CIDDL Research and Practice Brief 14: Technology, Literacy, and Bilingualism in Special Education

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The CIDDL Center is striving to impact the use of educational technologies into preparation programs, including special education, early intervention, and related services personnel preparation and leadership personnel preparation programs that prepare professionals serving students with disabilities.

CIDDL Research and Practice Briefs

[CIDDL Research and Practice Briefs](#) is a series of reports on research and practices regarding the innovative use of technology in special education, early childhood, related services personnel preparation and leadership personnel preparation programs as well as K-12 educational settings. For each brief, an expert or practitioner in the field is invited to discuss their research and practices. In addition, experts and practitioners will share their insights into opportunities and challenges about applying their research and practices to professional preparation programs.

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Topic: Technology, Literacy, and Bilingualism in Special Education

The problem highlighted in this brief

Students with disabilities benefit from assistive technology (AT) tools as they have been shown to increase independence, self-worth, motivation, and productivity (Edyburn et al., 2005). Tools such as speech-to-text, text prediction, and screen readers can be used to impact literacy development in students with disabilities. However, limited research exists on how these tools impact students with disabilities from diverse backgrounds that already have foundational skills with technology (Jozwik & Mustian, 2020).

Why does this matter to teacher preparation?

In a recent study, Drs. Jozwik, Cuenca-Carlino, and Gardiner-Walsh (2020) surveyed pre- and in-service teachers' perceptions on their competence levels teaching emergent bilingual students and found that the majority of educators rated themselves as "beginning'' with regard to their ability to effectively meet their unique needs. This research points to a need to better prepare pre-service teachers for using effective strategies and tools to support students' literacy development in teacher preparation programs. In this brief, CIDDL invites Dr. Jozwik to discuss AT to support literacy development for bilingual students.

Guest Expert: Dr. Sara L. Jozwik

Dr. Sara Jozwik is an associate professor at the University of Wisconsin, Milwaukee. Her work centers on literacy and curriculum development, with research interests in bilingual education and

special education. She focuses on literacy development for emergent bilingual students with disabilities (SWDs) and preparing teachers with the necessary skills to meet the needs of SWDs from culturally and linguistically diverse backgrounds.

What Will You Learn from This Brief?

The brief first provides rationale for using AT and its potential impact for SWDs who are also English Language Learners (ELLs). As a researcher focusing on convergence of these topics, Dr. Jozwik discusses the ways in which she has explored the effectiveness of AT with her target population. Moreover, she makes recommendations for teacher preparation programs, future research, and tools that practitioners and higher education faculty can use with their students or teacher candidates.

Research and Practice Context

The Intersection of AT, Literacy, and Bilingualism

Previous research showed that many educators, including pre-service teachers, experienced challenges serving diverse learners, including SWDs who are ELLs (Rowan et al., 2021). Some challenges stemmed from insufficient preparation of educators for implementing evidence-based practices and identifying effective tools to address unique needs of diverse learners (Jozwik et al., 2020). Building upon their survey study, Jozwik and colleagues (2020) suggested the need for teacher preparation programs to decompartmentalize to better support educators in developing competencies for teaching SWDs from linguistically diverse backgrounds.

Preparing both special and general education teachers across disciplines for effective and innovative use of AT will likely increase opportunities for them to identify AT solutions to address learner needs when entering the profession (Park et al., 2021). This, in turn, will enhance access to support for SWDs who are also ELLs in developing literacy skills across contexts. The importance of print-rich environments in developing the literacy skills of all learners has been well-documented (e.g., Bennett et al., 2017; Love et al., 2007; Stone et al., 2017); however, research on the intersection of AT and literacy skills is still developing. As highlighted in a past CIDDL Research and Practice Brief with Dr. Dave Edyburn, limited research has assessed the effectiveness of AT, even though there is increased access to AT devices in the classroom (Klein, 2021). The potential for AT to support literacy development for SWD who are also ELLs, yet with limited research, points to the need to further investigate how to prepare educators for developing knowledge and skills at the intersection of implementing AT, developing literacy, and understanding bilingualism.

The following are key insights shared by Dr. Jozwik on this research. The interview focused on five questions about using various educational technologies, with a focus on AT, to promote literacy for SWDs from linguistically and culturally diverse backgrounds and how they can be leveraged in teacher preparation as well as recommendations for teacher educators to incorporate these ideas.

Key Insights

Q1: What issues are you trying to address through your work with literacy, writing, and technology?

Dr. Jozwik: " I want to perpetuate equitable outcomes for all students by focusing on the use of instructional practices that are effective, that reflect a commitment to the right to read, and that foster a love of literacy within and across languages."

Dr. Jozwik and colleagues used tools such as Google Read & Write (Jozwik et al., 2020; Jozwik & Mustian, 2020), interactive story maps (Jozwik & Mustian, 2020), and Dragon Naturally Speaking (Jozwik et al., 2020) as AT-supported interventions with SWD from linguistically diverse backgrounds. In addition, Dr. Jozwik and Rice (2020) investigated how authors of young adult literature portray children with disabilities and recommended ways to use educational technology to support all learners, such as using audiobooks to support those with print disabilities and using Flipgrid to support reading comprehension.

Q2: Can you walk us through how technology and literacy work together to support students with disabilities and share how you integrate technologies to support literacy development into your teacher preparation program?

Dr. Jozwik: "*What I think matters most here is the context in which the membership to a literate environment is supported by technology applications available to everyone in the room and, within this context, this literate environment, supported by technology, we can see change and development happen over time. It's kind of beautiful and powerful.*"

Dr. Jozwik shared how [ThingLink](#) was used to create interactive books. ThingLink allows users to add hotspots to pages to add narration in multiple languages and signs. Several other suggestions were made during the interview with regard to how to support

technology and literacy integration in teacher preparation programs. Examples of these included having ample opportunities for field work so that our pre-service teachers are constantly immersed in the technology. Student teachers use the technology themselves in courses, work with faculty to find funding for more K-12 students to access the technology, and in a stand-alone technology course.

Q3: How can we better prepare educators for using these technologies in the field? What else should teacher preparation programs consider moving forward?

> Dr. Jozwik: "So I think being very concerted about how we understand who our learners are, where they come to us, and then design a pathway where they can interact and build that competence over time. And I do hear often that when teacher candidates struggle, they say that they turn to their own K-12 learners who often are a couple steps ahead of them. So it's nice to have that, you know, cycle and connection in classrooms."

Dr. Jozwik suggested creating **an inventory of background experiences** so that faculty know the competencies with which pre-service teachers are entering their classrooms. Having this activity allows her and her colleagues to not make assumptions about what her adult learners do and do not know.

Q4: What implications do you see for future research, and what are some questions we might be asking?

> Dr. Jozwik: "I think the direction to go is like I've seen technology really do a lot to support literate environments and develop

work reading comprehension thinking to develop written expression, but to layer self-regulation supports on top of that and to ensure that students have the competencies and they have the agency to call like this is what I'm going to do today, this is what I can accomplish, this is what I need.."

Dr. Jozwik really honed in on the social/ emotional and executive functioning needs of students, especially the needs to enhance agency, problem-solving, and self-regulation. One specific example includes her research and practices in implementing Instructional practices within the Self-Regulated Strategy Development (SRSD). The SRSD model (Harris & Graham, 1996) is evidenced-based practice for developing writing skills for SWD (Self-Regulated Strategy Development, n.d.). Dr. Jozwik and colleagues have explored the effectiveness of SRSD practices for SWDs who are bilingual (Cuenca-Carlino et al., 2018; Jozwik & Cuenca-Carlino, 2020; Jozwik et al., 2020). They combine the SRSD strategies with AT, such as Google Read and Write, to research if a functional relationship exists between technology and literacy.

Q5: Are there any specific technologies you would suggest?

> Dr. Jozwik: "I've used ThingLink … you could pick a page [from a text], capture a picture of that page, and then add voice, adding more than one language or adding signs to make the communication multimodal, so I think ThingLink is a useful way to bring text to life, but the way that it's used and integrated should be natural within the literacy events that happen."

In addition, she talked about using NearPod with her higher education students. It made the hybrid and "hi-flex" learning

environment more interactive and helped her, as the instructor, facilitate the learning across in-person and remote learners. Other suggestions she made included the app "Novel Effect", which adds music and sound effects to read alouds. Another app she mentioned was EduCreations, which is an interactive whiteboard and screen recording tool. She recommended using it as a way to bring permanent products to IEP meetings or to use for data analysis.

As research on ELLs, SWDs, and AT continues to develop, Dr. Jozwik reminds practitioners and researchers to not get lost in the high-tech. She shared the value of the "old-fashioned" laminated adapted books with movable pieces. Adapted books are used to increase engagement (Carnahan et al., 2009; Golloher, 2015) and comprehension (Golloher, 2015; Mims et al., 2009) through the use of moveable pieces that relate to the story. She cautioned us to never overlook the engaging and impactful interventions of the past, because they have the potential to influence the love of literacy in students, too. Dr. Jozwik recommended that adapted book makers try using tack-it glue, instead of velcro, to make their books skinnier and easier to store in constrained physical spaces.

Resources

In the interview, Dr. Jozwik provided resources and technology tools for teacher preparation programs starting with AT and SWD who are ELLs.

> Educreations
> This is an interactive whiteboard and screen recording tool
> Novel Effect
> A tool that adds music and sound effects to read alouds
> ThingLink

This resource makes images interactive and is a great way to promote literacy.

Link to Video

This Research and Practice Brief can be viewed on video online at
https://tinyurl.com/CIDDLResearchBriefJozwik

References

Bennett, S.V., Gunn, A.A., Gayle-Evans, G. *et al.* Culturally Responsive Literacy Practices in an Early Childhood Community. *Early Childhood Educ J* 46, 241–248 (2018). https://doi.org/10.1007/s10643-017-0839-9

Carnahan, C., Basham, J., & Musti-Rao, S. (2009). A low-technology strategy for increasing engagement of students with autism and significant learning needs. *Exceptionality*, *17*(2), 76–87. https://doi.org/10.1080/09362830902805798

Cuenca-Carlino, Y., Gozur, M., Jozwik, S., & Krissinger, E. (2017). The impact of self-regulated strategy development on the writing performance of English learners. *Reading & Writing Quarterly*, *34*(3), 248–262. https://doi.org/10.1080/10573569.2017.1407977

Edyburn, D. L. (2021). Ten years later: Would you recognize universal design for learning if you saw it?. *Intervention in School and Clinic*, *56*(5), 308-309.

Golloher, A. N. (2015). *An adapted shared storybook reading program implemented in inclusive preschool classrooms: An investigation of its use and effectiveness* (Order No. 3720522). Available from ProQuest Dissertations & Theses Global. (1726029748). Retrieved from https://www2.lib.ku.edu/login?url=https://www.proquest.com/di

ssertations-theses/adapted-shared-storybook-reading-program/docview/1726029748/se-2?accountid=14556

Harris, K. R., & Graham, S. (1996). Making the writing process work: Strategies for composition and self-regulation. Cambridge, MA: Brookline.* Harris, K. R., Graham, S., Reid, R., McElroy, K., & Hamby, R. (1994). Self-monitoring of attention versus self-monitoring of performance. Learning Disability Quarterly, 17, 121-139.

Jozwik, S., Cuenca-Carlino, Y., & Gardiner-Walsh, S. (2020). Special education teachers' preparedness for teaching emergent bilingual students with disabilities. *Multiple Voices: Disability, Race, and Language Intersections in Special Education, 20*(2), 38-53.

Jozwik, S. L., & Rice, N. E. (2020). Analyzing the portrayal of characters with reading difficulties in realistic fiction. *Journal of Adolescent & Adult Literacy*, *64*(2), 167–179. https://doi.org/10.1002/jaal.1081

Klein, A. (2021, May 28). During covid-19, schools have made a mad dash to 1-to-1 computing. What happens next? Education Week. https://www.edweek.org/technology/during-covid-19-schools-have-made-a-mad-dash-to-1-to-1-computing-what-happens-next/2021/04

Love, A., Burns, M. S., & Buell, M. J. (2007). Empowering Literacy. *Young Children*, *62*(1), 12-19. https://www.researchgate.net/profile/Angela-Love/publication/234757182_Writing_Empowering_Literacy/links/578f91a108aec23468b65e5c/Writing-Empowering-Literacy.pdf

Mims, P. J., Browder, D. M., Baker, J. N., Lee, A., & Spooner, F. (2009). Increasing comprehension of students with significant intellectual disabilities and visual impairments during shared

stories. Education and training in developmental disabilities, 409-420.

Park, J., Bagwell, A. F., Bryant, D. P., & Bryant, B. R. (2021). Integrating assistive technology into a teacher preparation program. *Teacher Education and Special Education, 45*(2), 141–159. https://doi.org/10.1177/08884064211001447

Rowan, L., Bourke, T., L'Estrange, L., Lunn Brownlee, J., Ryan, M., Walker, S., & Churchward, P. (2020). How Does Initial Teacher Education Research Frame the Challenge of Preparing Future Teachers for Student Diversity in Schools? A Systematic Review of Literature. *Review of Educational Research, 91*(1), 112–158. https://doi.org/10.3102/0034654320979171

Self-regulated strategy development. WWC | Self-Regulated Strategy Development. (n.d.). https://ies.ed.gov/ncee/wwc/Intervention/1292

Stone, J. P., Rivera, C. J., & Weiss, S. L. (2016). Literacy-rich environments for young students with significant developmental disabilities. *Young Exceptional Children*, *21*(4), 191–203. https://doi.org/10.1177/1096250616674330

Transcription of Interview

Transcription of the interview can be found at https://tinyurl.com/CIDDLRPBInterviewTranscript

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