

Reading instruction for children with ASD

Getting the story straight

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KEYWORDS

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Speech-language pathologists (SLPs) have the specialist knowledge to promote children's literacy learning, especially those at risk for difficulties in literacy acquisition and development. However, three common misconceptions may cause a failure to address the literacy learning needs of children with autism spectrum disorder (ASD). In this article, we question these mistaken beliefs and draw on the available evidence to explain why literacy activities should be incorporated into the SLP's routine assessment and/or intervention practices for all children with ASD.

Literacy is a fundamental human right (UNESCO, 2008). Until recently, however, there has been little acknowledgement or awareness of the literacy needs of children with disabilities (see Keefe & Copeland, 2011, for a discussion). In fact, a number of assumptions have been documented in the literature about people with disability and literacy. For example, children with autism spectrum disorder (ASD) may be seen as "too cognitively impaired" or "not ready for" support in this domain (Mirenda, 2003). Alternatively, these children may also be thought to be competent in literacy when observed to show skills or strengths in one aspect (e.g., letter knowledge or word reading), but when in fact showing difficulties in other aspects of literacy (e.g., comprehension) (Ricketts, 2011). Such assumptions may lead to neglect of this important skill-set for children with ASD, and have the potential to impact on these children's participation and achievement in education, the workforce, and society more broadly. This lack of attention to literacy learning may have important ramifications, as long-term outcomes of children with ASD are generally poor across all these areas (e.g., Howlin et al., 2015; Levy & Perry, 2011). Most children with ASD need some support at school, including assistance with learning and communication (Australian Bureau of Statistics, 2014). Moreover, these difficulties continue after school, with more than 80% of children with ASD not completing a post-school qualification (Australian Bureau of Statistics, 2014). The focus of this article is on providing insight and understanding into one aspect of academic achievement that may impact these outcomes: literacy for children with ASD.

ASD is characterised by impairments in social/communicative skills and the presence of restricted and

repetitive behaviours and interests (American Psychiatric Association, 2013). It is estimated to affect approximately 1 in 68 people (Centers for Disease Control and Prevention, 2014) and is associated with elevated rates of intellectual disability (e.g., Fombonne, 2003; French, Betrone, Hyde, & Fombonne, 2013) and challenging behaviour both compared to typically developing children and those with other conditions (e.g., Blacher & McIntyre, 2006; Eisenhower, Baker, & Blacher, 2005; McClintock, Hall, & Oliver, 2003). Although literacy difficulties are not explicitly part of the diagnostic criteria, challenges with literacy, particularly comprehension, are commonly reported (Ricketts, Jones, Happé, & Charman, 2013). Indeed, between 30 and 60% of children and adolescents with ASD are reported to show below average literacy skills (Arciuli, Stevens, Trembath, & Simpson, 2013; Nation, Clarke, Wright, & Williams, 2006; Ricketts et al., 2013). In addition, characteristics of ASD may make individuals particularly vulnerable to difficulties in acquiring literacy skills. For example, difficulties with joint attention, failure to follow pointing, oral language delays, and problems with social orienting, as described in diagnostic criteria (American Psychiatric Association, 2013), may hinder the acquisition and development of literacy. These areas are commonly addressed by speech-language pathologists (SLPs) and can form the foundation for addressing secondary, but related challenges such as literacy. However, literacy skills are typically not included in the remit of SLP interventions for children with ASD (Lanter & Watson, 2008). In this article we will address three common assumptions that may act as barriers to providing literacy support.

Assumption 1: Children with ASD show strengths in decoding

Children with ASD, especially those children who show average or above average intelligence, are frequently labelled as *hyperlexic*. Hyperlexia refers to an imbalance between the ability to read or decode words and the ability to comprehend the written text, with decoding exceeding comprehension (Frith & Snowling, 1983). As young children with ASD often show an interest in letters, and a proportion of children with ASD seem to learn to read without direct instruction, much research attention has focused on this puzzling phenomenon (Newman et al., 2007; Turkeltaub et al., 2004). As a result, in clinical practice, we may incorrectly assume that all children with ASD will have no difficulties developing their reading skills and that reading is in fact a relative strength. The evidence suggests otherwise.



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A “pure” hyperlexic profile is not the most common reader profile in ASD. For example Nation et al. (2006) assessed a group of 41 school-age children (age 6–15 years) with ASD who showed sufficient oral language skills to participate. Using the Neale Analysis of Reading Ability – II (NARA; Neale, 1988) to assess the participants’ reading accuracy and reading comprehension skills, only 20 children showed age-appropriate word reading skills, and 10 of these (~25% of the total sample) showed a hyperlexic profile. In addition, 9 children with ASD were unable to read at all, and a further 10 children showed difficulties in accurately reading the passages of the NARA. Taken together these results clearly show that we cannot assume that all children with ASD will develop adequate word-reading skills.

Furthermore, a large proportion of children with ASD who *do* become fluent decoders show difficulties in deriving meaning from written text (Arciuli et al., 2013; Huemer & Mann, 2010; Nation et al., 2006; Ricketts, 2011). For example, studies investigating the reading abilities of primary school-age children with ASD showed that between 53% (Arciuli et al., 2013) and 65% (Nation et al., 2006) of children showed reading comprehension difficulties. Similar results were found in a study of adolescents with ASD (Ricketts et al., 2013). Of the 100 adolescents who participated in the research, 60% showed reading comprehension difficulties as measured on a standardised reading test. This may not come as a surprise considering the oral language weaknesses that are core symptoms of ASD, but assessment and management of these reading comprehension difficulties may be overlooked in clinical practice. Considering there is emerging evidence for the effectiveness of reading comprehension intervention for students with ASD (El Zein, Solis, Vaughn, & McCulley, 2014), we urge speech pathologists to determine the reading abilities of their clients with ASD and provide intervention as needed.

Literacy learning, however, starts long before children commence formal schooling (Justice, 2006). Given children with ASD are at risk of oral language and literacy difficulties, emergent literacy skills are also important to acknowledge in young children with ASD. Although some evidence exists regarding the reading profiles of school-age children with ASD (see also Jacobs & Richdale, 2014), there is surprisingly little research investigating the emergent literacy skills in young children with ASD prior to school-entry (Westerveld, Trembath, Shellshear, & Paynter, 2015). Results from Westerveld et al.’s (2015) systematic review of the literature showed some evidence of specific early difficulties in development of print concept knowledge (e.g., reading from left to right and pointing to the words on a page). Westerveld et al. (2015) recommended including emergent literacy tasks into the routine assessment battery for preschool children with ASD (see also Lanter & Watson, 2008).

Assumption 2: Cognitive and/or severe communication impairment means children with ASD can’t learn to read

Just over a decade ago, several authors commented on the distinct lack of attention to the emergent and early literacy skills of children with ASD who have severe communication impairments (Koppenhaver & Erickson, 2003; Mirenda, 2003). Since that time, Google Scholar reveals 105 cites to Mirenda’s (2003) article as at 23 September 2015, indicating an increasing interest in this neglected area of academic achievement for children with ASD. Mirenda called for abolishing the “readiness model” of literacy instruction for children without functional speech, that is that literacy

instruction should only commence once students have sufficient verbal skills (e.g., to produce letter sounds) and demonstrate mastery of prerequisite skills such as letter knowledge and phonological awareness. Instead, Mirenda promoted “literacy instruction that incorporates the use of multiple instructional strategies that are carefully matched to the stages or phases of development through which all readers pass on their way from emergent reading to skilled reading” (p. 275). These levels of word learning involve (1) the pre-alphabetic phase, (2) the partial alphabetic phase, (3) the full alphabetic phase, (4) the consolidated alphabetic phase, and (5) the automatic phase (Ehri, 1995).

Underpinning this approach is the importance of careful assessment of the student’s current literacy level. This includes children who have limited or no functional speech and rely on augmentative and alternative communication (AAC).

One method of reading instruction for students with severe cognitive abilities is sight-word instruction (i.e., level 1). A recent review of the literature into the effectiveness of sight-word instruction for students with ASD revealed nine small-scale studies involving students aged between 4 and 16 years of age (Spector, 2011). In general results were positive in that all children learned to read printed words by sight, even children who were nonverbal or who had received no prior reading instruction. Unfortunately no evidence was provided regarding generalisation of the results to oral language or more natural reading tasks, so further research is clearly needed. It is also important to point out that this type of instruction may not be suitable for “high-functioning” students with ASD or for students with ASD who demonstrate average word reading skills (Spector, 2011). For those children, as stated previously, we need to ensure literacy instruction is carefully matched to their phase of (reading) development (Mirenda, 2003).

Koppenhaver and Erickson (2003) introduced natural literacy learning opportunities into a preschool classroom for children with ASD and measured the effects on children’s emergent literacy development, including independent book exploration, spontaneous choice of reading- or writing-related activities, and emergent name writing. Some interesting findings emerged when the authors examined the progress made by three children with severe cognitive and communication impairments. First, the authors commented how easy it was to interest the children in literacy-related activities, although each child seemed to favour different types of activities (e.g., books vs. writing tools). Second, the incidental exposure (as opposed to structured systematic exposure) to literacy learning opportunities seemed sufficient for the children to make progress. These results clearly show the importance of exposing preschool children with ASD to literacy-related activities, even those children who have severe communication impairments.

In summary, despite an obvious increase in interest in literacy learning for children with ASD who show severe cognitive and /or communication difficulties, there seems to be little empirical research into literacy instruction for these students across the five different levels of word reading as identified by Ehri (1995). Heeding repeated calls that “all people are capable of acquiring literacy” (Keefe & Copeland, 2011, p. 97), we strongly advise SLPs to include literacy activities for all children with ASD, including those who require AAC.

Assumption 3: Learning styles and children with ASD

Given that learning to read is a fundamental goal of early childhood development, but a documented challenge for

many children with ASD, it is essential that literacy instruction methods accommodate the learning strengths and needs of children with ASD. For SLPs, this means adopting an individualised, theoretically driven approach to ascertaining and accommodating the motivations, learning strengths, and preferences of each client with ASD (Trembath & Vivanti, 2014). Kanner (1943), in his original article describing 11 children presenting with “autistic disturbances of affective contact”, noted that the children presented with a set of essential common characteristics (i.e., social-communication and behaviour impairments), but also “individual differences in the degree of their disturbances, the manifestation of specific features, the family constellation, and the step-by-step development in the course of years (pp. 241–242)”. Although it is uniformly accepted in research and clinical practice that children with ASD present with a spectrum of individual learning strengths and needs, there has been a propensity within the field at times over the past two decades to adopt a somewhat narrower view of children’s “learning styles”. This includes the commonly asserted notion that “children with ASD are visual learners” who are likely to benefit from picture-based instructional methods, despite a concerning lack of research evidence (Trembath, Vivanti, Iacono, and Dissanayake, 2015), and the fact that the notion of “learning styles” has been generally discredited in the broader educational literature (see Pashler, Mcdaniel, Rohrer, and Bjork; 2008). Such an approach, if adopted, places children at risk of being prescribed interventions, including literacy instruction, in a manner that is non-evidence based.

So how can clinicians accommodate, and where possible harness, the “learning styles” of children with ASD when it comes to literacy instruction? We propose that the first step is to be familiar with the known mechanisms of learning impairment in children with ASD, including difficulties with joint attention, social learning, and imitation outlined above (American Psychiatric Association, 2013). Speech pathologists, and the parents and others they coach to support children’s literacy development, should seek to ascertain children’s abilities in these areas and put in place additional strategies (e.g., extra cues to gain and maintain a child’s visual attention; providing ample opportunities and graduated scaffolding to support imitation) to account for any difficulties during literacy activities (such as shared book reading). The second step is to identify each child’s individual, at times idiosyncratic, motivations and learning strategies, and where possible to incorporate these into the intervention (Winter-Messiers et al., 2007). For instance, SLPs and others may infuse literacy instruction into a child’s particular interest (e.g., drainage systems or vehicle badges) in order to harness the child’s intrinsic motivation for learning on these topics. Above all, our third recommendation is to at all times assume that each child with ASD will present with individual differences in the way he or she learns most effectively, the need for which is clearly evidenced in the rapidly accumulating body of research documenting individual differences in response to interventions amongst children with ASD (e.g., Trembath & Vivanti, 2014).

Conclusion

Literacy skills in ASD are an important topic worthy of further attention. At present there are significant gaps in the literature describing the acquisition, development, and effective interventions for reading in children with ASD. We know that many children with ASD will encounter difficulties with literacy, and areas of strength (e.g., decoding), need

(e.g., oral language impairment), or assumed “learning styles” can lead to unhelpful assumptions. As a result, speech pathology intervention may neglect to incorporate literacy goals tailored to meet an individual child’s learning profile.

Until we have further evidence, we must draw upon the evidence-based practice frameworks by using the best available evidence combined with clinical reasoning and judgement (Hoffmann, Bennett, & Del Mar, 2013). The best available evidence at present includes an extensive literature base on typical development and language-impaired populations (e.g., Catts, Herrera, Nielsen, & Bridges, 2015). This knowledge can be interpreted in conjunction with ASD knowledge and assessment of the individual child to formulate appropriate interventions that include literacy related goals and activities (see Lanter & Watson, 2008, for further recommendations).

Speech pathologists, as part of an interdisciplinary team, are well positioned to address the literacy needs of young children with ASD with their expert knowledge of oral language development and its relationship with literacy development (Speech Pathology Australia, 2011). By including a focus on literacy we may help to bridge the education gap in children with ASD.

Author statement

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