

Chapter 9

Using Software to Deliver Language Intervention in Inclusionary Settings

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ABSTRACT

Language intervention focusing on syntax is an essential component of programs designed to meet the educational needs of children with language disabilities as it provides a foundation for improved communication and literacy. Yet there are challenges to providing individualized syntax intervention on a daily basis in inclusionary settings. The use of assistive technology in the form of language intervention software provides one means to address these challenges. This chapter describes the background, rationale, and use of software designed to provide receptive syntax intervention to build sentence comprehension and use in pre-school and elementary children with disabilities. The software is also appropriate for at-risk students in districts providing early intervening services in a response to intervention model as well as English language learners. Included is an overview of advances in linguistic theory and research that have dramatically increased our understanding of language and how it is acquired by typically and atypically developing children, and which informed the curricular design of the software described. The results of field-testing under naturalistic conditions in classrooms, where regular use of the software was associated with accelerated language development, are also reviewed.

INTRODUCTION

Since the landmark passage of Public Law 94-142 (Education of All Handicapped Children Act) in 1975, society has supported the belief that all children are entitled to a public education. The Individu-

als with Disabilities Education Act (IDEA, 2004) is the direct descendent of PL94-142 and the current law ensuring services to children with disabilities. The law governs how states and public agencies provide early intervention and special education to the millions of eligible children from birth to 21. Students from 3-21 receive special education and related services through Part B of IDEA. The

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most important mandate in the law covering Part B is that students with disabilities are entitled to a free appropriate public education (FAPE) in the least restrictive environment (LRE). While “inclusion” does not appear in the legislation, clearly LRE means that to the extent possible children with disabilities should be educated with their neurotypically developing peers. As a society, we don’t believe that children with disabilities should be isolated from their peers but many schools encounter difficulties in providing education to children with disabilities in the general education classroom. Despite general commitment to integration, difficulties are frequently encountered in meeting the needs of children with disabilities in inclusionary environments. Among the difficulties are feelings of regular educators that they lack the skills to deal with special needs students in their classrooms (Hanson, Horn, Sandall, Beckman, Morgan, Marquardt, Darnwell, & Chou, 2001). Children with disabilities are most successfully included when regular and special educators work together on developing classroom-teaching strategies (Goodman & Williams, 2007; McCormick, Won, & Yogi, 2003).

One promising approach to meeting the needs of students with disabilities in the general education classroom is through the use of assistive technology (AT) in the form of language intervention software. Before adopting software for use in the classroom, however, speech-language pathologists and special educators must be sure that the programs will deliver research-based intervention that can address a student’s language acquisition needs. This chapter will describe the background, rationale, and use of software designed to provide receptive syntax intervention to build sentence comprehension and use in pre-school and elementary children with disabilities. The programs are also appropriate for at-risk students in districts providing early intervening services in a response to intervention (RTI) model as well as students who are English language learners.

BACKGROUND

Advances in linguistic theory and psycholinguistic research over the past quarter century have dramatically increased our understanding of language and how it is acquired by typically and atypically developing children. Children all over the world learning any one of thousands of different languages do so in a remarkably similar manner. First words emerge, word combinations occur, and syntax is mastered at about the same age regardless of the language or culture. What exactly is the nature of the human biological endowment that enables very young children to acquire their first language on such a strikingly consistent timetable? Since its inception (Chomsky, 1955; 1957), generative grammar theory has tried to explain this phenomenon (see Chomsky, 2004 for a brief review). A fundamental assertion emerging from this work is that the rapidity and uniformity of first language acquisition is possible because human infants are born with an innate language faculty (Universal Grammar) that drives and shapes the course of language development (Hauser, Chomsky, & Fitch, 2002). Although this premise was in doubt fifty years ago, today it is accepted with discussion centered only on the precise nature of this innate endowment (Boeckx & Piattelli-Palmarini, 2005; Jenkins, 2004; Laka, 2009).

Because our inborn human language capacity orchestrates language acquisition, neurotypically developing children need only language exposure to acquire language, at least insofar as acquisition of the formal grammar component (vocabulary and syntax) of language is concerned. The grammar of a language is composed of the lexicon (the “dictionary” of lexical items/words in the language) and the syntactic computational system that assembles lexical items into sentences. The important distinction here is that, while the ability to *use words* for communication in social settings, (i.e., pragmatics) is developed through communicative interaction, acquisition of the *grammar of a*

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