this preparation would most logically take place at the high school or transition program level, some students entering IPSE programs have already exited high school before admission to an IPSE program and are likely to be completely disconnected from services (Shattuck et al., 2011). Transition services for students with IEPs have improved over time, however, parent participation in key transition activities has recently declined (Liu et al., 2018). Professionals reported that parents need training, but many parents lack the time to fully participate in transition activities (Landmark et al., 2013). Parents play a unique role in their students' lives and serve as a natural support as students enter and when students exit IPSE programs (Kellems & Morningstar, 2010).

Attending an IPSE program, particularly a residential program, can be a monumental shift for young adults with ID. Students are expected to care for their living areas, prepare or plan for meals, self-administer medications, and keep track of their schedules, coursework, and extracurricular activities (EAGLES Program). Any skill deficits that can be addressed prior to arrival on campus can ease the transition process (Test et al., 2009).

There are evidence-based practices to teach academic and employment skills, such as email skills, effectively and efficiently including video modeling, task analysis, and prompting (Wong et al., 2015). These

evidence-based practices have been successfully used to teach skills such as navigating a city or public transportation via smart device and application, using email in the school setting, and other employment-related skills (Cihak et al., 2015b; Kellems & Morningstar, 2012). Researchers have also taught email skills to students with ID attending a post-secondary program with the goal of generalizing email skills across devices (Cihak et al., 2015a). The authors taught four 21- to 23-year-olds with ID to check email using desktop, laptop, and iPad. However, this research only required students to answer a simple fact-based question (e.g., "Did you watch the football game on Saturday?") and did not include the use of attachments or any email conventions (greeting and sign off). With the support of researchers, a special education teacher also taught email skills using least-to-most prompting as part of a digital literacy intervention for high school students with ID (Cihak et al., 2015b). Students had to log into their email, reply to an email answering a question, and compose their own message.

The current research addresses both the areas of composing basic replies to emails with additional areas unexplored in previous research including the tasks of: downloading and editing an attachment, reattaching the edited document, and including both greeting and closing. We also used two less intrusive interventions prior to the use of prompting (video modeling and task analysis). An additional benefit to this model of intervention is incorporating parents into the transition process prior to attending an IPSE through parent training and having parents serve as interventionists in the natural environment of the family home. This research addresses multiple areas of importance for preparing for college: use of email and following email etiquette, use of office software including Microsoft Word,

and use of on-campus learning management systems. This research also incorporates evidence-based practices for instruction and uses natural change agents (parents or guardians) to help prepare students for success in IPSE programs. Additionally, this study was conducted online and via remote means of delivery to provide equitable access.

Through this research, we aim to answer the following questions:

1. What independent email skills do 6 students admitted to an IPSE program display (opening, reading, downloading attachment, filling out attachment, reattaching document, replying to email by answering a question, and including an appropriate opening and closing)?
2. What is the effect of single exposure to video modeling, task analysis, and prompting on correct student completion of email tasks?
3. What level of treatment fidelity for evidence based practices (video modeling, task analysis, and prompting) do parents of 6 IPSE students achieve with a brief training and written directions?

Method

Participants – Students and Parents

This study was approved by the university institutional review board (IRB) as part of the IPSE program's evaluation. All participants provided informed consent through Qualtrics software, version [XM 2022]. All participants were admitted to the IPSE program for fall 2022 and received the intervention in their homes prior to entering the program. Six student-parent dyads completed the initial training with the first author and program staff. All students had a diagnosis of ID (IQ of 75 or lower) and demonstrated at least a third grade reading

level during the interview process. All parents were invited to complete the intervention training and participate in the module activities with their student during spring 2022 before students started their first semester of the program. Refer to Tables 1, 2, and 3 for demographic information.

The participants were admitted to an IPSE program in the southeastern United States in December 2021. Research activities began in January 2022 and continued into February 2022. The program is a comprehensive transition program (CTP) that offers a 2- and/or 4-year residential college experience that provides skill building opportunities in the domains of: independent living, employment, health and wellness, social activities, and academics.

Setting

All sessions took place in the students' homes in the southeastern United States ($M = 137.8$ miles; range = 99 – 269 miles distance from campus) as students were residing with their parents at the time of intervention. Families were instructed to make sure the email tasks were carried out in a quiet place with a strong internet connection using a laptop or desktop. Regular household items could be seen in the recordings including tables, chairs, desks, kitchen counters, couches, etc. All data collection (coding submitted recorded videos) took place in university offices/conference rooms or in private rooms using headphones.

Behavioral Variables

Behavioral variables included student completion of email tasks (open Outlook application, select email from first author, read email text out loud, download attachment, read attachment text out loud, respond to questions in the attachment, save the document, initiate email reply, begin

Table 1. Student Demographics

	Mean	Range
Age	20	18-22
Full Scale IQ Score	63.3	51 - 71
Reading Level	7	4 - 11

Note. n=6

Table 2. Student Demographics

	n	%
Gender		
Female	2	33.3%
Male	4	66.7%
Ethnicity		
White	4	66.7%
Black	2	33.3%
High School Placement		
Majority Inclusive Classes	4	66.7%
Majority SPED Classes	2	33.3%

Note. n = 6

Table 3. Parent Demographics

	n	%
Gender		
Female	5	83.3%
Male	1	16.7%
Ethnicity		
White	4	66.7%
Black	2	33.3%

Note. n = 6

email with formal greeting to first author, respond to the question in email text, sign email with student's name, re-read email for errors, attach file, send reply email) and parent treatment fidelity of intervention steps. Student tasks were coded as either complete or incomplete as there was only one opportunity for each behavior to occur per session. Parent treatment fidelity was rated on a 0 – 3 scale with 0 meaning no correct responses, 1 meaning at least one correct response, 2 meaning majority correct responses, 3 meaning correct response each opportunity, and N/A meaning “not applicable” or “no opportunity”. This rating system was employed for parent behavior because there may be more than one

opportunity to complete the task depending on student behavior (i.e., if a student asks for help three times, the parent has three opportunities to give encouraging statements without giving directions).

Pilot Study Design

The authors collected a single pre-intervention data point to establish the students' baseline skill level before applying the intervention. Given the applied nature of the pilot procedures, the time constraints for families and students prior to enrollment in the IPSE, and input from program staff about the feasibility of multiple data collection sessions, we limited baseline to a single data point. Each subsequent intervention: video

modeling, written task analysis, and prompting were also applied one time. While these procedures and lack of a standard methodology limited conclusions about the effect of the interventions, these skill-building activities were designed with specific goals in mind. First, these interventions allow program staff to prepare for student skill level prior to arrival. Second, the data from these interventions help program staff determine if these evidence-based practices were effective for each student to inform how to individualize support once on campus.

Procedures

Topic Selection and Materials Development

IPSE program staff found that students who attended an IPSE for the first time struggled with foundational and academic skills needed to access materials when they first arrived on campus. In the first few weeks of on-campus attendance, typically-developing college students and students in IPSE programs relied heavily on email to communicate with advisors, faculty, and staff from departments such as housing, financial aid, and the office of accessibility. The students with ID inconsistently read and responded to email with many students missed deadlines and social opportunities as a result. Students required frequent prompting from staff to check and respond to emails, and students had few self-help or problem-solving skills for email. This limited staff members' ability to fade support. Staff identified email skills as an area that students struggled with both in the time leading up to and during the few weeks of the IPSE program.

Program staff reached out to the Information Technology department and requested the creation of a new course on a supplemental course website, Canvas™. The authors used the supplemental course website for this intervention because the platform looks

similar to the platform used for all courses at the university, Canvas™. Students familiar with the platform are at an advantage once enrolled in courses, which also reduces the time and staff support needed to teach using the platform. Additionally, the official Canvas™ website is not accessible to students until they are enrolled in courses. The first author populated the Canvas™ course with weekly modules. Each module included an assignment link, materials needed to complete the assignment, and instructions for parents. The first author also restricted modules and assignments so that both could only be accessed during the appropriate times and dates.

Parent Training and Student Registration

The first author created training materials (PowerPoint) and delivered a required 1-hour Zoom training to parents of admitted students with brief student involvement for introductions. During the presentation, the first author explained the logic and logistics of research, the importance of parents following the written directions provided by the first author, and the first author's contact information for any questions. The first author showed an example video of how best to record students using parents' or students' smart devices as they completed the activity with voiceover and explained the procedures for video modeling, task analysis, and prompting.

Parent-mediated Email Modules

Each week for four weeks, the first author sent parents an email with written instructions, due dates and times, and reminders of where to upload the videos of their students. The first author also sent emails to students with: a greeting, a question in the email, instructions to complete an attached file and send it back, and an attached file. The title of the email also instructed students to wait until their parent was

recording before replying to the email. Families had four and a half days to complete the assignment and upload a video of their student attempting the email tasks. Parents could upload the video or assist the student with uploading the video to Catalog™.

Week 1: Pre-Intervention. For pre-intervention sessions, parents began recording their student and were instructed to say, “Check your Auburn email.” Parents were instructed to not intervene at all. If the student asked a question, the parent was to respond with a phrase like “try your best” or “do your best” without giving any additional information about how to complete the task. If the student stopped attempting to complete the task for 30 seconds, the parent was instructed to ask, “are you done?” If the student replied affirmatively, the parent was instructed to stop recording. If the student said “no”, the parent was instructed to keep recording. After three 30-second pauses in activity, the parent was to stop the recording (termination criteria). Parents were instructed that students could use any resource that they could find on their own to complete the activity (e.g., use Google or YouTube to find out how to attach a file), but that they could not receive assistance from the parent or any other person directly. No student used outside resources to complete the email activities.

Week 2: Video Modeling. For the second email task, parents began recording, then had their student log into Catalog™ and watch a video model. The video model was a third person view of a current program student (Bross et al., 2020; McCoy & Hermansen, 2007). This student completed the email tasks while he verbally narrated his actions. Once the student had watched the entire video, the parent was to say, “Check your Auburn email.” The rules about not providing extra prompts or information, termination criteria for the video, and how to respond to student

questions remained the same. Parents were also instructed that their student could re-watch or refer to the video as needed. None of the students returned to the video during the email task or watched the video more than once.

Week 3: Written Task Analysis. For the third email task, parents were asked to print out a written task analysis of the steps to complete the email activity. The parent began recording and asked the student to read the entirety of the task analysis. Parents were also instructed that the student could refer back to the task analysis. Instructions on initial prompt, termination criteria for each session, and provision of extra support to the student remained in place from the previous 2 weeks. Please note that Participant 3 (P3), did not participate in this intervention because the parent of this dyad did not print out or provide the task analysis for the student to use. P4 and P6 referred to the written task analysis throughout the email tasks.

Week 4: Prompting. For the fourth email task, parents were asked to use the same initial prompt and written task analysis, and if their student paused for more than 3 seconds on any step to provide a verbal prompt telling the student where to click on that step of the process. Once the student completed all steps of the email process, the parent was instructed to stop the video.

Maintenance. If at any point a student achieved 100% of tasks, the student was moved into a maintenance phase. During this phase, the student returned to pre-intervention procedures with parents providing only the prompt to “Check you Auburn email” while recording. Only P4 and P5 moved into the maintenance phase.

Training and Interobserver Agreement

The third and fourth authors were the primary data collectors. The first author trained both data collectors using three example videos of students and their parents completing email activities. Coders reached 100% agreement with the first author before coding videos independently. All data was coded asynchronously from uploaded videos.

Interobserver agreement (IOA) data were collected for 25% of sessions across dyads. The first author trained the fifth author as an independent data collector. The fifth author collected reliability data by watching a random sample of videos from each participant and calculated point-by-point IOA (items with disagreement were subtracted from items with agreement, divided by all items, and multiplied by 100; Ledford et al., 2018b). IOA for student behavior was: 95% (range = 88 - 100%). IOA for parent treatment fidelity was 94.5% (range = 88 - 100%).

Results

Participant 1 Dyad

During the pre-intervention session, Participant 1 (P1) completed 17.6% of tasks. With the addition of a video model, task completion increased to 33.3%, and with the addition of the written task analysis, P1 completed 50% of tasks. With the most intensive level of support, verbal and gestural prompting, P1 completed 100% of steps, 65% independently, and 35% requiring gestural or verbal prompts. P1's parent maintained a high level of treatment fidelity ($M = 91.43\%$; range = 85 - 100%). Please refer to Figure 1 for a graph of student and parent data.

Participant 2 Dyad

Participant 2 (P2) completed 29.4% of tasks during pre-intervention. During the video model intervention, P2 correctly complete

41.2% of tasks. When using the written task analysis, P2 increased completed tasks to 77%. With parent prompting, P2 reached 100% task completion with 65% independent completion and 35% of tasks requiring prompts. P2's parent showed variable treatment fidelity with 60% during independent task completion, 100% during video modeling, 66% during the task analysis session, and 87% during the prompting session ($M = 78.3\%$; range = 60 - 100%). Please refer to Figure 2 for a graph of student and parent data.

Participant 3 Dyad

Participant 3's (P3) data differs from the other participants due to parent treatment fidelity issues. Both the independent and video modeling sessions were conducted as instructed. Participant 3 completed 47% and 77% of tasks during those sessions respectively. During Week 3, P3's parent did not provide the written task analysis to the student. This session was conducted identically to the pre-intervention session. The authors coded this session as a pre-intervention session. During this second pre-intervention procedure session, the participant completed 88% of steps correctly. P3's parent scored 60% on treatment fidelity for session 1 (pre-intervention) and 100% for the video modeling. For session 3 (coded as a pre-intervention), P3's parent had 77% treatment fidelity ($M = 79\%$; range = 60 - 100%). Please refer to Figure 3 for a graph of student and parent data.

Participant 4 Dyad

Participant 4 (P4) started with 29.4% during the pre-intervention session. During the video modeling intervention, P4 completed 50% of email tasks. With the addition of the task analysis, P4 completed 100% of tasks. This triggered the movement to maintenance procedures, or a return to pre-intervention procedures. During the maintenance session,

Figure 1. This graph depicts the percentage of email tasks completed (student) and parent treatment fidelity (parent) across four weeks for Participant 1 and their parent.

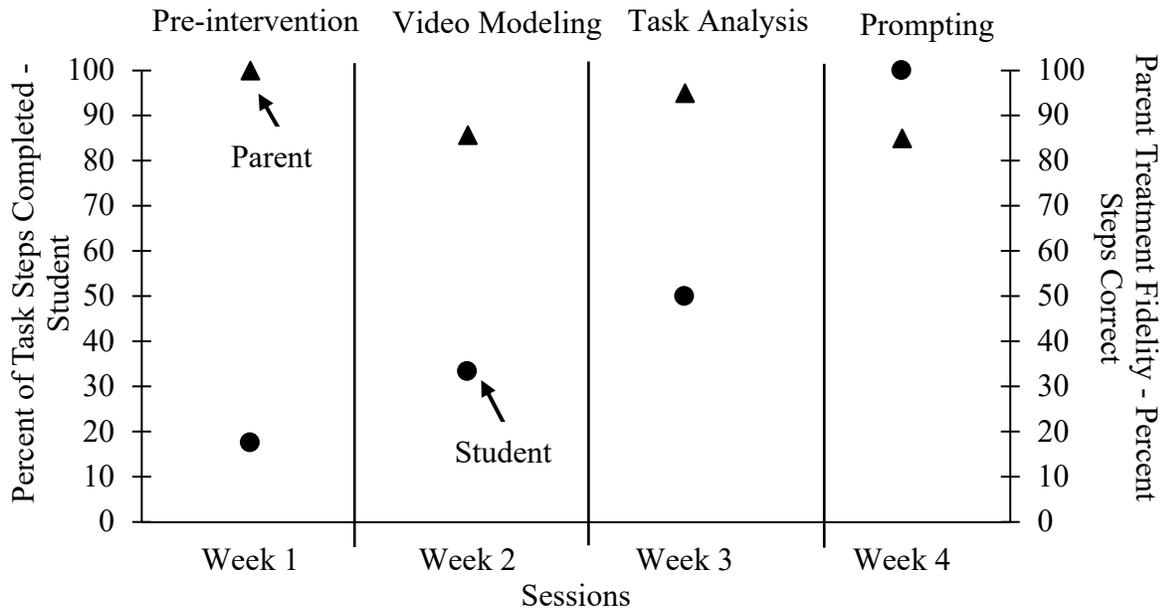


Figure 2. This graph depicts the percentage of email tasks completed (student) and parent treatment fidelity (parent) across four weeks for Participant 2 and their parent.

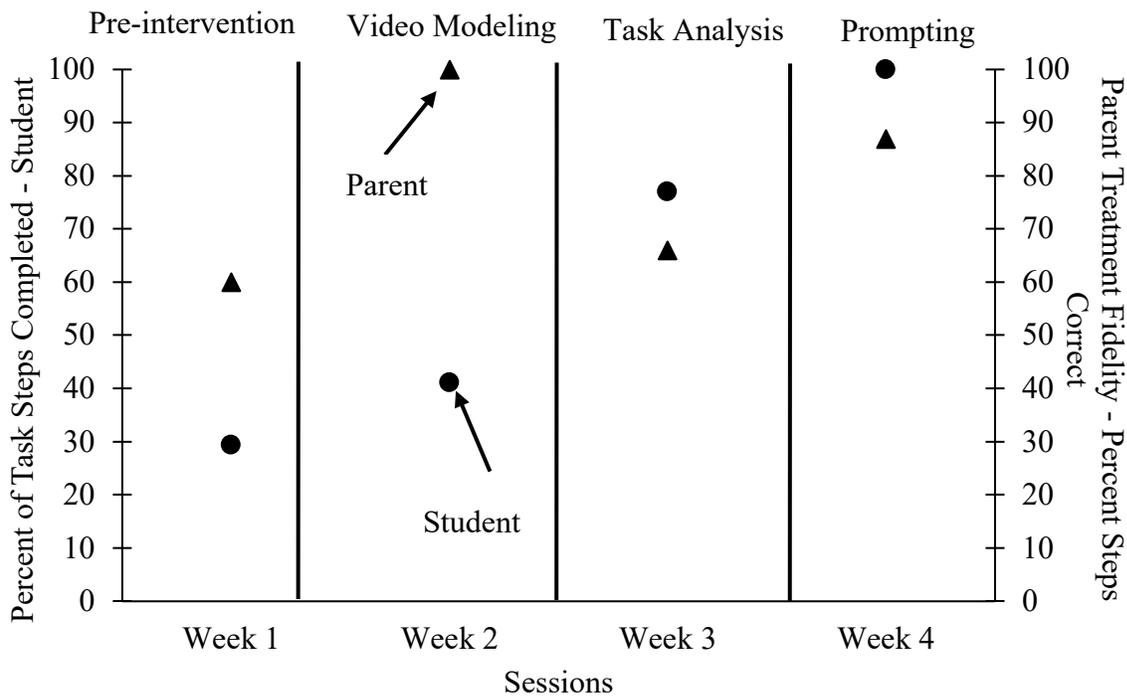


Figure 3. This graph depicts the percentage of email tasks completed (student) and parent treatment fidelity (parent) across three weeks for Participant 3 and their parent.

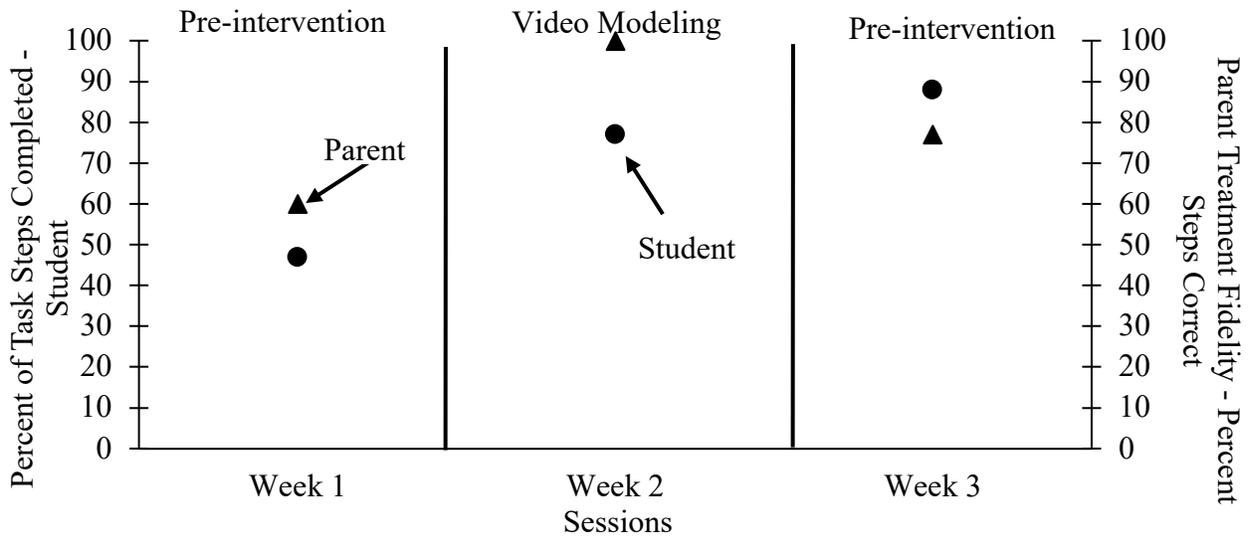


Figure 4. This graph depicts the percentage of email tasks completed (student) and parent treatment fidelity (parent) across four weeks for Participant 4 and their parent.

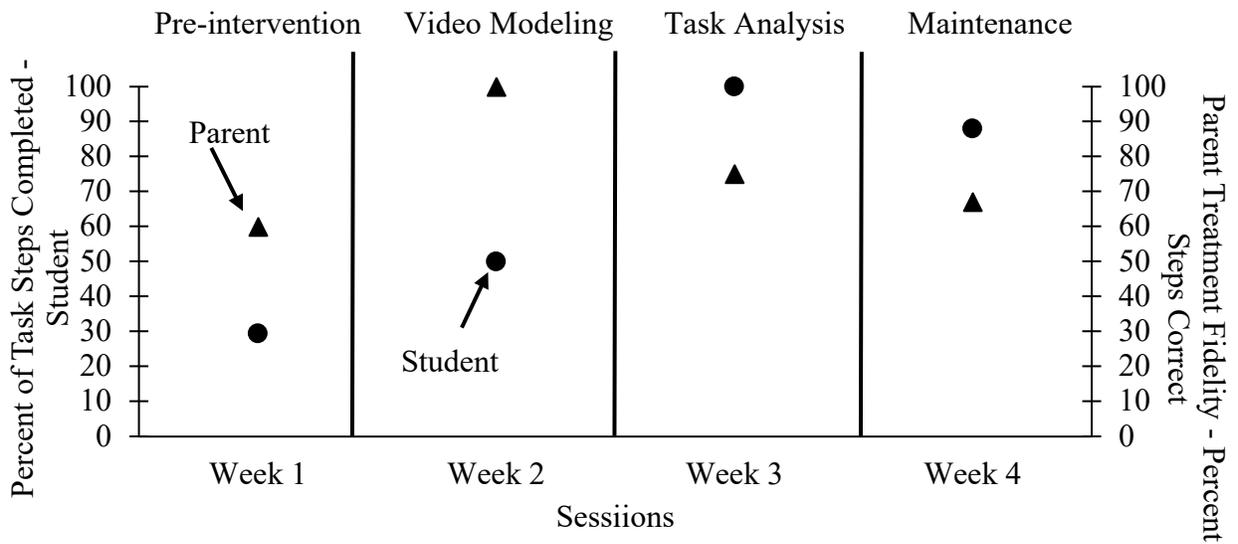


Figure 5. This graph depicts the percentage of email tasks completed (student) and parent treatment fidelity (parent) across four weeks for Participant 5 and their parent.

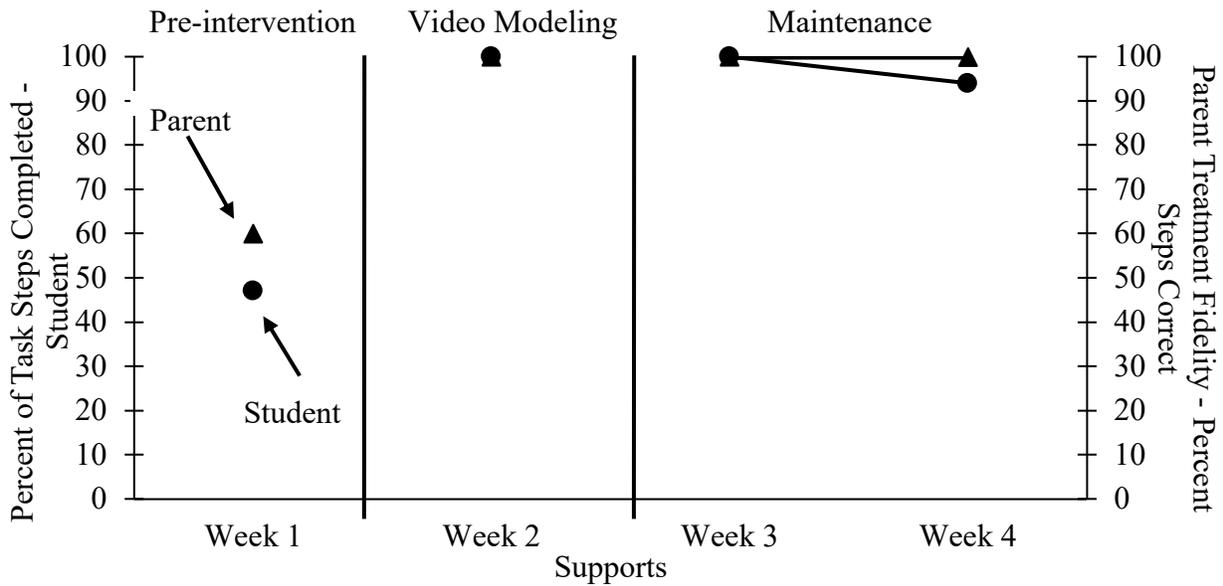
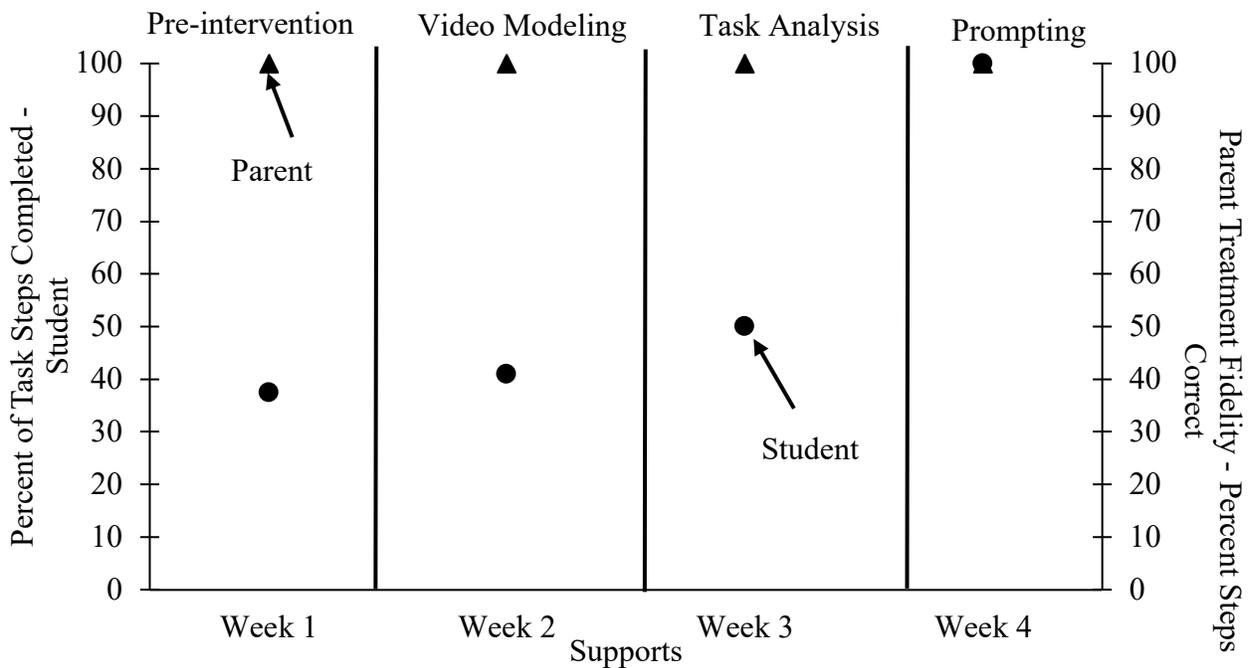


Figure 6. This graph depicts the percentage of email tasks completed (student) and parent treatment fidelity (parent) across four weeks for Participant 6 and their parent.



P4 completed 88% of tasks independently. P4's parent had highly variable treatment fidelity with 60% in pre-intervention procedures, 100% for video modeling, 75% during task analysis, and 67% during maintenance/return to pre-intervention ($M = 75.5\%$; 60 – 100%). Please refer to Figure 4 for a graph of student and parent data.

Participant 5 Dyad

Participant 5 (P5) completed 47% of email tasks during the pre-intervention condition. P5 reached mastery criteria by the second session with video model (100%). After P5 met mastery criteria, he moved into maintenance. P5 completed two maintenance sessions with 100% and 94% correct. P5's parent's treatment fidelity scores were 60% during the pre-intervention session and 100% for all remaining sessions ($M = 90\%$; range = 60 – 100%). Please refer to Figure 5 for a graph of student and parent data.

Participant 6 Dyad

Participant 6 (P6) completed 37.5% of tasks during the pre-intervention phase and increased to 41% of tasks with the video model. P6 completed 50% of tasks during the task analysis session with a final increase to 100% during the prompting session. During the prompting session, the student completed 94% of tasks independently with only 6% of steps requiring a parent prompt. P6's parent scored 100% on treatment fidelity for all four sessions. Please refer to Figure 6 for a graph of student and parent data.

Intervention Effectiveness

To answer research question 1 (What independent email skills do 6 students admitted to an IPSE programs display [opening Outlook, opening and reading email text, downloading, reading, and filling out attachment, reattaching document, replying to email by answering a question, and including an appropriate opening and

closing]?), none of the participants completed 100% of tasks in the pre-intervention session. During the pre-intervention session, P1 opened outlook, selected the correct email, and read the email out loud (21.4% of tasks). P2 opened outlook, selected the correct email, downloaded the attachment, read the attachment, and completed the attachment (35.7% of tasks), P3 and P5 opened outlook, selected the correct email, read the email, downloaded, read, and completed the attachment (50% of tasks), P4 opened outlook, selected the correct email, and downloaded and read the attachment (28.6% of tasks), and P6 opened outlook, selected the correct email, read the email, downloaded the attachment, and read the attachment (42.9% of tasks). Pre-intervention data demonstrated that students admitted to the IPSE displayed varying patterns of Outlook™ skills, Microsoft Word™ skills, and email etiquette.

To answer research question 2 (What is the effect of single exposure to video modeling, task analysis, and prompting on correct student completion of email tasks?), results were highly variable across participants. With the addition of a third person video model with voiceover with a peer model, one participant (P5) completed 100% of tasks. With the addition of the written task analysis, an additional participant (P4) completed 100% of tasks. With the addition of prompting, three participants (P1, P2, and P6) completed 100% of tasks with a lower percentage of independent task completion (P1 = 65%; P2 = 65%; P6 = 94%). One participant received only the video model, and after video modeling, the student (P3) completed 88% of email tasks.

To answer research question 3 (What level of treatment fidelity for evidence-based practices [video modeling, task analysis, and prompting] do parents of 6 IPSE students

achieve with a brief training and written directions?), results were mixed. Parent treatment fidelity varied widely, and three parents met the standard of 80% of treatment fidelity overall (P1, P5, and P6; Reichow et al., 2008). The other three parents (P2, P3, and P4) maintained at least 75% fidelity (78%, 79%, and 76%). Additionally, parent treatment fidelity did not correspond with student completion of email tasks.

Discussion

Six families took part in an online training provided by the first author and each parent was asked to record their student completing email tasks with four levels of support (independent, video model, task analysis, prompting). One parent-student dyad completed three sessions and five dyads completed all four sessions. Two students reached the mastery criterion of 100% independent task completion, one with the video model (P5) and one during the task analysis intervention session (P4). Three students (P1, P2, and P6) achieved 100% of task completion with prompting, with 65% independent responses (P1 and P2) and 94% independent responses (P6). The remaining student participated in three sessions, pre-intervention, video modeling, and return to pre-intervention, but improved from 47% in pre-intervention to 88% with video modeling. All students' task completion improved from pre-intervention

Students and families lived anywhere from 99 to 269 miles ($M = 137.8$) from campus during time of the intervention in spring 2022. Thus, on-campus activities could not be made equitably available to all incoming students as many students were living in their hometown before enrollment in the IPSE program and preparing to move to the university's campus for their first year of the program in fall of 2022. The authors also needed to balance the demands of equitable

access with the requirements of direct observation needed for research. The use of remote/telehealth methods allowed for parents to record students as they completed email activities and ensure that the student was working independently and without additional prompts while allowing for access to all families from home. Parents were also chosen to serve as interventionists because program staff were not available to support incoming students in addition to supporting current students in the program.

There is little research addressing the transition from the K-12 system to IPSE programs, particularly intervention-based and with parent involvement or with parents serving as an interventionist (Kelley & Prohn, 2019). While studies on various aspects of IPSE programs are on the rise, a recent review found that most studies employed qualitative or program description methodology. Additionally, only three of the intervention studies addressed vocational skills (13%; Whirley et al., 2020). This research addresses these gaps in the literature.

While young adults with ID should build as many independent living skills as possible, the majority (64% with ID and 83% with autism) will live with their parents after graduation from the K-12 system and IPSE programs (Newman et al., 2011). They will also likely rely upon natural supports such as parents and siblings (Lee & Burke, 2018). Parents are natural change agents who should receive proper training for their role of supporting students as they prepare for employment, higher education, or other vocational training.

This research took place in participant homes with parent interventionists and is subject to some limitations. First, the researchers could not control for what was taking place outside

of the relatively short time that parents recorded intervention sessions including practicing email skills. Parents were instructed not to conduct outside training or coaching, but the authors cannot guarantee that this did not take place. Second, the researchers did not train parents to any level of fidelity before implementation, and only provided the 1-hour training and written instructions. Parents also did not receive feedback on their adherence to the treatment fidelity checklist. Parents were given specific, step-by-step instructions each week, but these same instructions resulted in different levels of performance by parents.

The design of this pilot study was exploratory in nature. The project was created to address a need in a population and inform future research designs. Based on input from the Program Director (second author) and staff, having parents conduct more than one session a week was deemed unfeasible due to parents' and students' already full schedules. All incoming students attended high school or other programming full time for the duration of the intervention, and many worked at family businesses or at other after school or weekend jobs.

Lastly, our brief intervention did not address other critical email skills such as grammar, punctuation, and spelling checks, noticing and discarding spam emails, or responding to more than one email in a session. This limits the benefit of the specific skills taught in this intervention to the natural environment of an IPSE in which students receive upwards of 30 emails a day related to sporting events,

classes, and social and employment opportunities.

Future research should improve methodological rigor in teaching email skills to students matriculating to IPSE programs. This may be better suited for the K-12 settings through cooperative research initiatives and with the support of university faculty. Teachers could implement the intervention using a multiple baseline design across students or skills (e.g., sorting spam from non-spam emails, answering questions in the text of an email, following directions delivered via email, etc.) with each student checking their email, responding to emails, and sending emails for different purposes (seeking information, making appointments, corresponding with employers) three or four times a day. This would better mimic the actual frequency of checking email required in a college or workplace setting.

Future research should investigate the relationship between parent treatment fidelity and student skill demonstration. While some parents did not maintain the typical levels of treatment fidelity expected of trained interventionists, all students' skills improved. Single case standards require treatment fidelity of $\geq 80\%$ (Reichow et al., 2008). With a more rigorous design, such as multiple baseline or alternating treatments, the effects of different levels of treatment fidelity could also be assessed (Ledford et al., 2018a).

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Correspondence concerning this article should be addressed to Christine M Drew, College of Education, Department of Special Education, Rehabilitation, and Counseling, Auburn University, 2084 Haley, 351 Thach Concourse, Auburn, AL 36849. E-mail: cmd0109@auburn.edu



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