Visual Impairment and Deafblind Education Quarterly

The Voice and Vision of Special Education

Council for Exceptional Children
The voice and vision of special education

Cover photo description: The cover photo shows MaryAnn Demchak and Chevonne Sutter standing in front of their poster presentation, *Using Constant Time Delay to Teach Sight Words to Students with Deafblindness*, at the 2022 CEC Convention and Expo in Orlando, Florida. Photo taken by Nicole Johnson.

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Volume 67, Issue 2

Message from the Editor

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Welcome to the Spring 2022 Convention issue of the *Visual Impairment and Deafblind Education Quarterly* journal. In this issue you will get the opportunity to read more about some of the amazing presentations from the 2022 CEC Convention in Orlando, Florida and virtual conference.

The issue begins with an article exploring how Amy T. Parker, Becky Morton, & Holly Lawson transformed Mobility Matters 2021 into a virtual field trip experience for K-12 students with the support of community and

organizational partners, as well as Portland State University graduate students. In the second article, Loana K. Mason, Kara F. Halley, Elizabeth Bolander, Michelle Chacon, and Anna Cunningham describe a rubric that readers can use to critically analyze fictional children's books that contain characters with visual impairments. The authors provide information about their findings in fictional children's books that have characters with visual impairments and recommendations for authors.

In the third article, Belinda Rudinger and Shannon Darst, share an overview of assistive technology (AT) that is designed to be used with individuals with visual impairments and share recommendations for trainings and strategies that can be used with pre-service educators and current educators in the field of visual impairment. The fourth article also explores AT. In this article, Wanda Routier, Cassy Hollenbeck, and Ashley Ward share a plan for using the Wisconsin Assistive Technology Initiative (WATI) framework and how it can inform the selection of appropriate AT for students with vision loss. The issue concludes with an article that explains the findings from a national survey on writing instruction for students with visual impairments by Pamela Shanahan Bazis, Mackenzie Savaiano, Michael Hebert, Derek B. Rodgers, & Natalie A. Koziol.

Are you doing something innovative in your teaching, professional development, community, or research? Please submit a practitioner focused article

for the Summer 2022 Back to School Issue. Email me, the editor, at

Kathleen.Farrand@asu.edu for more information.

DVIDB ON FACEBOOK

Join Our Facebook Family

If you are passionate about the education of children and youth with visual impairments and deafblindness, including those with additional disabilities, please become part of our social network on Facebook. If you have a Facebook account, you can find our page and become a fan by searching for Division on Visual Impairments and Deafblindness.

For those who do not have a Facebook account, you can view our page by going to the following URL:
https://www.facebook/pages/Division-on-Visual-Impairments-and-Deafblindness/248244976215

President's Message

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Happy Spring! I am excited to write this as I begin my term as President of DVIDB. I look forward to the year ahead on so many levels. As our students and teachers have returned to classrooms and we find ourselves navigating a new landscape, we are only beginning to comprehend the extent of the changes wrought in the past two years. The pandemic's lasting effects on education are only now coming into focus. It remains an uncomfortably uncertain time still, so I think the message of Spring can offer us much. Beginnings beckon us to reassess, recommit, and recharge. We hope this issue of the *VIDBE-Q* finds you with the windows

open, enjoying a breath of fresh air. In this annual convention issue we will reflect upon this year's conference, as we also look forward.

My trip to convention was in fact my first flight since the start of the pandemic. I travelled with some trepidation but also with hope. I was not disappointed. I was inspired by the network of colleagues who shared their insights in presentations and poster sessions, both in-person in Orlando, and remotely. Coming just on the heels of DVIDB's successful virtual preconvention workshop held on January 11th, the 2022 CEC Convention was a welcome chance to get together with respected colleagues and trusted friends. I am thankful for the opportunity. The DVIDB board hosted our annual social in Orlando at Bahama Breeze Island Grill where we had a lovely evening on the deck outside, a bit chilly, but still a wonderful reprieve for those of us escaping wintery January weather. The conversations were lively and best of all we shared in celebration with our DVIDB award winners who were honored for their outstanding accomplishments in the field.

We hope those unable to travel to Orlando for convention still found an opportunity for connection and learning. Sharing our practices with one another is what drives innovation to better support students, families, and colleagues! Our mission at DVIDB continues to be to do just that—to connect with one another as

we strive to advance the education of individuals with visual impairments and deafblindness. In that spirit, DVIDB has much to offer in the year ahead.

Our next webinar will be on April 27th and offers 1 ACVREP credit. Join us at 3:00 pm ET for "Described and Captioned Media Program: Important Resources for the Classroom" to learn more about this federally funded program providing accessible educational media and more for K-12 students. Our webinars are always free to DVIDB members. I'm happy to share that for this particular webinar, CEC has provided funds that will allow us to provide free registration for anyone who wants to attend. So please share the webinar information with your colleagues who might not otherwise attend. Registration information is available on our website. We will be continuing to hold webinars throughout 2022 and bring you fantastic speakers. Be sure to check our website and Facebook page regularly for the latest updates on upcoming DVIDB events. In addition, we will soon be announcing two recipients of the 2022 DVIDB grants for innovative teaching. I know you will enjoy learning about the amazing things our colleagues are doing.

DVIDB continues to grow and to thrive with your engagement. If you want to get more involved, there's a place for you here. I personally want to welcome you to play a role in fulfilling DVIDB's mission. We have much to look forward to.

We hope you enjoy this Spring issue!

Accessible Virtual Field Trips: Participatory Approaches to Student Leadership

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We partnered with Washington State School for the Blind, American Printing House, and Fort Vancouver National Historic Site to host Mobility Matters 2021: an accessible, virtual field trip for students with visual impairments and deafblindness. While our research examined responses to the event, including mixed method analysis of educator and student engagement, for the purpose of this summary, we will focus on our motivations for transforming what is typically a conference for adult professionals into a virtual experience for K-12 students.

There has been no event in recent history that has been as disruptive to education in the United States as the COVID-19 pandemic. As teachers, family members and students grappled with this strange and stressful new reality, many leaders in our community responded with compassionate and innovative approaches for staying connected. Scholars, policymakers, and administrators

articulated that students with disabilities retain the right to a free, appropriate public education (FAPE) that is in accordance with their individualized education program (IEP), including all needed assessments and special education services (Siu et al., 2020). Nonetheless, as we heard from practitioners, parents and researchers, school-age students with visual impairments in the U.S. experienced hindered access to their education throughout the pandemic. In a prescient research effort to describe the experiences of students with visual impairments, Rosenblum and colleagues found that of the 61% of students who attended school online, 43% had difficulty or were not able to access virtual educational programs due to their visual impairment (Rosenblum et al., 2020).

At the same time, our TSVI and O&M graduate students at PSU experienced barriers to participating with mentors and students in meaningful field-based learning opportunities. This led us to thinking about ways that we could respond to the needs of our own graduate students as well as K-12 students through the structure of Mobility Matters. Geographically, WSSB is just north of Portland in the city of Vancouver. Fort Vancouver, which is a part of the National Park Service (NPS), has a longstanding educational partnership with WSSB. PSU alum and social studies teacher Steve Lowry has frequently brought his classes to the Fort for in-person field trips. Through a series of conversations WSSB, NPS Park Rangers, APH and our own graduate students, we collaborated to design an

interactive, multisensory virtual field trip experience for attendees with and without visual impairments and deafblindness.

Our first challenge was to bring the vividness of a field trip into the hands of students who were participating through Zoom. Field trips are powerful because they offer visitors a deep connection to place and time. As with any visit to an NPS site, maps provide information about the ways that space supports action, movement, and important life routines. Fortunately, Steve Lowry's knowledge of Fort Vancouver and the many excursions he led at the site, supported the creation of a map of the historic fort that was shared with all students with visual impairments who registered prior to a specific date. (See Figure 1).

Next to offer participants access to specific buildings within the historic fort palisades, a team of graduate students collaborated with Oregon-based expert Michael Cantino virtually to co-design, produce, and ship tactually iconic 3-D printed floor plans to participants who listened to action sounds and narratives as a part of the tour. Through Google chat, Zooms, and file sharing PSU graduate students formed an active space for learning and contributing to the accessibility of Mobility Matters, 2021.

Figure 1

Tactile Map
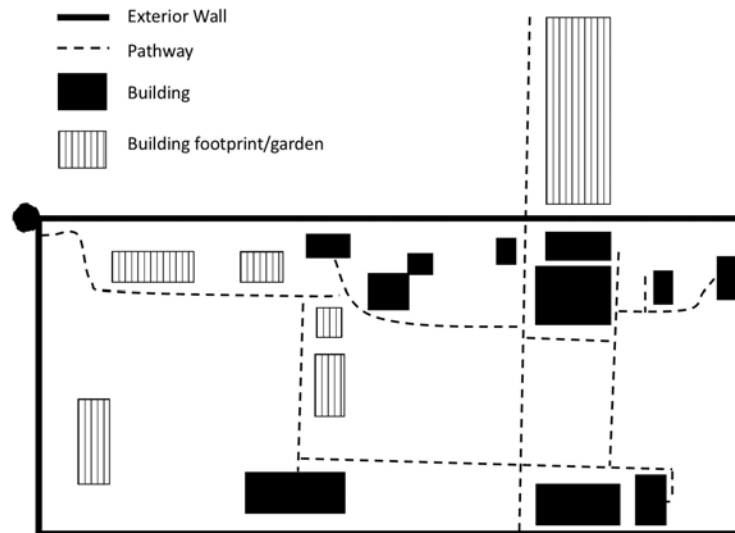
Note. The tactile map was created by Steve Lowry. It represents a historic fort with bold palisade walls and dotted lines indicated pathways to buildings and the garden.

Through a generous sponsorship from APH, we purchased real objects or artifacts from the Fort's gift shop. At least one of these items was included in each student's tactile learning kit. The item sent corresponded with the stations that the student had signed up for - Bake House, Historic Garden, Fur Store, Blacksmith Shop.

In the end, with the help of WSSB, our graduate student researchers, and APH we shipped 362 Tactile Learning Kit to students with visual impairments across the country.

Image 1

3D- Printed Replica of the Bake House floor plan
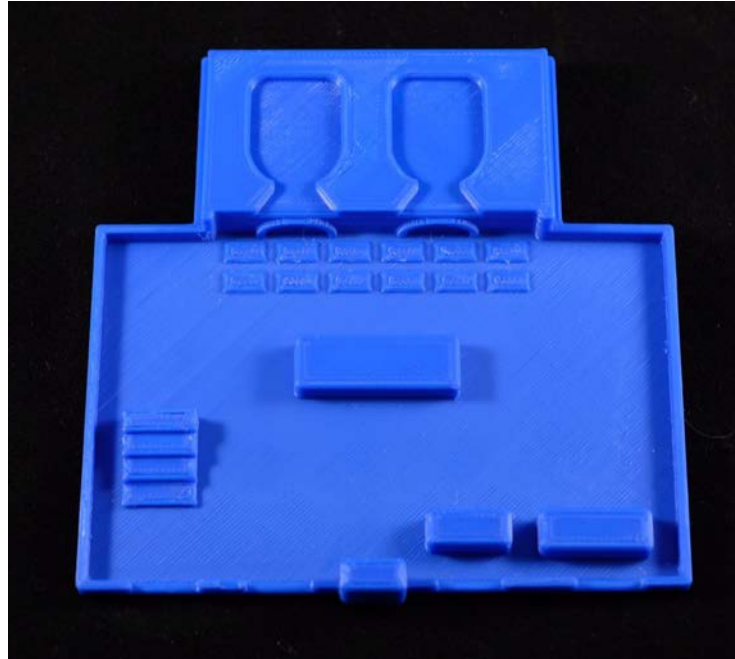
Note. Photo of a small 3D-printed replica of the Bake House floor plan, which includes two ovens, a staircase, a table, and two storage containers.

Image 2

Note. Adam and Becky, PSU graduate students, hold large mail sacks full of kits to send to K-12 students across the country.

The agenda included opportunities to interact with the materials sent ahead, as well as to participate in trivia polls; listen to student leaders offer insights about activities as the historic fort with support from NPS staff; and listen to short described video and audio clips.

- Welcome to Fort Vancouver
- Guided walking tour
  - Tactile Map
  - Sound Clips
  - Trivia Polls
- In-depth tours in breakouts
  - Garden & Bake House
  - Fur Store & Blacksmith
  - Student & Rangers co-present
  - Audio-Described Videos
  - 3D-Printed Floorplans
- Careers Panel with Rangers

Field trips provide valuable learning opportunities for career exploration. However, some students with disabilities face barriers to traditional field trips, such as limited school budgets, lack of accessible transportation, and inadequate staff support (Meezan & Cuffey, 2012; Placing & Fernandez, 2001). During the pandemic, we collaborated to create a virtual field trip that included opportunities for middle and high school students at WSSB and our own graduate students at PSU to construct inclusive learning experiences.

Image 3

Note. Two high school age blind students sit side by side at a desk listening to the presentation and reading the tactile maps

We look forward to sharing more regarding the data from our research study. As a TSVI and COMS, Steve's reflection on the effort offers insight to others who seek to replicate the approach with their own students.

Image 4

Note. Image of Steve Lowry holding the tactile map of the historic fort outside the palisade walls at Fort Vancouver.

"It's conceivable that [the tactile learning materials] gave some students, particularly the totally blind participants, a better kind of visual concept of what was in the rooms, than going and standing in the middle of the room and then having it described to them."

"The last time I went to the fort with a group of students in 2020, it poured down rain the entire time we were there. I don't know how much they took from the visit. The virtual visit is a little bit more of a controlled environment."

- *Steve Lowry, WSSB Social Studies Teacher*

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The Future Belongs to Everyone

APH is committed to building a future that belongs to everyone by offering a wide selection of inclusive and accessible products, and valuable resources, to support those who are blind and visually impaired, are deafblind, have CVI, or multiple disabilities.

From products that support braille literacy and low vision, to physical education, fine arts, math, health and science, and more: begin building your toolkits for inclusive learning by reading our Toolkit blogs.

APH ConnectCenter

The APH ConnectCenter offers curated advice and resources to assist children, parents, adults, and job seekers who are blind and visually impaired, and their associated professionals. It includes:

- VisionAware: for adults and seniors
- FamilyConnect: for families and parents
- CareerConnect: for job seekers
- Transition Hub: for school-age youth planning for graduation and life after college
- ConnectCalendar: for people and organizations to find and share info about upcoming events in the field of blindness and visual impairment
- **Information & Referral Hotline (800-232-5463)**: for answers to questions related to visual impairment and blindness

APH Hive

The APH Hive is a virtual platform bringing free eLearning and professional development opportunities right into the comfort of your home or office and is perfect for busy educators and families! Teachers, parents, and students can buzz over to aphhive.org and browse through a variety of bite-size courses related to visual impairment, relevant to serving students from birth through graduation.

APH Press

APH Press is a scholarly press which publishes informative, well-researched, and innovative texts which enable people who are blind and visually impaired, their families, and the professionals who support them, to maximize their potential in society. Learn more about APH Press, visit the APH Press resource page, and download the Press Catalog.

APH's mission is empowering people who are blind or visually impaired by providing accessible and innovative products, materials, and services for lifelong success. To learn more about APH and our products and services, visit APH.org today.

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A Critical Analysis of Inclusivity in Fictional Children's Literature Featuring Characters with Visual Impairment

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All learners need to see themselves and their realities accurately reflected in

the educational materials their teachers use. This is something that white,

Christian, able-bodied students take for granted. In fact, these students are

inundated with a variety of multi-dimensional historical and fictional figures to whom they can relate on several different levels. Ultimately, educational texts help learners develop positive self-identities, make deeper connections with concepts, and acquire empathy because books act as mirrors, windows, and sliding glass doors (Bishop, 1990; Sykes, 1988). As mirrors, books reflect dimensions of the reader's personal identity. As windows, books expose the reader to a wider view of the world, and as doors, books allow the reader to live vicariously. Hence, it is imperative that teachers use children's literature that contains a diverse collection of characters as culturally responsive teaching promotes equity, empathy, personnel connections, perspective, problem-solving and fosters a shared critical consciousness (Mathis, 1999; McDonald, n.d.; Ouimet, 2011; Strobbe, 2021).

When discussing culturally responsive practice, most of the emphasis is placed on racial and ethnic diversity. In recent years, gender identity and sexual orientation have gained traction. Regrettably, disability often remains an overlooked and undervalued diversity factor beyond the scope of differentiated instruction and co-teaching strategies. While these practices are critically important to the success of learners with disabilities in the general education classroom, students with disabilities still report feeling marginalized and ostracized by their peers without disabilities. Moreover, those outside of the disability community never gain a full appreciation of the collective values, norms, capabilities, beliefs,

and customs shared by members of the disability culture. One of the ways to counteract this is to weave disability into curriculum and instruction. Unfortunately, materials that are culturally responsive to disability are lacking in both quantity and quality.

The low prevalence of blindness and visual impairment in society naturally leads to under-representation and/or misrepresentation in the curriculum. As such, most sighted students only learn about the extraordinary accomplishments of historical figures such as Helen Keller, Louis Braille, Stevie Wonder, and Erik Weihenmayer who are treated as savants. As such, sighted children are not incidentally exposed to the ordinary and multi-faceted experience of living with a visual impairment. The reason this is so important is because this incidental exposure fosters empathy that can ultimately lead to the acceptance and inclusion of people who are blind and visually impaired. While celebrating gifted individuals with visual impairments is important, disability needs to be infused throughout the curriculum in nuanced ways beyond holidays. Hence, this article describes a rubric that can be used to critically analyze fictional children's books featuring characters with visual impairments.

Truly "[i]nclusive books are not stories about disability; nor are they tools to teach others about specific impairments. Rather, they are books with interesting and engaging plot lines and illustrations which happen to include a character that

has a disability" (Beck, 2004). Thus, books featuring characters with visual impairments are not automatically inclusive because when used by those with little understanding of blindness, tokenism can occur. Tokenism perpetuates misconceptions, unrealistic expectations, social isolation, assimilation, and a singular narrative (Kanter, 1977; Tschida et al., 2014). So as to avoid this pitfall, the rubric developed by the authors critically analyzes the following inclusivity attributes: traits of the character with a visual impairment, the quality of relationships between the main and supporting characters, blindness attitudes, and story attributes.

The Rubric

The rubric contains 35 forced-choice dichotomous questions pertaining to the aforementioned inclusivity factors. The rubric then contains 23 common blindness stereotypes, myths, and misconceptions. Furthermore, the rubric contains the seven types of relationships and the psychosocial adjustment stages both of which have been outlined by Tuttle and Tuttle (2004). Finally, the rubric contains four open-ended discussion questions about the book's strengths, liabilities, suggested enhancements, and intended audience caveats. The rubric can be used individually or with groups.

When scoring the 35 forced-choice questions the attribute that gets the most votes is recorded. If the first attribute (which is viewed as a negative attribute) is

selected, the vote tally is preceded by a minus sign, and if the last attribute (which is viewed as a positive attribute) is selected, the vote tally is preceded by a plus sign. Each tally is then divided by the total number of votes to get an average score. Average item scores are then summed and averaged to get an overall score for each inclusivity factor. Inclusivity factor sections scores can then be averaged to determine an overall rating for the entire book. Scores that rank 0 are considered neutral. Scores that range from .01 to .5 are considered good, and scores that range from .51 to 1 are considered excellent. On the other hand, scores that range from -.01 to -.5 are considered questionable, and scores that range from -.51 to -1 are considered poor.

To score the other sections, votes are tallied for stereotypes depicted, the most predominant type of relationship, and the highest adjustment level achieved by the leading character with a visual impairment. Votes are then averaged. Stereotypes are not scored as positive or negative. Instead, a score of zero means the stereotype was non-existent while a score of one means the stereotype was strong. In terms of relationships, the "It", the "Blind", the "Superblind", and the "Needy Blind" are devaluing while the "Capable Blind", the "Person who is Blind", and the "Friend who Happens to be Blind" are valuing (Tuttle & Tuttle, 2004). Thus, the average tallies for these are weighted from one to seven points with the least valuing relationship (the "It") receiving a weight of one and the most

valuing relationship (the "Friend") receiving a weight of seven. Thus, the closer the score is to seven, the more positive the relationship. A similar weighted scoring method was used for the adjustment stages. Since the stages (Trauma, Shock and Denial, Mourning and Withdrawal, Succumbing and Depression, Re-Assessment and Re-Affirmation, Coping and Mobilization, and Self-Acceptance and Self-Esteem) progress from most reactive to most proactive (Tuttle & Tuttle, 2004), their average tallies are weighted respectively from one to seven with Trauma weighted by one and Self-Acceptance and Self-Esteem weighted by seven. Once again, the closer the score is to seven, the better the psychosocial adjustment of the predominant character with a visual impairment is.

Critical Analysis and Recommendations

To date, the authors have collectively reviewed 34 picture books featuring fictional characters with visual impairments published between 1971 to 2021. Three books were published in the 1970s, five in the 1980s, eight in the 1990s, eight in the 2000s, seven in the 2010s, and three in the 2020s. Books with the overall lowest score were published in the 1970s while books with the highest overall score were published in the 2010s. Four of the books were written by authors with visual impairments, and an additional four books were written by professionals in the field of blindness and visual impairment. Thus, the majority of books were written by authors with limited knowledge about vision loss.

Character Traits

The main character with a visual impairment was rated as being portrayed as either incapable/capable, dependent/independent, inferior-superior/equal, a non-user/user of specialized tools and techniques, and one-dimensional/multi-dimensional. Blindness as a dominant/subliminal characteristic was also rated. The overall score for this inclusivity factor was .23, which puts it in good standing. Of particular strength were the tendency for characters to be portrayed as capable, independent, and equal. The overall weighted average for adjustment phase is 5.98, which correlates to the Re-Assessment and Re-Affirmation stage. Of concern, were the tendency for blindness to be the dominant trait and for the character to be one-dimensional. In fact, 91% of the main characters were functionally blind, and only 3% had additional disabilities. One book featured supporting characters with additional exceptionalities. While Milian and Erin (2001) emphasize multiple dimensions of identity that include age, disability, ethnicity, gender, religion, sexual orientation, and socio-economic status. Most of the books focused exclusively on disability. In regard to the main character with a visual impairment, four stories had an elderly character; eight had a person of color, 18 featured a female (and none featured a non-binary character); 2 specified religion (Buddhism and Judaism); none overtly discussed sexual orientation, but heterosexuality was implied for two characters; and lower socio-economic status was implied in at least

one book. While most of the characters were children who were not of working age, only five working-age characters had some type of "job," which may or may not have been paid.

In essence, blindness was often the only dimension of identity represented. Recommendations for authors involving development of the character with a visual impairment are as follows: 1) give them an active voice; 2) give them a variety of social interests and hobbies; 3) while they can have character flaws, they should also demonstrate ability, confidence, competence, and appropriate interdependence; 4) show them using a variety of specialized tools and techniques; 5) emphasize other dimensions of identity in addition to the visual disability, and 6) represent the full spectrum of abilities—including those with low vision and those with additional disabilities. The books that scored highest in this inclusivity factor were *Diamond on the Mound*, *Mandy Sue Day*, and *My Three Best Friends and Me, Zulay*.

Quality of Relationships

The following relationship attributes were evaluated: whether they were circumstantial/chosen, included peers with/without disabilities, were caregiving/reciprocal, included age-inappropriate/age-appropriate activities, and promoted a one of them/us mentality. The overall score for this inclusivity factor was .32, which puts it in good standing. Of particular strength was the formation of

relationships with peers without disabilities and engaging in age-appropriate activities. In fact, 85% of the books exclusively involved relationships with sighted peers. Of particular concern was the tendency for relationships to be circumstantial (usually familial) rather than friendships based on mutual interests. The overall weighted average for relationship type is 4.72, which corresponds to the "Needy Blind" relationship. Furthermore, only 50% of the books involved same-age relationships. Of the 15 stories that focused on family relationships, these relationships were primarily with the parent(s) or grandparent(s) rather than siblings. Another four stories depicted neighbor relationships, in which there usually was a significant age gap. In addition, many of the children-to-children interactions were as classmates who struggled to truly accept the character with a visual impairment as they were more concerned about helping them. Moreover, there were two books that focused on human-animal friendships, and one book that involved imaginary friends.

Based on this analysis, recommendations for authors regarding the development of quality relationships are as follows: 1) avoid the need for the character with a visual impairment to have to win acceptance; 2) base friendships on mutual interests and reciprocity; 3) model strong, appropriately interdependent support networks in which all individuals receive and provide different types of supports to one another; 4) portray the character with a visual impairment as equal,

neither inferior or superior, to others; 5) depict an active social network that involves reciprocal relationships with a variety of individuals, including family members, friends, peers, and community members; and 6) have the character with a visual impairment be actively involved in all activities in the story. The books that scored highest in this inclusivity factor were *My Three Best Friends and Me, Zulay*, *White Cane Day*, and *My Friend Jodi is Blind*.

Blindness Attitudes

Attitudes specific to blindness and visual impairment were evaluated as follows: blindness as a major/minor theme, use of disrespectful/respectful language, intended purpose is for blindness awareness/entertainment, inaccurate/accurate depiction of blindness, stereotypical/individualistic portrayal, blindness as a stigma/characteristic, conveyance of a negative/positive image of the blind, feelings of sympathy/empathy, and whether sighted characters exhibited patronizing/accepting attitudes. The overall score for this inclusivity factor was .28, which puts it in good standing. Of particular strength was the tendency to use respectful language, promote acceptance, and evoke empathy. Of particular concern was the tendency to inadvertently reinforce stereotypes. Given the fact that these stories are short, it is difficult to convey a nuanced understanding, and therefore, stereotyping is not believed to be intentional. On average, each story reinforced 3.83 stereotypes. Given the fact that most characters with visual

impairment were presented as functionally blind, stereotypes related to the white

cane (which occurred in 41.18% of books), seeing blackness (which occurred in

41.18% of books), braille (which occurred in 35.29% of books), and dog guides

(which occurred in 35.29% of books) were reinforced. However, the stereotypes

that were most reinforced related to exceptional senses (which occurred in 52.94%

of books) and pity (which occurred in 44.12% of the books). Blindness as

punishment and blindness being contagious were not stereotypes reinforced in any

of the stories read to date.

In order to avoid perpetuating stereotypes, visual impairment needs to be

portrayed as a spectrum. Only three books featured characters with usable vision,

and one of the books portrayed a character losing her vision. Given the high

prevalence of additional disabilities, characters with visual impairments who also

have other exceptionalities need to be portrayed as well. In one book, the main

character was deafblind, and in another book, the supporting characters were

deafblind. Characters with visual impairments also need to be depicted engaging in

a variety of hobbies besides music. In addition, it is important for authors to show

the main character using a variety of adaptive tools and techniques and to show

more adults with visual impairments who are competitively employed in a variety

of different careers. Due to the simplicity of picture books, it is important to

include explanative front matter or back matter that includes credible resources for

more information. Since these books are often used by educators with little to no understanding of blindness, it would be beneficial to include discussion questions with an answer key to deepen the reader's understanding of the joys and challenges of living with impaired vision. The books that scored highest in this inclusivity factor were *Mandy Sue Day*, *Lucy's Picture*, *Through Grandpa's Eyes*, and *Keep Your Ear on the Ball*.

Story Attributes

Hallmarks of good children's literature related to plot, theme (moral of the story), character development, point of view, resolution, illustrations, language, appeal, relatability, and re-readability were evaluated. In addition, whether the story was boring/compelling, whether it reflected multiculturalism, and whether it should be used by blindness experts only/anyone was also rated. The overall average for this inclusivity factor was .29, which puts it in good standing. Of particular strength was the tendency to use captivating illustrations, elicit hope and joy, make the characters relatable, and use rich language. Of particular concern was the tendency toward weak character development and the story's re-readability. While authors have many different purposes, most of these books fell in the descriptive writing and expository writing categories. Many books described sensory experiences (descriptive) and listed facts (expository) rather than having a well-developed plot with a conflict (outside of blindness itself) to be resolved.

Moreover, there were seven stories in which the character with a visual impairment had a passive voice, and there were two stories in which the character who is blind had no voice at all. For 29.41% of the books, it was the group's recommendation that they only be used by blindness experts.

Since a truly inclusive book is not about disability (Beck, 2004), it is recommended that the story be written in a way that it is not dependent on visual impairment. In this analysis, there were two books where the reader did not even realize that the main character was blind until the end of the story. Along these lines, there needs to be a legitimate problem that is universally relatable, and there needs to be enough action to keep the young reader engaged. Finally, settings need to be inclusive, and the character with a visual impairment needs to be an active participant. Likewise, both the main characters and the supporting characters need to reflect the diversity found in society. (Unfortunately, 64.71% of the books reviewed had a unicultural focus rather than a multicultural focus.) Finally, it tends to be problematic when blindness and visual impairment is used as a metaphor as young readers do not understand exaggerations that tend to be made to emphasize an abstract moral. The highest ranked books in this inclusivity factor were *My Three Best Friends and Me, Zulay*, *Lucy's Picture*, and *Keep Your Ear on the Ball*.

Final Thoughts

Edmund Wilson reminds us that "[n]o two persons ever read the same book." Prior knowledge and experience has a considerable impact on the message each reader receives. Given the fact that visual impairment is a low-incidence disability, readers are unlikely to have the experience necessary to identify blindness myths and misconceptions presented in children's literature. Likewise, the personal experiences of each of the evaluators influenced our individual ratings. We are a group of five, middle-aged, female educators. One of us is also an author and tactile illustrator of children's books. Three of us are teachers of students with visual impairments, and two of us are also certified orientation and mobility specialists. One of the other educators specialize in inclusion and transition while the other teaches art to individuals with visual impairments. Two of us teach prospective teachers at the collegiate level, and one is a doctoral student. Three of us are Caucasian, one is Asian, and one is Hispanic/Latina. Two of us also have visual impairments—one is functionally blind while the other has usable vision. Thus, our ratings are likely to be quite different than the average person with sight.

According to Wanda K. Le Gain, "We read books to find out who we are, what other people (real or imaginary), do and think and feel… [Books are] an essential guide to our understanding of what we ourselves are and may become."

As such, individuals with visual impairments deserve to see themselves represented accurately in media portrayals and to have aspirational role models who do not have to go to extraordinary feats to be accepted for who they are. Quality books featuring fictional characters with visual impairments are essential for an inclusive society because they also teach sighted people how to treat and interact with those who live with impaired vision. Sighted readers need to walk away with an understanding that people with visual impairments can do the same things they do in a different way. Sighted readers should not be left with the impression that people with visual impairments need help, charity, or pity. When writing about marginalized groups, authors of children's books need to take extra care not to perpetuate stereotypes, myths, misconceptions, and inequities (Adukia, et al., 2021). When writing about individuals with disabilities, extra care needs to be taken to avoid emphasizing inabilities and limitations (Blaska, 2004; Kingsbury, 2021; Pinto, 2021)

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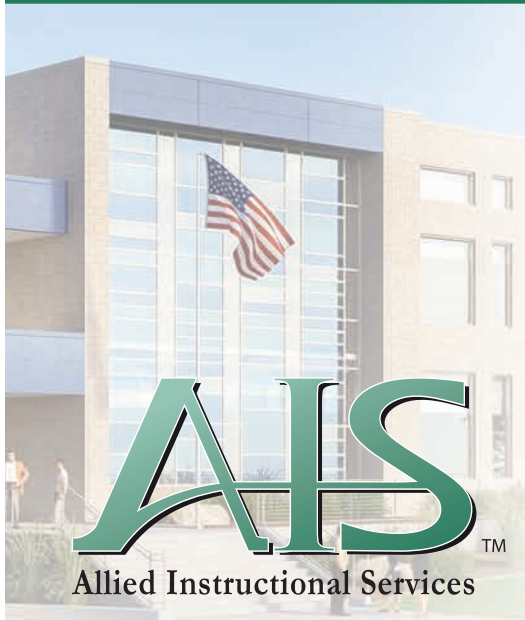
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Assistive Technology: Training for a Lifetime of Teaching

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Abstract

Assistive technology (AT) allows students with visual impairments to access fundamental functional life skill and educational information and materials available to others with typical visual functioning who access this information and materials through multi-sensory pathways. However, the depth, complexity, and variety of AT available for individuals who are visually impaired can present challenges for pre-service and practicing teachers of students with visual impairment alike. This article offers an overview of AT created and developed to be used with individuals with visual impairments paired with concrete training priorities and strategies for both pre-service teachers and current professionals in the field of visual impairment.

Keywords: assistive technology, AT, visual impairment, blind, teachers of students with visual impairment, orientation and mobility, teaching assistive technology/AT

As a fundamental component of the Expanded Core Curriculum (ECC) for Students who are Blind or Visually Impaired, assistive technology (AT) represents a top priority for students with visual impairments (Sapp & Hatlen, 2010). Despite its importance, this subject remains an area of difficulty and challenge for practitioners. Because there are so many types of AT available for use with students with visual impairment, and because these AT can be complicated and challenging to learn and to teach, many teachers of students with visual impairment (TSVIs) find themselves at a loss when attempting to teach AT to their students with visual impairments. Many TSVIs may not feel prepared to teach assistive technology or know where to find answers to the questions about AT they encounter along the way. Current research shows that TSVIs do not rate themselves as prepared or proficient at teaching AT (Zhou et al., 2012). Both veteran and newly-trained TSVIs continue to struggle with evaluation, adaptation, lesson planning, implementation, and consistent reflection and review of student in the area of AT (Mulloy et al., 2014). The aim of this article is to illuminate the landscape of assistive technology for people with visual impairments and the many paths forward available for TSVIs navigating that landscape.

Finding Your Way

While the educational journey of each student with visual impairment is unique, there is a proverbial map of the landscape of visual impairment education

that can guide TSVIs and students alike on that journey. AT for individuals with visual impairment is one critical element on the map of the landscape of visual impairment education. Through a series of focus groups, Smith et. al (2008) outlined a list of 111 assistive technology competencies for TSVIs across the following categories:

- Foundations of AT
- Disability-Related AT
- Use of AT
- AT Instructional Strategies
- Learning Environments
- Access to Information
- Instructional Planning
- Assessment
- Professional Development
- Collaboration

The expansive list of specific competencies organized into these categories offers a full picture of the broad network of possibilities for evaluation, programming, and implementation of AT for students with visual impairment. As McNear & Farrenkopf (2014) noted, there is no singular way through the AT part of the visual impairment education landscape traversed by all students; factors such as prior skills, needs, age, complexity, and goals all play a role in determining each student's individualized route. TSVIs can consider themselves as *tour guides*, accompanying their students along their individual pathways across this vast landscape.

Know Where You Are

Part of guiding students along their paths involves orientation. The TSVI's first priority in orientation is finding the beginning of the path, which means identifying the AT that best fits the strengths and needs of each student on their caseload. The TSVI orients the student to that AT, providing explicit explanations and instruction, modeling, constructive feedback on the use of the AT, and reinforcement of successful application of the AT in the student's daily life and educational journey. Each student's journey will have twists, turns, and its own seasons along the way. As the journey commences, the TSVI serves as a guide who reminds the student how to remain oriented and on the path. As with any other type of navigation, TSVIs must periodically re-orient themselves and their students, making course corrections as needed. This can include learning new skills on the AT device used by the student, switching methods and strategies on the student's current AT, or changing AT to fit the student's needs and strengths that were discovered during the re-orientation process along the journey. Facing the myriad of possibilities may seem overwhelming at times, much like planning a trip to somewhere new. It can help to remember that even as TSVIs balance short-term and long-term goals, students do not need to be everywhere at once. Journeys take time.

Know Where You Are Going

Identifying short-term and long-term priorities in regard to AT with each student on the TSVI's current caseload can allow for successful navigation along the path. McLinden et al. (2016) named two distinct areas of focus for TSVIs. In "learning to access," students in their younger years are learning how to use assistive technology and may require additional adaptation of content. With "accessing to learn," older students have mastered the AT skills necessary to independently access and produce content. The authors note an ongoing tension between these immediate needs and long-term needs; TSVIs may postpone this second form of access to focus on the tasks that take precedence in the present. While keeping in mind the dual concepts of "learning to access" vs. "accessing to learn," it is important to identify both short-term, present needs and long-term, future needs through ongoing assessment. Siu and Presley (2020) offer a comprehensive assessment tool for examining both areas of needs that offers expert guidance to support even the newest and least experienced AT travelers.

Overcome Obstacles Along the Path

In working with AT for students with visual impairments, veteran TSVIs and new TSVIs alike may face obstacles along their paths. Technologies for this population are complex and wide-ranging. Given the rapid pace of change in both mainstream and proprietary technology, it can feel impossible to keep up.

Additional issues include the high cost of assistive technology and funding constraints faced by schools, organizations, and families. Today, it has become impossible to 'know it all,' which can leave TSVIs with a sense of insecurity about their ability to meet student needs (Zhou et al., 2012). Fortunately, it is possible to clear some of these obstacles from students' paths. A lack of training & self-rated readiness for TSVIs can be improved by options such as college level coursework, professional development, and communities of practice (Smith, 2009; Siu, 2015). In addition, the strategies that follow can assist even the weariest travelers along the way.

Travel Efficiently

A variety of navigation strategies can help TSVIs as they guide their students through the discovery and trialing of various assistive technologies. These strategies include knowing the role of the TSVI in regard to presenting and teaching AT to students with visual impairment, implementing best practices of working efficiently with the AT, and adopting an "AT Mindset" while encouraging their students with visual impairment to do the same. A TSVI may imagine that their role involves becoming an expert in each and every possible piece of AT in the entire landscape. This thought can be overwhelming and self-defeating. Reframing their understanding of their roles can allow them to focus clearly. According to Siu & Wall Emerson (2017), a TSVI should empower students'

access to information, while providing an unbiased introduction to available technology options. In addition, TSVIs help their students develop appropriate workflows by selecting tools for various purposes based on efficiency in completing desired tasks. Focusing on the specific caseload needs serves to narrow the broad scope of AT knowledge to a more manageable scope.

A second step along the way is learning how to work smarter, not harder. There is no way to know it all! A TSVI's job is to focus only on the AT needs of their current caseload each year. It is okay, and even advisable, to let the rest go. At the beginning of each year, TSVIs can create a table documenting their students' current and future AT needs (Table 1) to determine a clear roadmap. One these priorities are established, 'working smarter' involves identifying sources of support. For example, vendors often offer assistance in the form of technical support and free training. AT is expensive, and this is a valuable side benefit that should not be overlooked. In addition to calling technical support, TSVIs can train their students to call technical support and practice using the language needed to advocate for themselves. TSVIs can also maintain connections to one another through communities of practice (Siu, 2015). These communities of practice allow individual practitioners to share knowledge rather than feeling responsible for knowing everything on their own.

A final step toward a successful journey is to adopt an "AT Mindset." Dweck (2008) describes the differences between learning with a fixed mindset and a growth mindset. A fixed mindset focuses on avoiding mistakes, while a growth mindset embraces challenges as opportunities. Using a similar "AT Mindset" can shape how TSVIs approach assistive technology and how they share it with their students. TSVIs can choose to model positive attitudes toward technology by facing challenges with a growth mindset. They can learn to play, explore, and experiment with assistive technology, rather than remaining intimidated. While doing so, TSVIs can aim to maintain a general breadth of knowledge, understand available options, and have the vocabulary to discuss features (Siu & Wall-Emerson, 2017). By taking these steps, TSVIs can empower themselves and their students to embrace AT in all its ever-changing complexity.

Enjoy the Journey

TSVIs may always face periodic concerns as they guide their students with assistive technology, with all the potential twists and turns. When inevitable bumps in the road arise, remembering that there is more than one route on the map can be of reassurance. TSVIs do not have to 'know it all' about assistive technology. Each year, they can strategically identify key priorities and focus on building expertise in those specific areas. They can leverage resources and community support as they accompany their students along their journeys. With this outlook in place,

TSVIs may find that even in the midst of complexity and many unknowns, it is still possible to enjoy the ride!

Table 1

Caseload Priority Chart Example

Student	Current Devices	IEP Goals	Accommodations	Future Thoughts
1	Personal iPhone, handheld video magnifier, 4x telescope, handheld magnifier	No AT related goals or objectives	Large print paper copies, use of handheld magnifier	Needs to transition to electronic workflow before college (transition issue). Consider this during annual expanded core curriculum (ECC) assessment—
2	Big Red switch, switch-adapted toys	Communication goals—using picture exchange system	None related to AT	Maybe there is an alternative augmentative communication (AAC) device that could combine pictures with auditory input**?**
3	Mountbatten braille whisperer	Writing name in braille, finger isolation	Electronic braille writer with easy to press buttons and auditory feedback	Talk to occupational therapist about finger isolation.

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Using the WATI Process to Evaluate AT for Students with Vision Loss

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Students who are blind or visually impaired usually require assistive technology (AT) to access the general education classroom and curriculum. Frequently, the individualized education program (IEP) team lacks adequate training to utilize a framework or process to effectively make decisions about AT.

A plan for using the Wisconsin Assistive Technology Initiative (WATI) framework as a guide to making evidence-based AT decisions is one way to approach identifying appropriate AT for students. Applying the WATI process allows systematic evaluation and provides data to accurately select AT for students

with disabilities including those who are blind or visually impaired. Using a respected, evidence-based process to make decisions about AT for students who are blind or visually impaired provides a more standardized approach to AT, including meeting unique needs within the diverse range of blindness and vision impairment.

The WATI process originated in 1993 in Wisconsin at the request of school districts who needed assistance in complying with the AT requirements of the Individuals with Disabilities Education Act (IDEA) through an "…evaluation of the student's need for assistive technology in their customary environment" (Gierach, 2009, p. 12). The WATI process is used world-wide for determining the need for AT among students with disabilities, including those who are blind or visually impaired, and is a comprehensive process of assessment for providing AT to students who need it. Although this article discusses the WATI process for students who are blind or visually impaired, WATI may be used for any student with a disability. The goal is to introduce the WATI process as a systematic method to collect, provide, and evaluate evidence-based data to accurately select AT, so IEP teams and other professionals make better AT decisions for students with disabilities including those who are blind or visually impaired.

Why use the WATI Process? The WATI Process is a concrete source of evidence-based data that supports the development of the IEP, and supports student

learning. The WATI Process provides the school team with a thorough review and investigation of the student and technology needs, a review of AT currently used, and an investigation of other AT that may be beneficial to the student.

IDEA requires AT consideration for every student as part of the special factors section of the IEP. Many times, it is clear at IEP meetings that teams are underprepared for and uninformed of systematic approaches to identifying appropriate AT for students (Gierach, 2009). While IDEA requires AT consideration and listing in the IEP, there are no specific guidelines as to how teams should go about effectively identifying, considering, assessing, selecting, and implementing appropriate AT for students (Gierach, 2009).

This information is important to practitioners who serve on an IEP team for students who are blind or visually impaired. It suggests a use for the WATI process that is not always considered by teachers and others working with these students. In many cases, one or two members of the IEP team may have personal experience using a specific AT device or practice but are lacking in knowledge and training of the broad range of AT available for students, so they tend to recommend the same AT for most students and often do not consider other devices, tools, or practices.

In a study of AT for students with vision loss in Singapore, teachers reported they "did not have a defined process to guide their decisions" (Wong, 2019, p. 432), so it is a problem that extends beyond the United States. Wong (2019) also

stated "AT tools and frameworks were absent in their decision-making, rather, informal consultation amongst teachers was the general mode of operation. This resulted in inadequate systematic assessments, lack of documentation and decisions based on subjective opinions" (p. 432), which is the experience of many IEP team members in the United States. To remedy this situation, the authors studied and used the WATI process during a graduate class about AT for students who are blind or visually impaired.

The author surveyed a small number of practicing teachers who are graduate students seeking licensure in blindness and visual impairment and found that none of them had used the WATI process to make decisions about student AT, and only two had heard of the acronym WATI but did not know what it was. These results mirror the results Wong (2019) found in Singapore.

One might assume that student learning is affected because their needs are not being met. Rarely is a trial period considered to gather data and make revisions prior to a more permanent plan in the IEP; therefore, making AT abandonment by students and teachers more likely (Bouck 2019). The WATI process seeks to help mitigate this problem.

The WATI Process as Part of Comprehensive Data for Students with Vision Loss

- Vision Data Sources:

  - Functional Vision Assessment

  - Clinical Low Vision Evaluation

  - Ocular Report

- Supporting Data Sources:

  - WATI assessment process for AT

  - Classroom observations

  - Classroom and district assessment data

  - IEP and IEP evaluations

  - Student, teacher, family interviews

- Data Uses:

  - Determine Student Needs

    - Vision
    - AT
    - Academic
    - Social/Emotional
    - Future curriculum

  - Placement

  - Learning Media Assessment and Considerations

  - Progress monitoring

  - IEP progress and review

       • Writing a new IEP

Benefits of Using the WATI Process for Education Teams and Students

       • Data-driven systematic approach.

       • Satisfies the AT consideration mandate of IDEA.

       • Encourages a collaborative approach from all stakeholders.

       • Prioritizes individualization.

       • Facilitates Person-Centered Planning.

       • Promotes student self-determination and self-advocacy in the assessment, selection, and trial use of AT.

Select guides excerpted from the full WATI process are offered as a means to direct "decision-making teams to consider an individual student's abilities and difficulties within their environments and their tasks" (Bouck, 2017, p. 32). There are more than twelve guides to the full WATI process, so the process was reduced to the following six guides, so during WATI introduction teachers were not overwhelmed or viewed the process as too complex to learn and use:

       • Consideration Guide

       • Student Information Guide

       • Environmental Observation Guide

       • Decision-Making Guide

       • Trial Use Guide

• Implementation Plan and Analysis.

The WATI AT Consideration Guide (2 pages) looks at the task the student is being asked to complete. It records the current AT used and has a column for new AT that could be considered for the student that would make the task more efficient and lead to more independence. http://www.wati.org/free-publications/assistive-technology-consideration-to-assessment/

The WATI student information guide has 28 pages divided into 12 sections. Teams do not need to fill out each page on the student. They would select the sections that apply to the student and complete only those forms.

http://www.wati.org/free-publications/assistive-technology-consideration-to-assessment/page/2/

The WATI environmental classroom observation guide (1 page) helps the observer view the target student, the general class, the task the target student is being asked to complete, and has the observer consider ways the task could be adapted. https://atinternetmodules.org/storage/ocali-ims-sites/ocali-ims-atim/documents/WATI_Envir_Observation_Guide5.pdf

The WATI AT decision making guide (1 page) is not meant to be filled out, but is used to help teams consider the student and their AT use in different environments. http://www.wati.org/free-publications/assistive-technology-consideration-to-assessment/

The WATI AT trial use guide form (2 pages) is used to help record the AT trial by the student, who is responsible for the AT, and how the AT is used with the student. http://www.wati.org/free-publications/assistive-technology-consideration-to-assessment/page/2/

The WATI implementation plan and analysis (1 page) helps teams stay accountable to making sure that the AT is used by the student. The implementation plan and analysis form that the authors recommend is adapted from the Montgomery County Public Schools, HIAT AT Resources. (The link provides a similar form to what was used in this project.)

https://www.montgomeryschoolsmd.org/departments/hiat-tech/assistive-technology/at-implementation.aspx

After completing the WATI process, teams may use the collected data to make AT decisions to meet the needs of the student. It is recommended that a trial period be implemented using the WATI trial forms to document and evaluate the effectiveness of a new AT. Below are some possible AT options for students who are blind or visually impaired that are often identified by teams through the WATI process.

Figure 1

The adapted Implementation Plan and Analysis Form

WATI Assistive Technology Implementation Plan and Analysis

Student:		Implementation Date:	
School:		Grade:	
Case Manager:		Teacher:	

AT Device or Tool #1	
When is it Needed?	
How is it accessed?	
Who is responsible?	

AT Device or Tool #2	
When is it Needed?	
How is it accessed?	
Who is responsible?	

AT Device or Tool #3	
When is it Needed?	
How is it accessed?	
Who is responsible?	

Student's Perception of the Technology

Plan Revisions-Consider using the SETT form to reevaluate needs.	List Revisions Below.
When moving to a new classroom. Consider changes in tasks and environment. Will new subjects or expectations necessitate a need for new supports?	
When moving to a new school. Ensure that the IEP clearly indicates what is needed, so the new school is able to procure necessary devices.	
When AT needs change. If the student is no longer using the identified AT, be sure to reconsider needs and update the IEP.	

Implementation Review Date:		**Procedural Checks:** ☐ Training provided as needed to responsible faculty, staff members, and others. ☐ Implementation Plan placed in student's file and IEP. ☐ AT devices, services, etc. appropriately documented in the IEP.

Adapted from: www.montgomeryschoolsmd.org/departments/hiat → Mont. Co.10/2015, Adapted CUW 5/2021

Note. WATI- Assistive Technology Implementation Plan and Analysis form.

Possible AT Options for Students who are Blind or Visually Impaired.

• Refreshable Braille Devices

• Braille Notetakers

• Screen Readers

• Magnifiers (handheld, electronic,

video)

• OCR Devices

• Talking or Large Print Calculators

• Audio or digital books

• Adaptive Paper & Writing

Implements

• CCTV

• Labeling System

• Abacus

• Braillewriters and Embossers

• Measurement & Lab Tools

• Tactile Graphics & Supplies

• Models & 3-D Representations

• Large Print Materials

• Apps for Color & Money

Identification

• Tactile Manipulatives

• Voice Typing or Speech to Text

• Specialized Typing Software

• Screen Mirroring Software

• Orientation & Mobility Tool

Many teachers who serve students who are blind or visually impaired are itinerant teachers who travel to several schools or school districts to provide services. The following are a few tips from practicing teachers for using the WATI process when collaborating with others, especially as an itinerant teacher for students who are blind or visually impaired.

- Schedule meetings when the itinerant teacher is in the building (plan ahead).
- Conduct virtual meetings (Zoom, Google Meet, GoToMeeting, etc.).
- Use phone calls and/or email to communicate.
- Collaborate via Google Docs or Folders for shared communication, problem solving, planning, academic material, etc.
- Put WATI forms into Google Docs or Forms to allow for professional collaboration, data collection, and progress monitoring by more than one team member in multiple environments.

There are many more WATI forms that may be used in the WATI process depending on the amount of information and data the IEP team needs to gather. The forms may be found in the Publications tab on the WATI home page.

WATI Resources

- **WATI Home Page**
  - www.wati.org
- **Free downloads:**
  - **WATI Guides and Forms**
    - http://www.wati.org/free-publications/assistive-technology-consideration-to-assessment/
  - **WATI-A Resource Guide for Teachers & Administrators About AT**
    - http://www.wati.org/wp-content/uploads/2017/10/ATResourceGuideDec08.pdf
  - **The WATI Assessment Package**
    - http://www.wati.org/wp-content/uploads/2017/10/WATI-Assessment.pdf
  - **Implementation Guide and Plan Montgomery County Public Schools (MD), High Incidence Accessible Technology (HIAT)**
    - https://www.montgomeryschoolsmd.org/departments/hiat-tech/assistive-technology/atimplementation.aspx
- **Gathering Information About Environments and Tasks**
  - http://www.wati.org/free-publications/wati-student-information-guide-process-forms/page/2/
- **Trial Use Guide Form**
  - http://www.wati.org/free-publications/assistive-technology-consideration-to-assessment/page/2/
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  - http://www.wati.org/free-publications/assessing-students-needs-for-assistive-technology/
- **Chapter 12: AT for Blind/Low Vision**
  - http://www.wati.org/free-publications/assessing-students-needs-for-assistive-technology/page/2/

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Lessons Learned from a National Survey on Writing Instruction for Students with Visual Impairment

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The writing needs of students with visual impairment (VI) are often expected to be different from their classmates without VI. There may be differences in how students with VI plan or draft their writing, and some teachers of students with visual impairments (TSVIs) indicated that students with multiple disabilities are non-writers (Savaiano & Hebert, 2019).

In a recent study, only 50% of surveyed TSVIs in Nebraska reported receiving adequate training to teach writing. However, 100% of the teachers agreed that all writing purposes are appropriate for students with VI (i.e., for fun, for daily living, to show knowledge; Hebert & Savaiano, 2021). One limitation of this study is the small sample size ($n = 24$). Additionally, the focus of the study was limited to one state, Nebraska, with a small population.

The purpose of this study was to build on the Nebraska study by conducting a national survey of TSVIs. The survey included questions about teacher preparation, beliefs about their role in supporting writing, the modes they report using with students, and the proportion of writing practices they use with different groups of students.

Method

We first had to estimate the number of TSVIs in the nation to be able to estimate our response rate. See Savaiano et al. (in press) for our procedures. We communicated with a contact in every state (two states were not able to

participate). After collecting the information from each state, we estimated the number of TSVIs in the United States to be between 4,705 and 5,015.

Survey Instrument

The survey included 100 questions covering 1) TSVI caseload, 2) general adaptations and accommodations for writing, 3) preparation to teach writing, 4) preparation to teach students with VI, 5) beliefs/expectations about the writing of students with VI, 6) collaboration with general education teachers. We planned for the survey to take 15-20 minutes to complete.

Results

We sent the survey to TSVIs in 48 of the 50 states using each state's preferred mode (i.e., listservs, individual TSVI emails, or Facebook groups). We received a total of 457 completed responses. TSVIs' caseloads ranged from 1 to 76, with an average of 17 students.

Research Question 1: Preparation to Teach Writing

When asked about their preparation during college, after college, and in professional development, teachers indicated minimal to adequate preparation using a scale of 1 to 4 (1-none, 2-minimal, 3-adequate, 4-extensive). The results are presented in Table 1. This finding is worth taking note, but not surprising because this is a trend across all teachers of writing.

Table 1

Preparation to Teach Writing

	None (1)	Minimal (2)	Adequate (3)	Extensive (4)
Formal training during college	12%	42%	37%	8%
Formal training after college (e.g., professional development)	18%	47%	30%	5%
Completed on their own	9%	32%	48%	11%

Note. $n = 457$

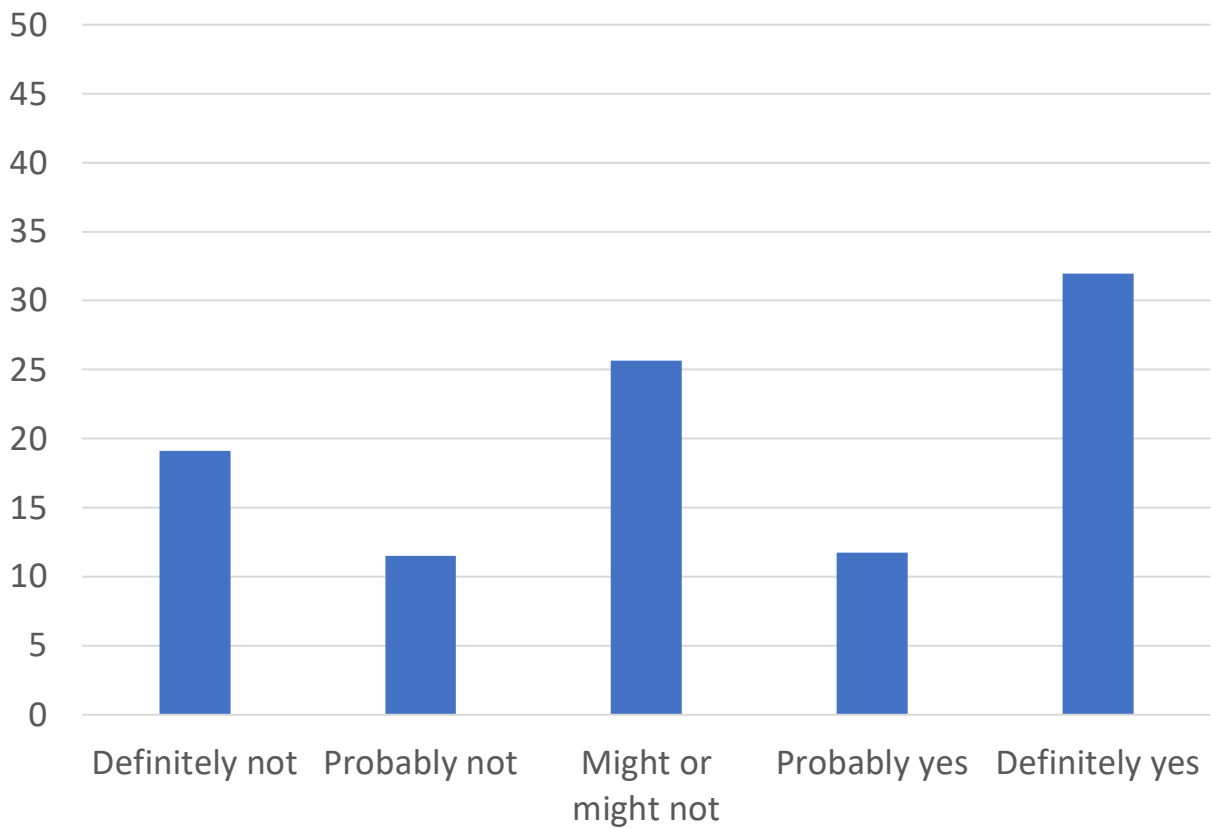## Research Question 2: TSVI's Beliefs about Writing Instruction

When asked about their beliefs about responsibility for teaching writing, teachers responded on a five-point scale (1-definitely not, 2-probably not, 3-might or might not, 4-probably yes, 5-definitely yes). Teachers were divided on whether teaching writing was their responsibility (e.g., 18% reported 'definitely not'; 32% reported 'definitely yes'). See Figure 1.

Research Question 3: Writing Modes and Practices Used

When asked about the writing activities used with their students, TSVIs identified writing activities in three different categories: Writing skills (e.g., keyboarding, spelling, sentence writing, braille instruction), functional writing

(e.g., how to answer questions, label, write lists), and higher-level writing (e.g.,

persuasive writing, summary writing).

Figure 1
Is writing instruction (other than instruction in Braille) part of your responsibilities as a TSVI?

Research Question 4: Do TSVI beliefs predict functional writing practices used?

We used logistic regression to predict teachers' functional writing practices by their beliefs about writing. Results suggested that teachers with higher self-efficacy included writing practices more often with all types of students (i.e., totally blind, low vision, deafblind, or multiple disabilities). In addition, if teachers who believed writing instruction was their responsibility who valued collaboration were both more likely to use more functional writing practices with all students except students who are deafblind. Years of teaching experience, beliefs about the value of teaching writing, and preparation to teach writing were not significant predictors of how many functional writing practices teachers used.

Conclusions

Whether or not writing instruction is the responsibility of the TSVI is an issue that needs to be further explored. If our goal is to improve writing instruction for students with VI, it appears that improving TSVI's self-efficacy for teaching writing may be beneficial. Although preparation was not predictive of functional writing activities, this may be because teachers had only moderate amount of preparation overall. Finally, we need to explore ways to increase the amount of writing for students with deafblindness or multiple disabilities. Results related to other writing practices will be shared in future manuscripts.

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