Background and Research

The original *ELSB* was developed through Project RAISE (Reading Accommodations and Interventions for Students with Emergent Literacy) at the University of North Carolina, Charlotte, and evaluated in Charlotte-Mecklenburg Schools (CMS). Support for this research was provided in part by IES Grant No. H324K040004 from the U.S. Department of Education, National Center for Special Education Research, awarded to the University of North Carolina at Charlotte. Dr. Diane Browder and Dr. Claudia Flowers served as the Principal Investigators. Through Project RAISE, over 100 students with significant developmental disabilities, including autism, moderate-to-severe intellectual disabilities (ID), and multiple disabilities received early literacy instruction using *ELSB* as an ongoing part of their daily school routine. All students had IQs below 55. The grant staff trained teachers in CMS to implement *ELSB* with fidelity.

Browder, Ahlgrim-Delzell, Courtade, Gibbs, & Flowers (2008) first evaluated *Early Literacy Skills Builder* in a randomized control study with 23 students with ID. Participants who received *ELSB* outperformed students in the control group who received typical sight word instruction on a nonverbal measure of phonics.

In a replication by Browder et al. (2012), 93 students with ID, enrolled in grades K–4, were randomly assigned to either *ELSB* or the *Edmark Reading Program,* which uses a sight word approach. Results indicated that students in the comprehensive early literacy curriculum had a significantly higher mean on a nonverbal measure of phonics than the students in the sight word condition. *ELSB* is currently being evaluated in inclusive classrooms in an IES-funded project led by Dr. Pam Hunt and Dr. Elizabeth Kowzleski. *ELSB* is also now used in over 5,000 classrooms nationwide.

Existing evidence and research-based instructional priorities in emergent literacy have been summarized by the National Center to Improve the Tools of Educators (Gunn, Simmons, & Kame´enui, 1995). The key areas and practices, identified by Gunn, Simmons, and Kame´enui as those that impact reading acquisition and development, are included in *ELSB for Older Students* and are as follows:

1. Experiences with print (through reading and writing) help children develop an understanding of the conventions, purpose, and functions of print.

   At the earliest levels, *ELSB for Older Students* lessons introduce students to printed text, supported with accompanying picture symbols to promote meaning and to provide nonverbal response options.

   As students move through lessons, they are encouraged to respond to words without supporting symbols. They also are exposed to the literature used by their same-age peers participating in the general curriculum from the beginning of the program.

2. Children learn how to attend to language and apply this knowledge to literacy situations by interacting with others who model language functions.

   The Building with Read Alouds component of *ELSB for Older Students* can help students learn to participate in the whole class reading lessons of their same-age peers in general education classes. Building with Read Alouds includes a planning template, which provides specific information on

responses to use to promote student learning. Peers who are nondisabled may also follow this sequence of steps to share a story with a student who has significant disabilities.

3 Phonological awareness and letter recognition contribute to initial reading acquisition by helping children develop efficient word recognition strategies (e.g., detecting pronunciations and storing associations in memory).

ELSB for Older Students lessons begin with teaching students the concept of word and general print awareness. Subsequent lessons teach letter-sound correspondences and phonological (including phonemic) awareness skills, including syllabication, recognition of beginning and ending sounds in words, blending of sounds to form words, and segmenting the sounds in words.

4 Socioeconomic status (SES) does not contribute most directly to reading achievement. Rather, other family characteristics related to context are more explanatory, such as academic guidance, attitude toward education, parental aspirations for the child, conversations in the home, reading materials in the home, and cultural activities.

Just as environment is more important to reading success than SES, the same may be true for IQ. Readiness for reading is not necessarily determined by mental age or other developmental measures. Instead, students' acquisition of print and phonemic awareness may be more important predictors of success in learning to read. Students with moderate-to-severe disabilities may acquire these early literacy skills later than typically developing children. *ELSB for Older Students* is developed to teach early literacy skills to students in upper grades who may not have been exposed to or developed these skills.

Skills in *ELSB for Older Students* lessons are presented in a spiraling format with ample recurrence. In addition to priorities in emergent literacy summarized by the National Center to Improve the Tools of Educators, lessons address the key literacy components supported by the NRP (2000) and other professionals. The NRP was created to analyze reading research and make recommendations to Congress on how best to use the findings to improve reading instruction in schools. The components recommended by the NRP and the related target skill included in *ELSB for Older Students* are listed in Table 5.

Evidence of Phonemic Awareness and Phonics Skills Acquisition for Students With Intellectual Disabilities

Joseph and Seery (2004) examined studies conducted over the previous 12 years that used phonemic awareness and/or phonics instruction with students who had intellectual disabilities. Seven studies were found that used phonetic analysis (i.e., making letter-sound correspondences). These studies revealed that students with intellectual disabilities have the potential to benefit from phonemic awareness and phonics instruction. More specifically, two studies had positive outcomes when letter-sound correspondences were introduced (Hoogeveen, Smeets, & Lancioni, 1989; Hoogeveen, Smeets, & van der Houven, 1987). In a review focused specifically on reading for students with autism spectrum disorders (ASD), Whalon, Al Otaiba, and Delano (2009) found 11 studies with only 6 that targeted phonics. Historically, there have been few models for how to teach these skills to students with developmental disabilities. Given that students with developmental disabilities often struggle with memory capacity, students who are taught to read using a sight word memorization approach will be limited in the amount of text they can read and comprehend (Connor, Alberto, Compton, & O'Connor, 2014).

Since these reviews, there have been several innovative studies on teaching phonics and phonemic awareness to students with developmental disabilities. Researchers (Allor, Mathes, Roberts, Cheatham, & Champlin, 2010; Allor, Mathes, Roberts, Jones, & Champlin, 2010; Flores, Shippen, Alberto, & Crowe 2004; Lemons, Mrachko, Kostewicz, & Paterra, 2012) have found

Table 5. Literacy Components in ELSB for Older Students Supported by the National Reading Panel

	ELSB TARGET SKILLS		
NRP Component	**Early-Sequence**	**Mid-Sequence**	**Late-Sequence**
Phonemic Awareness	Identify the concept of word Identify initial consonant sounds	Identify initial and final consonant sounds	Segment the phonemes in words and blend phonemes (phonemic awareness skills that will form the foundation for a beginning reading program)
Alphabetic Principle (Phonics)	Identify words using picture symbols Identify letter-sound correspondences	Identify letter-sound correspondences	Use pictures to demonstrate understanding when seeing letters and hearing letter sounds
Comprehension	Select a picture/text for a repeated story line Answer literal recall *wh*-questions	Select a word to complete a repeated story line Answer *wh*-, prediction, and main idea questions	Select a word to complete a repeated story line Answer literal recall, predictive, summative, and inferential questions relating to the story
Vocabulary	Read some high-frequency sight words Read new vocabulary words using pictures and/or text	Read more high-frequency sight words Read new vocabulary words using pictures and/or text	Read more high-frequency sight words Read new vocabulary words using pictures and/or text

positive outcomes for elementary students with a mild-to-moderate intellectual disability (ID) who received systematic instruction in a comprehensive phonics-based program. Similarly, several researchers have found that students with ASD can benefit from phonics instruction (Bailey, Angell, & Stoner, 2011; Grindle, Hughes, Saville, Huxley, & Hastings, 2013; Leytham, Pierce, Baker, Miller, & Tandy, 2014; Travers et al., 2011). A common feature of the research for students with ID and students with ASD is the use of explicit instructional strategies like systematic prompting. A shortcoming of these studies is that nearly all assumed the student could express phonemic skills through spoken responses, like voicing the sounds in a word. In contrast, *Early Literacy Skills Builder for Older Students* offers response options (e.g., an array of pictures) so that students can respond with or without speech. After students master *Early Literacy Skills Builder for Older Students*, *Early Reading Skills Builder* (Browder et al., 2015) makes it possible to advance in use of phonics and reading through technology to help the student voice and blend phonemes in words and decode new words.