Innovation Configuration

Literacy Instruction for Students With Multiple and Severe Disabilities Who Use Augmentative/Alternative Communication

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Innovation Configuration for Literacy Instruction for Students With Multiple and Severe Disabilities Who Use Augmentative/Alternative Communication

This paper features an innovation configuration (IC) matrix that can guide teacher preparation professionals in improving literacy instruction for students with multiple and severe disabilities who use augmentative/alternative communication. This matrix appears in Appendix A.

An IC is a tool that identifies and describes the major components of a practice or innovation. With the implementation of any innovation comes a continuum of configurations of implementation from non-use to the ideal. ICs are organized around two dimensions: essential components and degree of implementation (Hall & Hord, 1987; Roy & Hord, 2004). Essential components of the IC—along with descriptors and examples to guide application of the criteria to course work, standards, and classroom practices—are listed in the rows of the far left column of the matrix. Several levels of implementation are defined in the top row of the matrix. For example, no mention of the essential component is the lowest level of implementation and would receive a score of zero. Increasing levels of implementation receive progressively higher scores.

ICs have been used in the development and implementation of educational innovations for at least 30 years (Hall & Hord, 2001; Hall, Loucks, Rutherford, & Newton, 1975; Hord, Rutherford, Huling-Austin, & Hall, 1987; Roy & Hord, 2004). Experts studying educational change in a national research center originally developed these tools, which are used for professional development (PD) in the Concerns-Based Adoption Model (CBAM). The tools have also been used for program evaluation (Hall & Hord, 2001; Roy & Hord, 2004).

Use of this tool to evaluate course syllabi can help teacher preparation leaders ensure that they emphasize proactive, preventative approaches instead of exclusive reliance on behavior reduction strategies. The IC included in Appendix A is designed for teacher preparation programs, although it can be modified as an observation tool for PD purposes.

The Collaboration for Effective Educator, Development, Accountability, and Reform (CEEDAR) Center ICs are extensions of the seven ICs originally created by the National Comprehensive Center for Teacher Quality (NCCTQ). NCCTQ professionals wrote the above description.

Marie Clay coined the term *emergent literacy* to describe the early knowledge of text that children acquire before formal literacy instruction (Clay, 1966; Teale & Sulzby, 1986). Early acts of reading, writing, listening, and speaking reflect the emergence of concepts about print, alphabet knowledge, letter naming, phonological awareness, vocabulary knowledge, and word manipulation (Bus, van Ijzendoorn, & Pellegrini, 2000; National Early Literacy Panel [NELP], 2008) and form the foundation for conventional literacy that develops with more formal literacy instruction (Justice & Pullen, 2003). The emergence of concepts about print, alphabet knowledge, letter naming, phonological awareness, vocabulary knowledge, and word manipulation develops when caregivers and teachers expose children to literacy, provide literacy experiences, and model both reading and writing (Light & Kelford-Smith, 1993).

Kindergarteners who are typically developing, are from middle-class homes, and are exposed often to literacy from infancy enter formal schooling with more than 1,000 hrs of early literacy experiences (P. M. Cunningham & Allington, 1999). However, when children are not exposed to early literacy experiences, they are at risk for beginning school without a strong foundation in emergent literacy (Whitehurst & Lonigan, 1998). Research has shown that home literacy experiences for children with multiple and severe disabilities often are different when compared to experiences of peers without disabilities (Light & Kelford-Smith, 1993; Marvin, 1994; Marvin & Mirenda, 1993). For, example, when surveyed, caregivers of children with multiple and severe disabilities placed higher priority on communication and self-help skills, such as eating and walking, while caregivers of children without disabilities gave higher priority to communication and literacy activities such as drawing and writing (Light & Kelford-Smith, 1993). The differences in priorities between families of children with multiple and severe disabilities and families of children without disabilities are foreseeable given the demands of

caring for children with multiple and severe disabilities. When these children enroll in school, however, reading and writing become social, legal, and educational priorities.

The term *students with multiple and severe disabilities* is used here to refer to students with severe speech and physical disabilities; moderate, severe, and profound intellectual disabilities; developmental disabilities; and autism (Alper, 2003). Although these children are a heterogeneous group, in general, their learning characteristics are similar because they often learn slowly and, therefore, learn less and have difficulty putting together component parts of information, maintaining information, and generalizing information (Alper, 2003). Many of these children also have complex communication needs that require the use of augmentative or alternative communication (AAC). The American Speech-Language-Hearing Association (ASHA, 2002) defines AAC as "an area of clinical practice that attempts to compensate (either temporarily or permanently) for the impairment and disability patterns of individuals with severe expressive communication disorders (i.e., those characterized by severe impairments in speech-language, reading, and writing)" (Introduction to AAC section, Bottom Line text box, para. 4). AAC systems are categorized as assistive technology devices. The Technology-Related Assistance for Individuals with Disabilities Act (IDEA) of 1988 (1988) defines the term *assistive technology device,* including AAC systems, as "any item, piece of equipment, or product system, whether acquired commercially, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities" (Section 300.5).

The convergence of legislation that requires accountability and access to the general curriculum for all students (i.e., Every Student Succeeds Act [ESSA], 2015; IDEA, 2004; No Child Left Behind [NCLB], 2002) calls for teachers to be knowledgeable about effective literacy instruction. Information about effective literacy instruction for students without disabilities and

struggling readers from the National Reading Panel (2000) provides teachers with evidence-based data about the skills (i.e., phonemic awareness, phonics, vocabulary, reading comprehension, and fluency) students need to become proficient readers. More recently, effective literacy instruction for students with multiple and severe disabilities who use AAC systems has been explored. Research in the field has demonstrated that students with multiple and severe disabilities who use AAC systems can learn literacy skills (Ahlgrim-Delzell, Browder, & Wood, 2014; Ainsworth, Evmenova, Behrmann, & Jerome, 2016; Kliewer et al., 2004; Ryndak, Morrison, & Sommerstein, 1999). The literature supports a balanced and comprehensive approach to literacy instruction, which can be highly supportive for students with multiple and severe disabilities who use AAC (Downing, 2005) because of the concurrent opportunities to build communication and literacy skills through this approach. In the following sections, we have discussed research-based literacy instruction strategies and current practices for students with multiple and severe disabilities who use AAC based on a balanced approach to literacy instruction.

Current Practices

Many educators use a balanced and comprehensive approach to teaching literacy. A balanced approach to literacy instruction is one that encompasses both skill-based and meaning-based strategies to teach literacy (Pressley, Roehrig, Bogner, Raphael, & Dolezal, 2002). These strategies are critical for all learners, including those with multiple and severe disabilities who use AAC (Blischak, 1995; Erickson, Koppenhaver, Yoder, & Nance, 1997). With a comprehensive approach, literacy is prevalent and integrated across all educational domains to support the student's knowledge and use of all aspects of literacy (i.e., reading, writing, listening, and speaking) for a variety of purposes (Downing, 2005). Literacy can be broadly defined as acts of reading, writing, listening, and speaking that concurrently and

interrelatedly develop (Koppenhaver, Pierce, Steelman, & Yoder, 1995). By broadly defining literacy to include communication, everyone can participate in literacy—not only those who have mastered the prerequisite skills (e.g., speaking) associated with learning to read (Downing, 2005). With these approaches in mind, this section addresses components of balanced literacy instruction for students with multiple and severe disabilities who use AAC as well as considerations for assessment, comprehension, word recognition, self-selected reading, and writing.

Literacy Assessment

We think of literacy as the representation of language in symbolic form, which can be concrete (e.g., objects, pictures) and abstract (e.g., letters, words). In both cases, symbols are used to represent ideas. Our ability to use symbols is shaped over time as we develop communication from using presymbolic forms to using symbolic forms of communication (Rowland, 2011). For example, an infant uses presymbolic communication when pointing at an object and looking from the object to a caregiver. In this case, there is no symbol to represent the idea being shared. The use of concrete symbols occurs when a child begins to use physical representations of an object such as meowing to mean *cat* (Rowland, 2011). Abstract symbols have no obvious physical likeness to the objects they represent and include spoken words, printed words, Braille, and graphics. Abstract symbol use occurs when a child says a word to represent an object (e.g., ball) in the presence of the object and later to represent ideas (Rowland, 2011). In assessing literacy, it is helpful to determine the ways in which the student communicates and the types of symbols the student uses and understands. Students with multiple and severe disabilities who verbally communicate or who have limited verbal output can be presymbolic, concrete symbolic, or abstract symbolic communicators (Browder, Flowers, & Wakeman, 2008). Teachers can consult with other collaborative team members, such as the

speech-language pathologist, regarding the appropriate receptive and expressive language assessment tools.

Assessment of literacy for students with multiple and severe disabilities who use AAC can be challenging and requires creativity. Currently, there are no commercially available assessment tools to reliably and with validity determine literacy skills for this population of students. However, there are informal assessment tools that can provide information about a student's literacy skills. Because we are defining literacy broadly to include listening, speaking, reading, and writing (Keefe, & Copeland, 2011), it is useful to assess communication skills as a part of the literacy assessment. One tool that can provide information about a student's use of communication is the Communication Matrix (Rowland, 2009). The Matrix is designed to help caregivers and professionals document the behaviors (e.g., body movements, early sounds, facial expressions, eye gaze, simple gestures, conventional gestures/vocalizations, concrete symbols, abstract symbols, and language) a student uses to communicate (Rowland, 2009). The information gleaned from the Matrix can provide information about the student's use of communication from pre-intentional to symbolic and can inform the types of intervention used to increase expressive communication. For example, if it is determined that a student uses eye gaze to communicate, we might present objects in an array that would allow that student to make choices by looking at the desired item. A student could select a book for shared reading time given a choice of two or eye gaze from an array letters using partner-assisted scanning during a making-words activity.

Clay (1993) developed a systematic observation process to help teachers gather information about students' early literacy understanding and monitor progress. The observation comprises several components: (a) print concepts, (b) letter identification, (c) word test,

(d) writing, (e) a dictation task, and (f) a running record (Clay, 1993). Erickson (2000) provided recommended adaptations for each of the observation components that can be used with children who have limited verbal output or who use AAC systems. For example, for the task of letter identification, Erickson suggested presenting an array of three or more letters at a time and asking the student to point to the letter instead of naming the letter. Although this adaptation does change the task, the observation of a student's understanding can provide meaningful pre- and post-test measures that can inform instruction.

Another approach to gathering information about student reading is the whole-to-part reading diagnosis (J. A. Cunningham, 1993). In this model, the whole of silent reading with comprehension is made up of three underlying parts: (a) word identification, (b) language comprehension, and (c) print processing beyond the word level. With this model, word identification can be thought of in two ways: (a) automatic word identification as the ability to read words with little effort or thought and (b) mediated word identification as the ability to read new words. Language comprehension consists of knowledge of text structures (i.e., syntax) and knowledge of the world. Print processing relates to the skills necessary to read and understand longer passages. These skills involve eye movement to read words across and down the page, inner speech to monitor understanding, prosody, and the integration of all parts for processing text.

A variety of informal reading inventories have been designed around this whole-to-part model and provide information about students' abilities to read words, comprehend text read-alouds, and silently read text with comprehension. The graded word lists and graded reading passages contained in these inventories can be adapted to inform literacy instruction for students with multiple and severe disabilities who are AAC users. The data obtained can provide

valuable information about a student's skill in one construct of reading relative to another (J. A. Cunningham, 1993). For example, a practitioner can compare the student's ability to recognize words with his or her ability to listen with comprehension to a passage read aloud and read silently with comprehension. The result would inform decisions about the emphasis of reading instruction. For students who are AAC users, these informal reading assessments can be adapted to gather information about a student's skills. For example, to assess word identification, a clinician can present an array of three or four words or pictures at one time and ask the student to indicate (e.g., point, eye gaze) the target word spoken by the clinician (Sturm, 2005). To assess language comprehension and silent reading comprehension of the graded passages, a clinician can ask the student to indicate the correct answer from an array of multiple choice responses. According to Sturm (2005), the suggested adaptations can lead to inflated scores and influence the construct assessed and, therefore, should be interpreted with caution.

Assessment presents unique challenges for students with multiple and severe disabilities who use AAC because it is always possible that the student is not able to fully communicate his or her knowledge (Kleinert, Kennedy, & Kearns, 1999). It is essential that the student is comfortable using the AAC system prior to attempting a literacy assessment because the student must have a means for communicating his or her knowledge. Assessment regarding the selection, acquisition, implementation, and training of an AAC system is beyond the scope of this paper; however, we acknowledge that assessment for an AAC system is an ongoing process that requires a collaborative team, including the student, caregivers, general and special educators, related service providers, and others deemed appropriate.

Comprehension

Because students with multiple and severe disabilities demonstrate expressive and receptive language deficits, listening and reading comprehension are of critical importance;

however, they are challenging to teach and reliably assess. Responses to literal questions have been the most commonly studied comprehension skill (Browder, Mims, Spooner, Ahlgrim-Delzell, & Lee, 2008; Mims, Browder, Baker, Lee, & Spooner, 2009; Mims, Hudson, & Browder, 2012). Although literal questioning is the strategy most commonly used to assess comprehension among students with multiple and severe disabilities who use AAC, comprehension instruction should not be limited to literal questioning. Students who use AAC need multiple opportunities to request, question, predict, and comment on the text, and they require that AAC systems be programmed with the appropriate vocabulary for participation. Similarly, the three levels of comprehension (i.e., literal, interpretive, and applied; Vacca et al., 2014) and Bloom's taxonomy (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956) should be considered while designing comprehension instruction for students with multiple and severe disabilities who use AAC. Comprehension instruction focused only on responding to literal questions can be limiting because it is a skill rarely needed in everyday life and does not naturally lead to enhanced communication and social connections. Rather, comprehension is most often expressed through discussion, summarization, description, and by drawing connections between the text and other experiences or contexts. Systematic instructional strategies (e.g., prompting strategies, time delay paired with reinforcement) are preferred methods for teaching comprehension responses to students with multiple and severe disabilities, including those who use AAC (Browder, Mims, et al., 2008; Mims et al., 2009; Mims et al., 2012). Most important, teachers should differentiate between listening and reading comprehension. Both should be addressed in a comprehensive literacy program; however, research is only available on the use of strategies to promote listening comprehension for this population.

The term *shared reading* refers to a structured exchange between teacher and student or peer and student and can provide a language-rich milieu to address listening and reading comprehension. Shared reading has been successful for increasing literacy and communication skills for students with multiple and severe disabilities who use AAC when paired with scaffolding (Bellon-Harn & Harn, 2008); Universal Design for Learning (UDL; Browder, Mims, et al., 2008); systematic prompting (Mims et al., 2012); and systematic instruction (e.g., time delay, prompting; Browder, Mims, et al., 2008; Koppenhaver, Erickson, & Skotko, 2001). Adapting texts for use during shared reading is a common practice for students with multiple and severe disabilities who use AAC (Browder, Mims, et al., 2008; Hudson, Browder, & Wakeman, 2013). For example, Browder, Mims, and colleagues (2008) adapted the books used during shared reading to include pictures velcroed to the text.

While selecting texts for comprehension, it is important to provide text at the student's instructional level (Sturm, 2005). Teachers may find that a student with multiple and severe disabilities who uses AAC is not at the same instructional reading level as peers in the classroom. Because these students should receive the same opportunities as their peers to participate in shared book reading and apply learned comprehension strategies, teachers can provide students who are AAC users with adapted versions of texts being read with the class (Sturm, 2005). Depending on the student's needs, books can be adapted in both low-tech and high-tech ways. For example, book pages can be laminated for easy turning and durability, and pictures depicting key vocabulary can be velcroed to the appropriate pages to support vocabulary and comprehension. Although limited, there is preliminary evidence to suggest that books adapted by adding pictures to the text can help increase reading comprehension for students with severe disabilities (Rankin, Harwood, & Mirenda, 1994; Shurr & Taber-Doughty, 2012; Slater,

2002). Selecting and programming AAC devices is essential for students to actively participate in reading comprehension activities. Teachers should collaborate with school-based related service providers (e.g., speech-language pathologist, occupational therapist) regarding appropriate vocabulary, symbols, voice output characteristics, access modes, and placement of devices for maximum usage. Based on student need, vocabulary programmed to the device can support participation in reading comprehension activities.

Aided Language Stimulation (also known as Partner Augmented Input or System for Augmenting Language; Sevcik, 2006) is one strategy to increase language use for students with multiple and severe disabilities who use AAC. With Aided Language Stimulation, the teacher or communication partner models the use of the student's AAC system during instruction. For example, the teacher may ask the student, "What's next?" or comment, "I see the bird" using the student's AAC system. Rather than modeling verbally, Aided Language Stimulation allows the student to observe a model in his or her own response mode. Aided Language Stimulation has been successfully used to promote language comprehension among students who use AAC systems (Harris & Reichle, 2004; Sevcik, 2006) and has natural applications for comprehension instruction and language building during shared book reading (Rosa-Lugo & Kent-Walsh, 2008).

Word Recognition

Literature reviews about teaching reading to students with multiple and severe disabilities show that many studies have focused on sight-word reading (Browder, Ahlgrim-Delzell, Spooner, Mims, & Baker, 2009; Browder, Wakeman, Spooner, Ahlgrim-Delzell, & Algozzine, 2006). These reviews demonstrate that an evidence base supports the use of systematic instructional strategies to teach sight-word reading to individuals with multiple and severe disabilities. For example, Browder and colleagues (2006) reviewed 128 studies and found that the use of systematic prompting strategies was effective for teaching sight words to students with

significant cognitive disabilities. Furthermore, Browder and colleagues found that the time-delay prompting strategy was effective for teaching sight words to students with severe disabilities.

Often, studies target sight-word reading for students with multiple and severe disabilities with a focus on the recognition of functional words (Copeland & Calhoon, 2007). Functional words may include words that appear in the community such as *danger*, *restroom*, or *exit*. Teaching sight-word reading as the only strategy for identifying words has limitations because it is difficult to teach every sight word that students may encounter within their communities. In addition, students then do not learn strategies for decoding new words.

Studies using systematic instruction have shown promising results for teaching students to decode words. For example, Fallon, Light, McNaughton, Drager, and Hammer (2004) studied the use of direct instruction to teach students with multiple and severe disabilities who use AAC systems to match phonemes to initial sounds of words, blend phonemes, and read vowel-consonant (VC) and consonant-vowel-consonant (CVC) words. With this approach, participants were able to read words in text format and generalize the learned skills to tackle new words. Ahlgrim-Delzell and colleagues (2014) found that using systematic prompting strategies (e.g., time delay, system of least prompts) along with an AAC system to teach phoneme identification, sound blending to form words, and sound blending to identify pictures were effective for students with intellectual disabilities who had limited verbal output. Extending this research, Ahlgrim-Delzell, Browder, Wood, Stanger, Preston, and Kemp-Inman (2016) found similar results when these strategies were implemented using an iPad.

Research using the Nonverbal Reading Approach (NRA) paired with a phonics-based curriculum suggests that students with multiple and severe disabilities who use AAC systems

and/or have limited verbal abilities learned to decode words using this method (Coleman-Martin, Heller, Cihak, & Irvine, 2005; Heller & Coleman-Martin, 2007; Leytham, Pierce, Baker, Miller & Tandy, 2014; Swinehart-Jones & Heller, 2009). NRA comprises three components. The first component, active participation, encourages students, regardless of their speaking ability, to say words along with the presenter. In the second component, the presenter instructs students to use their internal speech to subvocalize smaller segments of the word with the presenter saying the segments aloud. For the third component, students use their internal speech to quickly synthesize with the presenter the parts of the word (Heller & Coleman-Martin, 2007).

Teachers should instruct students both to read sight words and decode words and should help students to develop concepts about letters and words, phoneme-grapheme correspondence, onsets and rimes, and prefixes and suffixes. In addition, students with multiple and severe disabilities who use AAC systems should receive access to letters so that they can independently create words. This can be achieved in a variety of ways such as through the use of magnetic letters, manual communication boards, eye gaze technology, switch scanning, adapted keyboards, and keyboards with voice output (Hanser, n.d.).

Self-Selected Reading

For students with multiple and severe disabilities who use AAC systems, self-selected reading is an opportunity for choice making and sharing with others about what they have read. Two key recommendations are important regarding supporting students who use AAC systems to engage in self-selected reading. First, students should receive the opportunity for choice and independence during the activity. Second, it is essential that the materials and environment are fully accessible to the student. In this section, we have reviewed research related to both of these points.

Self-selected reading supports goals in the area of choice making, a key aspect of self-determination (Wehmeyer & Abery, 2013). For students without disabilities, self-selected reading (also known as sustained silent reading) has been demonstrated to improve motivation for reading (Anderson, Heibert, Scott, & Wilkson, 1985; Baker & Wigfield, 2011; Yoon, 2002). Unfortunately, many individuals with multiple and severe disabilities who use AAC systems do not receive ample opportunities to make choices about their lives. As Calculator (2009) pointed out, choice making is not an activity in and of itself but must be embedded in a natural, age-appropriate routine and must enhance membership and participation in an inclusive environment. Communication is central to choice making (Shevin & Klein, 2004). Students with symbolic language skills should have access to AAC systems to communicate their choices rather than simply choosing an object (e.g., a book). Symbols for books should be programmed into AAC devices, or picture symbols should be available as appropriate. Overall, it is important to keep in mind that self-selected reading is a self-directed activity. An adult should not choose materials; however, an adult may need to provide structured, age-appropriate options so that available materials are appropriate to the student's ability and interests. A variety of genres such as age-appropriate picture books (e.g., a coffee table book about trains); wordless books (e.g., *Flotsam* by David Weidener); magazines; fiction; and nonfiction texts (Orlando et al., 2014) should be available.

Adaptations will likely be necessary to ensure that the reading materials are accessible to the student who uses an AAC system. The student should be positioned comfortably such that he or she is able to independently manipulate the book. For students with physical disabilities, self-selected reading is often an opportunity to stand, lie, or sit outside of a wheelchair. To access a physical book, a bookstand or page-turner activated by a switch may be necessary.

Books may need to be adapted using page fluffers or reinforced using laminating film or sturdy paper (Downing, 2005). Assistive technology such as a Bookworm (by AbleNet) allows younger students to independently read short picture books by pressing buttons or a switch associated with pages. Audio books and interactive digital books are additional options, especially for students who are not yet decoding new words at their listening comprehension levels. Tar Heel Reader (tarheelreader.org) is a popular, free website where students can read interactive books on a variety of topics and share their own books. By integrating low-tech and high-tech adaptations into self-selected reading activities, students who use AAC systems can meaningfully participate in self-directed activities to improve literacy skills.

Writing

Students who use AAC systems communicate by creating messages through presymbolic or symbolic methods (Blackstone, 1989). For students with multiple and severe disabilities who use AAC systems, composing messages may be challenging due to a language impairment and fine-motor impairment (Wollack & Koppenhaver, 2011). Voiced letters, words, or phrases can be programmed under pictures, objects, or symbols on AAC devices to help the user construct a message. To create a message, the user must engage in the planning, translation, and transmission of the message (Koppenhaver & Williams, 2010).

A cognitive process model of writing (Flower & Hayes, 1981) has been used in the field of AAC as an approach for instructing students with complex communication needs (Clendon & Erickson, 2008; Koppenhaver & Williams, 2010; Wollack & Koppenhaver, 2011). The model, which includes planning, translating, and reviewing, parallels the thought process that adult writers experience as they compose text (Flower & Hayes, 1981). First, the writer engages in planning through generating ideas, organizing, and goal setting. Next, the writer must translate understandings of experiences and complex relationships into a linear work that complies with

the conventions of the chosen medium. Finally, reviewing consists of evaluating and revising as writers read their texts and make changes. Koppenhaver and Williams (2011) used the Flower and Hayes (1981) model in a review of the literature about writing and AAC to interpret current literature and guide future research. The review revealed that much of the research in writing instruction for students with multiple and severe disabilities has focused on spelling single words. Little research has been conducted on the use of strategies for planning, translating, and reviewing writing beyond single words for AAC users.

More recent studies have shown that students with multiple and severe disabilities who are AAC users increased writing output when technology (i.e., hardware, software) was provided (Bedrosian, Lasker, Speidel, & Politsch, 2003; Erickson et al., 1997; Light, McNaughton, Weyer, & Karg, 2008; Williams, Koppenhaver, & Wollack, 2007). The use of peers to scaffold and model the writing process (Bedrosian et al., 2003; Erickson et al., 1997; Light et al., 2008) was also found to be a helpful component in writing intervention. Authentic writing experiences (Erickson et al., 1997; Light et al., 2008) as well as explicit instruction (Bedrosian et al., 2003) and a specific structure for writing text (Williams, Koppenhaver, & Wollack, 2007) also helped to improve writing for students with multiple and severe disabilities who use AAC.

Given that students with multiple and severe disabilities who use AAC systems are often unable to hold conventional writing tools like other students do, the provision of alternate tools is essential for the opportunity to engage in writing. Alternatives to a pencil or pen come in many forms and need no prerequisite skills (e.g., reading) for use. Hanser (n.d.) suggested many alternatives for beginning writers with multiple and severe disabilities who use AAC systems, including alphabet eye gaze frames, print flip charts, Braille alphabet charts, custom overlays for alternate keyboards, and switch-accessible onscreen keyboards.

A key requirement for alternative pencils is that they allow the user to access the entire alphabet so that learners can progress through natural developmental levels of writing, and their progress can be assessed (Sturm, Cali, Nelson, & Staskowski, 2012). Sturm and colleagues (2012) identified a 14-stage process for writing development in AAC users, which parallels typical writing development but includes alternative considerations for accessibility. The stages are drawing, scribbling, letter strings, letter strings grouped in words, one intelligible word, two to three intelligible words, three or more different intelligible words, partial sentence of more than three words, one to two complete sentences, three or more unrelated sentences, three or more related sentences, three or more related sentences that cannot be reordered, two coherent paragraphs of at least three cohesive sentences each, and three or more coherent paragraphs of three or more cohesive sentences each. Sturm and colleagues (2012) also recommended accommodations at each stage. For example, in the first stage, drawing, a child who does not hold a pencil or marker may choose among pictures. When intelligible words are created, a word bank or word-prediction software, such as Co:Writer Version 7 (Don Johnston, Inc., 2010), may be necessary. Graphic organizers, such as Inspiration and Clicker Version 7 (Crick Software, 2011), can help writers create more coherent and cohesive text. Teachers working with students who are AAC users should consult with knowledgeable individuals on their collaborative teams to discover the multitude of technologies that may be appropriate for their students with multiple and severe disabilities. With all of the technology available, every student should be able to engage in reading and writing with their same-age peers.

Summary

Students with multiple and severe disabilities make up less than 2% of the total population of students ages 6 through 21 (U.S. Department of Education, 2015). The expectation for reading achievement for many of these students has consisted of sight-word reading (Kearns,

Towles-Reeves, Kleinert, Kleinert, & Thomas, 2009). The research supports that with appropriate interventions and supports, students with multiple and severe disabilities can be members of a literate society (Kliewer et al., 2004). Research suggests that students can engage in reading comprehension lessons using systematic instruction and adapted texts. There is evidence to suggest that students with multiple and severe disabilities who use AAC systems can use decoding strategies to identify new words. In addition, evidence suggests that the integration of instruction in both reading and language (Erickson et al., 1997) and in writing (Hanser & Erickson, 2007) can support improved literacy and communication. Based on current policies and the growing research base of literacy instruction for students with multiple and severe disabilities who use AAC systems, it is evident that the provision of knowledge and instruction on literacy strategies to support these students is an essential component of teacher education programs.

References

Ahlgrim-Delzell, L., Browder, D., & Wood, L. (2014). Effects of systematic instruction and an augmentative communication device on phonics skills acquisition for students with moderate intellectual disability who are nonverbal. *Education and Training in Autism and Developmental Disabilities*, *49*(4), 517.

Ahlgrim-Delzell, L., Browder, D. M., Wood, L., Stanger, C., Preston, A. I., & Kemp-Inman, A. (2016). Systematic instruction of phonics skills using an iPad for students with developmental disabilities who are AAC users. *The Journal of Special Education*, *50*, 86-97. doi.org/10.1177/0022466915622140

Ainsworth, M. K., Evmenova, A. S., Behrmann, M., & Jerome, M. (2016). Teaching phonics to groups of middle school students with autism, intellectual disabilities and complex communication needs. *Research in Developmental Disabilities*, *56*, 165-176. doi:10.1016/j.ridd.2016.06.001

Alper, S. K. (2003). An ecological approach to identifying curriculum content for inclusive settings. In D. L. Ryndak & S. K. Alper (Eds.), *Curriculum and instruction for students with significant disabilities in inclusive settings* (pp. 73-85). Boston, MA: Allyn & Bacon.

American Speech-Language-Hearing Association. (2002). *Augmentative and alternative communication.* Retrieved from http://www.asha.org/NJC/AAC/

Anderson, R. C., Heibert, E., Scott, J., & Wilkson, I. (1985). Becoming a nation of readers: The Report of the Commission on Reading. Champaign, IL: National Academy of Education, National Institute of Education and Center for the Study of Reading.

Baker, L., & Wigfield, A. (2011). Dimensions of children's motivation for reading and their relations to reading activity and reading achievement. *Reading Research Quarterly*, *34*(4), 452-477. doi:10.1598/RRQ.34.4.4

Bedrosian, J., Lasker, J., Speidel, K., & Politsch, A. (2003). Enhancing the written narrative skills of an AAC student with autism: Evidence-based research issues. *Topics in Language Disorders, 23*(4), 305-324. doi:10.1097/00011363-200310000-00006

Bellon-Harn, M. L., & Harn, W. E. (2008). Scaffolding strategies during repeated storybook reading: An extension using a voice output communication aid. *Focus on Autism and Other Developmental Disabilities, 23*(2), 112-124. doi:10.1177/1088357608316606

Blackstone, S. (1989). The 3 Rs of reading, writing, and reasoning. *Augmentative Communication News, 2*(1), 1-3.

Blischak, D. M. (1995). Thomas the writer: Case study of a child with severe physical, speech, and visual impairments. *Language, Speech, and Hearing Services in Schools*, *26*(1), 11-20.

Bloom, B. S. (Ed.), Engelhart, M. D., Furst, E. J., Hill, W. H., & Krathwohl, D. R. (1956). *Taxonomy of educational objectives: The classification of educational goals. Handbook 1: Cognitive domain*. New York, NY: David McKay.

Browder, D., Ahlgrim-Delzell, L., Spooner, F., Mims, P. J., & Baker, J. N. (2009). Using time delay to teach literacy to students with severe developmental disabilities. *Exceptional Children, 75*(3), 343-364.

Browder, D., Flowers, C., & Wakeman, S. (2008). Facilitating participation in assessments and the general curriculum: Level of symbolic communication classification for students with significant cognitive disabilities. *Assessment in Education: Principles, Policy, and Practice*, *15*, 137-151.

Browder, D. M., Mims, P. J., Spooner, F., Ahlgrim-Delzell, L., & Lee, A. (2008). Teaching elementary students with multiple disabilities to participate in shared stories. *Research and Practice for Persons with Severe Disabilities (RPSD), 33*, 3-12. doi:10.2511/rpsd.33.1-2.3

Browder, D. M., Wakeman, S. Y., Spooner, F., Ahlgrim-Delzell, L., & Algozzine, B. (2006). Research on reading instruction for individuals with significant cognitive disabilities. *Exceptional Children, 72*(4), 392-408.

Bus, A. G., Van Ijzendoorn, M. H., & Pellegrini, A. D. (1995). Joint book reading makes for success in learning to read: A meta-analysis on intergenerational transmission of literacy. *Review of Educational Research, 65*(1), 1-21. doi:10.3102/00346543065001001

Calculator, S. N. (2009). Augmentative and alternative communication (AAC) and inclusive education for students with the most severe disabilities. *International Journal of Inclusive Education, 13*(1), 93-113. doi:10.1080/13603110701284656

Clay, M. M. (1966). *Emergent reading behavior* (Doctoral dissertation). Retrieved from International—JISC UK Database (Thesis 372.42 C62).

Clay, M. M. (1993). *An observation survey of early literacy achievement*. Portsmouth, NH: Heinemann.

Coleman-Martin, M. B., Heller, K. W., Cihak, D. F., & Irvine, K. L. (2005). Using computer-assisted instruction and the Nonverbal Reading Approach to teach word identification. *Focus on Autism and Other Developmental Disabilities, 20*(2), 80-90. doi:10.1177/10883576050200020401

Copeland, S., & Calhoon, A. (2007). Word recognition instruction. In S. R. Copeland & E. B. Keefe (Eds.), *Effective literacy instruction for students with moderate or severe disabilities* (pp. 41-62). Grand Rapids, MI: Paul H. Brookes.

Crick Software, Inc. (2011). Clicker [Computer software]. Retrieved from http://www.cricksoft.com/us/products/clicker/home/whats-new.aspx

Cunningham, J. A. (1993). Whole-to-part reading diagnosis. *Reading and Writing Quarterly, 9,* 31-49. doi:10.1080/1057356930090103

Cunningham, P. M., & Allington, R. L. (1999). *Classrooms that work: They can all read and write*. Reading, MA: Addison Wesley Longman.

Don Johnston, Inc. (2010). Co:Writer [Computer software]. Retrieved from http://donjohnston.com/cowriter-7/

Downing, J. E. (Ed.). (2005). *Teaching literacy to students with significant disabilities: Strategies for the K-12 inclusive classroom*. Thousand Oaks, CA: Corwin Press.

Erickson, K. A. (2000). All children are ready to learn: An emergent versus readiness perspective in early literacy assessment. *Seminars in Speech and Language, 21*(3), 193-202. doi:10.1055/s-2000-13193

Erickson, K. A., Koppenhaver, D. A., Yoder, D. E., & Nance, J. (1997). Integrated communication and literacy instruction for a child with multiple disabilities. *Focus on Autism and Other Developmental Disabilities, 12*(3), 142-150. doi:10.1177/108835769701200302

Every Student Succeeds Act of 2015, 20 U.S.C. § 114 (2015).

Fallon, K. A., Light, J., McNaughton, D., Drager, K., & Hammer, C. (2004). The effects of direct instruction on the single-word reading skills of children who require augmentative and alternative communication. *Journal of Speech, Language, and Hearing Research, 47*(6), 1424-1439. doi:10.1044/1092-4388(2004/106)

Flower, L., & Hayes, J. R. (1981). A cognitive process theory of writing. *College Composition and Communication, 32*(4), 365-387. doi:10.2307/356600

Hall, G. E., & Hord, S. M. (1987). *Change in schools: Facilitating the process*. Albany, NY: State University of New York Press.

Hall, G. E., & Hord, S. M. (2001). *Implementing change: Patterns, principles, and potholes.* Boston, MA: Allyn & Bacon.

Hall, G. E., Loucks, S. F., Rutherford, W. L., & Newton, B. W. (1975). Levels of use of the innovation: A framework for analyzing innovation adoption. *Journal of Teacher Education, 26*, 52-56. doi:10.1177/002248717502600114

Hanser, G. (n.d.). *Write from the start . . . with an "alternative pencil."* Retrieved from http://alternativepencils.weebly.com/uploads/2/4/6/6/24669270/alt_pencil_overview-brief.pdf

Hanser, G. A., & Erickson, K. A. (2007). Integrated word identification and communication instruction for students with complex communication needs: Preliminary results. *Focus on Autism and Other Developmental Disabilities, 22*(4), 268-278. doi:10.1177/10883576070220040901

Harris, M. D., & Reichle, J. (2004). The impact of aided language stimulation on symbol comprehension and production in children with moderate cognitive disabilities. *American Journal of Speech-Language Pathology, 13*, 155-167. doi:10.1044/1058-0360(2004/016)

Heller, K. W., & Coleman-Martin, M. B. (2007). Strategies for promoting literacy for students who have physical disabilities. *Communication Disorders Quarterly, 28*, 69-72, doi:10.1177/15257401070280020701

Hord, S. M., Rutherford, W. L., Huling-Austin, L., & Hall, G. E. (1987). *Taking charge of change*. Alexandria, VA: Association for Supervision and Curriculum Development.

Hudson, M. E., Browder, D., & Wakeman, S. (2013). Helping students with moderate and severe intellectual disability access grade-level text. *TEACHING Exceptional Children, 45*, 14-23.

Individuals With Disabilities Education Act, 20 U.S.C. § 1400 (2004).

Justice, L. M., & Pullen, P. C. (2003). Promising interventions for promoting emergent literacy skills: Three evidence-based approaches. *Topics in Early Childhood Special Education*, *23*(3), 99-113. doi:10.1177/02711214030230030101

Kearns, J. F., Towles-Reeves, E., Kleinert, H. L., Kleinert, J. O., & Thomas, M. K. (2009). Characteristics of and implications for students participating in alternate assessments based on alternate academic achievement standards. *The Journal of Special Education.* Advance online publication. doi:10.1177/0022466909344223

Keefe, E. B., & Copeland, S. R. (2011). What is literacy? The power of a definition. *Research and Practice for Persons with Severe Disabilities*, *36*(3-4), 92-99.

Kleinert, H. L., Kennedy, S., & Kearns, J. F. (1999). The impact of alternate assessments: A statewide teacher survey. *Journal of Special Education*, *33*(2), 93-102. doi:10.1177/002246699903300203

Kliewer, C., Fitzgerald, M., Meyer-Mork, J., Hartman, P., English-Sand, P., & Raschke, D. (2004). Citizenship for all in the literate community: An ethnography of young children with significant disabilities in inclusive early childhood settings. *Harvard Educational Review*, *74*(4), 373-403. doi:10.17763/haer.74.4.p46171013714642x

Koppenhaver, D. A., Erickson, K. A., & Skotko, B. G. (2001). Supporting communication of girls with Rett syndrome and their mothers in storybook reading. *International Journal of Disability, Development, and Education*, *48*(4), 395-410. doi:10.1080/10349120120094284

Koppenhaver, D. A., Pierce, P., Steelman, J. D., & Yoder, D. E. (1995). Contexts of early literacy intervention for children with developmental disabilities. *Language intervention: Preschool through the elementary years*, *5*, 241-274.

Koppenhaver, D. A., & Williams, A. (2010). A conceptual review of writing research in augmentative and alternative communication. *Augmentative and Alternative Communication, 26*(3), 158-176. doi:10.3109/07434618.2010.505608

Leytham, P. A., Pierce, T., Baker, J., Miller, S., & Tandy, D. (2015). Evaluation of the nonverbal reading approach for two 12 to 13-year-old students with ASD. *Research in Autism Spectrum Disorders*, *9*, 68-76. doi.org/10.1016/j.rasd.2014.09.014

Light, J., & Kelford-Smith, A. K. (1993). Home literacy experiences of preschoolers who use AAC systems and of their nondisabled peers. *Augmentative and Alternative Communication*, *9*(1), 10-25. doi:10.1080/07434619312331276371

Light, J., McNaughton, D., Weyer, M., & Karg, L. (2008). Evidence-based literacy instruction for individuals who require augmentative and alternative communication: A case study of a student with multiple disabilities. *Seminars in Speech and Language 29*(2), 120-132. doi:10.1055/s-2008-1079126

Marvin, C. (1994). Home literacy experiences of preschool children with single and multiple disabilities. *Topics in Early Childhood Special Education*, *14*(4), 436-454. doi:10.1177/027112149401400405

Marvin, C., & Mirenda, P. (1993). Home literacy experiences of preschoolers enrolled in Head Start and special education programs. *Journal of Early Intervention*, *17*(4), 351-367. doi:10.1177/105381519301700402

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*, *44*(3), 409-420.

Mims, P. J., Hudson, M. E., & Browder, D. M. (2012). Using read-alouds of grade-level biographies and systematic prompting to promote comprehension for students with moderate and severe developmental disabilities. *Focus on Autism and Other Developmental Disabilities*, *27*, 67-80, doi:10.1177/1088357612446859

National Early Literacy Panel. (2008). *Developing early literacy: Report of the National Early Literacy Panel*. Washington, DC: Author. Retrieved from http://lincs.ed.gov/earlychildhood/NELP/NELP09.html

National Reading Panel. (2000). *Report of the National Reading Panel: Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction: Reports of the subgroups*. Bethesda, MD: National Institute of Child Health and Human Development. Retrieved from https://www.nichd.nih.gov/publications/pubs/nrp/documents/report.pdf

No Child Left Behind Act of 2001, 20 U.S.C. § 6319 (2008).

Orlando, A. M., Copeland, S. R., Keefe, E. B., Taub, D., McCord, J., & Ruppar, A. L. (2014, December.) *Providing literacy opportunities for all in natural contexts*. Workshop presented at the annual meeting of TASH, Washington, DC.

Pressley, M., Roehrig, A., Bogner, K., Raphael, L. M., & Dolezal, S. (2002). Balanced literacy instruction. *Focus on Exceptional Children, 34*(5), 1-14.

Rankin, J. L., Harwood, K., & Mirenda, P. (1994). Influence of graphic symbol use on reading comprehension. *Augmentative and Alternative Communication, 10*, 269-281. doi:10.1080/07434619412331276970

Rosa-Lugo, L. I., & Kent-Walsh, J. (2008). Effects of parent instruction on communicative turns of Latino children using augmentative and alternative communication during storybook reading. *Communication Disorders Quarterly, 30*(1), 49-61. doi:10.1177/1525740108320353

Rowland, C. (2009). *Online Communication Matrix*, Retrieved from Oregon Health & Science University Design to Learn Projects website: www.communicationmatrix.org

Rowland, C. (2011). Using the communication matrix to assess expressive skills in early communicators. *Communication Disorders Quarterly*, *32*(3), 190-201. doi:10.1177/1525740110394651

Roy, P., & Hord, S. M. (2004). Innovation configurations chart a measured course toward change. *Journal of Staff Development*, *25*(2), 54-58.

Ryndak, D. L., Morrison, A. P., & Sommerstein, L. (1999). Literacy before and after inclusion in general education settings: A case study. *Research and Practice for Persons with Severe Disabilities*, *24*(1), 5-22. doi:10.2511/rpsd.24.1.5

Scherba de Velenzuela, J., & Tracey, M. M. (2007). The role of language and communication as the basis for literacy. In S. R. Copeland & E. B. Keefe (Eds.), *Effective literacy instruction for students with moderate or severe disabilities* (pp. 41-62). Grand Rapids, MI: Paul H. Brookes.

Sevcik, R. A. (2006). Comprehension: An overlooked component in augmented language development. *Disability & Rehabilitation*, *28*, 159-167. doi:10.1080/09638280500077804

Shevin, M., & Klein, N. K. (2004). The importance of choice-making skills for students with severe disabilities. *Research and Practice for Persons with Severe Disabilities*, *29*(3), 16-168. doi:10.2511/rpsd.29.3.161

Shurr, J., & Taber-Doughty, T. (2012). Increasing comprehension for middle school students with moderate intellectual disability on age-appropriate texts. *Education and Training in Autism and Developmental Disabilities*, *47*(3), 359-372.

Slater, J. M. (2002). A pictorial approach for improving literacy skills in students with disabilities: An exploratory research study. *Journal of Special Education Technology, 17*(3), 58.

Sturm, J. M. (2005). Literacy development of AAC users. In D. R. Beukelman & P. Mirenda (Eds.), *Augmentative and alternative communication: Supporting children and adults with complex communication needs.* (3rd ed., pp. 351-389). Baltimore, MD: Paul H. Brookes.

Sturm, J. M., Cali, K., Nelson, N. W., & Staskowski, M. (2012). The Developmental Writing Scale: A new progress monitoring tool for beginning writers. *Topics in Language Disorders, 32,* 297-318. doi:10.1097/TLD.0b013e318272159e

Swinehart-Jones, D., & Heller, K. W. (2009). Teaching students with severe speech and physical impairments: A decoding strategy using internal speech and motoric indicators. *Journal of Special Education, 43*(3), 131-144. doi:10.1177/0022466908314945

Teale, W. H., & Sulzby, E. (1986). *Emergent literacy: Writing and reading. Writing research: Multidisciplinary inquiries into the nature of writing series*. Norwood, NJ: Ablex.

Technology-Related Assistance for Individuals with Disabilities Act, 20 U.S.C. §§ 2201-2217 (1988).

U.S. Department of Education, National Center for Education Statistics. (2015). *Digest of education statistics 2013* (NCES 2015-011). Retrieved from http://nces.ed.gov/programs/digest/d13/tables/dt13_204.30.asp

Vacca, J. A. L., Vacca, R. T., Gove, M. K., Burkey, L. C., Lenhart, L. A., & McKeon, C. A. (2014). *Reading & learning to read*. Boston, MA: Pearson.

Wehmeyer, M. L., & Abery, B. H. (2013). Self-determination and choice. *Intellectual and Developmental Disabilities, 51*(5), 399-411. doi:10.1352/1934-9556-51.5.399

Whitehurst, G. J., & Lonigan, C. J. (1998). Child development and emergent literacy. *Child Development, 69*(3), 848-872. doi:0.1111/j.1467-8624.1998.tb06247.x

Williams, A. R., Koppenhaver, D. A., & Wollak, B. (2007). Email interactions of preservice teachers and adolescents with special needs. Retrieved from http://americanreadingforum.org/yearbook/yearbooks/07_yearbook/PDF/arf_07_Williams.pdf

Wollack, B. A., & Koppenhaver, D. A. (2011). Developing technology-supported, evidence-based writing instruction for adolescents with significant writing disabilities. *Assistive Technology Outcomes and Benefits, 7*(1), 1-23.

Appendix A

Innovation Configuration for Improving Literacy Instruction for Students With Multiple and Severe Disabilities Who Use Augmentative/Alternative Communication

Essential Components	Implementation Levels				
Instructions: Place an X under the appropriate variation implementation score for each course syllabus that meets the criteria level from 0 to 3. Score and rate each item separately.	**Level 0**	**Level 1**	**Level 2**	**Level 3**	**Rating**
	There is no evidence that the component is included in the syllabus, or the syllabus only mentions the component.	Must contain at least one of the following: reading, test, lecture/presentation, discussion, modeling/ demonstration, or quiz.	Must contain at least one item from Level 1, plus at least one of the following: observation, project/activity, case study, or lesson plan study.	Must contain at least one item from Level 1 as well as at least one item from Level 2, plus at least one of the following: tutoring, small group student teaching, or whole group internship.	Rate each item as the number of the highest variation receiving an X under it.
1.0 Literacy Assessment and Adaptations					
2.0 Comprehension					
3.0 Word Recognition					
4.0 Self-Selected Reading					
5.0 Writing					

Appendix B

Levels of Support for Improving Literacy Instruction for Students With Multiple and Severe Disabilities Who Use Augmentative/Alternative Communication

Essential Components	CEEDAR Level of Evidence	Supportive Research
1.0 Literacy Assessment and Adaptations		
	Emerging	Clay, 1993; J. A. Cunningham, 1993; Erickson, 2000; Rowland, 2011; Sturm et al., 2012
2.0 Comprehension		
2.1 - Questioning and responding strategies.	Limited	Harris & Reichle, 2004; Rosa-Lugo & Kent-Walsh, 2008; Sevcik, 2006; Vacca et al., 2014
2.2 - Systematic instruction.	Limited	Browder, Mims, et al., 2008; Mims et al., 2009; Mims et al., 2012
2.3 - Shared reading.	Limited	Bellon-Harn & Harn, 2008; Browder, Mims, et al., 2008; Hudson et al., 2013; Koppenhaver et al., 2001; Mims et al., 2012; Rosa-Lugo & Kent-Walsh, 2008
2.4 - Adapting books.	Emerging	Rankin et al., 1994; Shurr & Taber-Doughty, 2012; Slater, 2002

Essential Components	CEEDAR Level of Evidence	Supportive Research
3.0 Word Recognition		
	Limited	Ahlgrim-Delzell et al., 2014; Coleman-Martin et al., 2005; Fallon et al., 2004; Heller & Coleman-Martin, 2007; Swinehart-Jones & Heller, 2009
4.0 Self-Selected Reading		
	Emerging	Anderson et al., 1985; Baker & Wigfield, 1999; Yoon, 2002
5.0 Writing		
	Limited	Bedrosian et al., 2003; Erickson et al., 1997; Koppenhaver & Williams, 2010; Light et al., 2008; Williams et al., 2007; Wollack & Koppenhaver, 2011