Background

The development of literacy skills has a profound positive impact on all aspects of life – educational, vocational, social, and personal. Literacy skills are critical for individuals who require AAC, for these skills provide a channel for educational assessment and learning, enhance vocational opportunities, promote more effective communication, and facilitate independent living. Although there are adults who use AAC who have developed high level literacy skills, many individuals who require AAC experience significant difficulties in acquiring literacy skills (e.g., Koppenhaver & Yoder, 1992).

There are a wide range of intrinsic and extrinsic factors that may put individuals who require AAC at risk for the development of conventional reading and writing skills, including: (a) visual impairments that may impact perception and processing of written text; (b) motor deficits that may limit access to reading and writing materials (e.g., Koppenhaver & Yoder, 1992); (c) limited experiences talking about books and other texts; (d) low expectations for literacy learning by professionals and /or parents (Light & McNaughton, 1993); (e) difficulties with phonological awareness skills that may limit their ability to blend phonemes into words and to segment words into phonemes (e.g., Foley & Pollatsek, 1999); (f) pragmatic, semantic, syntactic and morphological limitations that may impact understanding and production of written texts (Sturm & Clendon, 2004); (g) working memory limitations that may negatively impact their ability to hold information in their mind and work with it (e.g., Fallon, Light, McNaughton, Drager, & Hammer, 2004); and/or, (h) deficits in executive functions such as planning and monitoring performance that may affect reading comprehension and writing.

Intervention is essential to address the wide range of intrinsic and extrinsic variables and to support individuals who require AAC in developing conventional literacy skills. A major barrier to improved literacy outcomes for individuals who require AAC is the lack of appropriate evidence-based instruction (Browder, Wakeman, Spooner, Ahlgrim-Delzell, & Algozzine, 2006). Many available literacy instruction programs are not appropriate for use with individuals who require AAC since these programs typically require spoken responses.

Goals of the Session

This session will report on the results of a research project, funded by the National Institute on Disability and Rehabilitation Research as part of the AAC-RERC. The research project is designed to develop, implement, and evaluate the effects of instruction on the literacy skills of individuals with complex communication needs. This presentation will discuss the results of the study and will provide guidelines for effective evidence-based literacy instruction with individuals who require AAC. Videotapes of various cases will be presented to illustrate the literacy interventions and outcomes. The cases will include individuals of various ages with a range of disabilities (e.g., cerebral palsy, autism, Down syndrome, multiple disabilities).

Methodology

The studies utilize single subject multiple baseline across subjects designs. The studies involve four phases: baseline, intervention, generalization, and maintenance. The studies each target one or more of the following dependent variables: measures of the participants' phonological awareness skills (e.g., initial phoneme segmentation, sound blending), letter-sound correspondences, single words decoded correctly, words read in shared story reading, and reading comprehension questions. Baseline measures of the dependent variables are collected for each participant prior to implementation of the

literacy instruction (the independent variable). Once stability is obtained for the dependent variables at baseline, then the literacy instruction is implemented with the first participant, while the other participants remain in baseline. Once treatment effects are demonstrated with the first participant, then the literacy instruction is implemented with the next participant and so on.

All of the studies involve children and adolescents (ages 3-18 years) who have developmental disabilities and require AAC. Additional selection criteria are as follows: (a) speech is not functional to meet daily communication needs; (b) understands words for absent people and objects, one step commands, simple sentences, and basic wh-questions; and (c) recognizes line drawings of familiar objects and actions.

Literacy Intervention
In order to learn to read and write, individuals with AAC needs require instruction in a wide array of skills, including: language skills; phonological awareness skills; letter sound correspondences; single word decoding skills; application of decoding skills in book reading; recognition of sight words; reading and understanding connected text; and, writing skills (e.g., Light & McNaughton, in press; Sturm & Clendon, 2004). The instructional programs implemented in the studies target these skills. They build on the current research on effective practices with individuals who require AAC (e.g., Blischak, Shah, Lombardino, & Chiarella, 2004; Fallon, et al. 2004) as well as effective practices in reading instruction for children who speak but are at risk for the development of literacy skills (e.g., The National Reading Panel, 2000).

In each of the studies, the intervention includes systematic, explicit, direct instruction in basic skills as well as opportunities to use these skills in meaningful shared reading activities (Light & McNaughton, in press). Instructional procedures adhere to the following sequence: model (i.e., the instructor demonstrates the skill for the learner); guided practice (i.e., the instructor provides scaffolding support to help the learner perform the target skill successfully); and independent practice (i.e., the learner performs the skill independently with appropriate feedback from the instructor). The transition to reading connected texts starts with scaffolded reading activities in which the learner is called upon to read target words in context with the rest of the text read aloud for the learner by the instructor, parent, or reading partner. Gradually students progress to reading connected texts themselves and building reading fluency and comprehension. Throughout instruction, the emphasis is on building motivation for reading and writing through the use of meaningful and motivating literacy materials (e.g., Erickson, Koppenhaver, Yoder, & Nance, 1997; Smith, 2005)

The instruction provides adaptations of all tasks to eliminate the need for oral responses, accommodate alternative nonoral responses, and provide external scaffolding support to compensate for the lack of access to oral production / rehearsal (Light & McNaughton, in press).

Preliminary Results
Data collection is currently in progress with 7 individuals who require AAC. Preliminary results of the studies demonstrate significant gains across participants, including gains in phonological awareness skills, knowledge of letter-sound correspondences, single word decoding, participation in shared story reading, and early writing skills as the result of instruction. With effective instruction, all of the participants have learned to read and developed early writing skills. A series of case studies with individuals with different

disabilities will be presented illustrating the literacy interventions and demonstrating their effects at different stages of literacy development over time. Research results will be presented, using videotapes to illustrate the literacy intervention and outcomes.

The session will provide clinicians with the knowledge to implement effective evidence-based literacy intervention. With appropriate instruction, individuals who require AAC will achieve improved literacy skills and will be able to maximize their educational and vocational opportunities.

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