# Embedding Evidence-Based Practices to Address Literacy in School-Based Speech–Language Therapy

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Children with language impairment (LI) are at an elevated risk for reading difficulties, particularly if their language difficulties are present at the time of formal schooling entry. Learning to read is heavily dependent on linguistic knowledge, specifically phonological knowledge for word decoding and language comprehension for reading comprehension. Thus, speech–language pathologists (SLPs) are well suited to address both the language and literacy difficulties that children with LI may encounter. However, evidence suggests that children's literacy skills are rarely targets of intervention even in school-based settings. This article reviews evidence for why literacy should be addressed within the context of therapy, the positive effects that literacy interventions confer, and an examination of current practices regarding treating reading as a therapy target. The article concludes with suggestions for perspectives and approaches that may address the challenges and barriers faced by school-based SLPs, who should embed evidence-based literacy interventions for children with LI in their therapeutic activities. **Key words:** *evidence-based practice*, *language impairment*, *literacy*, *reading*, *reading disorders*, *school-based services*

LEARNING TO read is one of the most important milestones in a child's schooling experiences. Reading competence (hereafter interchangeable with the term "literacy") is linked to stronger academic outcomes (e.g., McClelland et al., 2006), social–emotional skills (e.g., Arnold et al., 2005), and increased employment opportunities later in life (e.g., Smart et al., 2017). Unfortunately,

for many children, the process of learning to read can be challenging. Children with language impairment (LI),[1] for example, are among the most vulnerable for literacy difficulties (Botting et al., 2006; Freed et al., 2011; Tambyraja, Schmitt, et al., 2015). Children with LI are identified as such based on deficits in any, or multiple, areas of language, including phonology, grammar, vocabulary, and/or pragmatic knowledge—all skills that contribute to successful reading comprehension. This close connection between oral language and reading justifies the role that speech–language pathologists (SLPs) can play in supporting the reading skills of children on their caseloads who struggle with any aspect of oral language. Unfortunately, the current

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[1]Although we use "LI," we acknowledge that the term "developmental language disorder (DLD)" also is used with relative frequency.

research base is limited regarding how best to support literacy within the context of therapy, particularly in school-based settings where time and resources are constrained. Thus, many school-based SLPs feel that they have little guidance on how to incorporate literacy goals into language therapy (e.g., Fallon & Katz, 2011).

Yet, embedding evidence-based practices to address the literacy skills of students on their caseloads is an important and mandated part of school-based services (American Speech-Language-Hearing Association [ASHA], 2010) and indeed, a call that can be readily met by SLPs. This article argues that although current evidence may be limited regarding how to implement literacy-focused therapy in school-based settings, the collective knowledge about the risks to literacy faced by children with LI and the relations between oral language and literacy skills are sufficient for SLPs to begin thinking about how to embed evidence-based practices that support the literacy skills of their students. First, we briefly highlight the rationale for legislation that mandates addressing literacy as part of an SLP's scope of practice, particularly for school-based SLPs. Next, we review the research concerning the prevalence of literacy difficulties and predicted outcomes for children with LI to underscore the critical need that SLPs must meet. We then review evidence from intervention studies that substantiate the effects that literacy-focused interventions confer and evaluate research of current practices in school-based settings. The article concludes by encouraging SLPs to draw on their training and knowledge about oral language and literacy connections to overcome challenges specific to school-based settings.

## UNDERSTANDING THE SLP'S ROLE IN ADDRESSING LITERACY

Arguably, some of the most compelling evidence that substantiates the SLP's role in mitigating reading difficulties in children with LI comes from studies of typically developing children (e.g., Cutting et al., 2009; Nation & Snowling, 2004; Roth et al., 2002; Wagner et al., 1994). On the basis of theories of reading acquisition, such as the Simple View of Reading (Hoover & Gough, 1990; Kendeou et al., 2009), a large body of work has illustrated the interconnectedness of component language skills and reading ability (Nation & Snowling, 2004; Roth et al., 2002). In the Simple View of Reading framework, reading comprehension, or obtaining accurate meaning from reading the transcribed language, is achieved by fluently (i.e., rapidly and correctly) and fluidly (with appropriate prosody, given the accumulating textual understanding) decoding written words in combination with rapid comprehension of the decoded words.

Decades of research support the idea that phonological skills are a necessary and important component in the development of decoding ability (Storch & Whitehurst, 2002; Swank & Catts, 1994; Wagner et al., 1994). For children learning alphabetic orthographies, strong phonemic awareness skills are particularly advantageous for understanding and applying the alphabetic principle or phoneme-to-grapheme relations (Byrne & Fielding-Barnsley, 1989; Harn et al., 2008: Muter et al., 2004). Children who understand that words can be broken down into very small segments of speech, or phonemes, are well positioned to then apply that knowledge to the letters that represent those sounds and, subsequently, decode words.

The second part of the reading comprehension equation according to the Simple View of Reading, language comprehension, is similarly intuitively related to other component language skills. Obtaining meaning from decoded words is reliant on various aspects of linguistic knowledge, such as vocabulary, morphology, syntactic structures, and an understanding of the pragmatic aspects of language (Muter et al., 2004; Ouellette, 2006). Considered this way, the connection between oral language and reading ability is quite robust. Learning to read is heavily contingent on intact language skills; as such, children

who struggle with any aspect of oral language are likely to struggle with the corresponding aspect of reading and, ultimately, reading comprehension.

Largely for this reason, federal legislation mandates that within school settings, educators, including SLPs, must address and support literacy skills for children on their caseloads who require such support (Individuals with Disabilities Education Act, 2004), which was reinforced by the governing association for practicing SLPs in the United States (i.e., ASHA). As noted in ASHA's position statement regarding the extent to which SLPs can and should play an integral role in the identification and treatment of literacy difficulties, SLPs should be trained to assess the extent to which children may have deficits in any area of language and provide interventions that are targeted and direct (ASHA, 2020). For school-based SLPs, this responsibility is particularly salient, as the primary goal of school-based services is to support and ensure students' academic success (ASHA, 2012). Children who qualify for school-based services most often do because their communication impairment is severe enough to negatively affect their educational performance. By focusing on and supporting the language and literacy skills of children receiving school-based therapy, SLPs can potentially play a powerful role in improving children's academic outcomes.

## LITERACY SUPPORT: WHO ACTUALLY NEEDS IT?

As argued earlier, SLPs are uniquely qualified to support the literacy skills of children with LI. However, research reporting the proportion of children with LI who demonstrate significantly depressed reading skills offers rather mixed results (Bishop & Adams, 1990; Gosse et al., 2012; Werfel & Krimm, 2017), perhaps because researchers and clinicians do not necessarily use the same criteria for identifying children with LI. As such, the extant literature base can be both confusing and daunting with respect to estimating the

proportion of children with LI who are likely to be at risk, and thus qualify for, concurrent reading supports. As an example, some studies of children identified as having LI, based on researcher-specified standards, have found that anywhere from 50% to 85% of children with LI exhibit concomitant reading difficulties (e.g., Simkin & Conti-Ramsden, 2006; Tomblin et al., 2000). For example, Werfel and Krimm (2017) identified reading subtypes (e.g., dyslexia, reading comprehension impairment, both, or typical reading) among second- to fourth-grade children with LI ($n = 32$). Consistent with earlier research, 84% of children with LI met criteria for a reading disorder, and the range of reading disorder types varied considerably. Considered together, these studies offer a bleak outlook for reading outcomes of school-aged children with LI and indicate that it may be beneficial for children who receive school-based services also to be evaluated for concomitant reading difficulties.

Conversely, studies including clinically identified children with LI suggest a possibly smaller proportion of children who may experience concomitant reading difficulties. For example, Tambyraja, Farquharson, et al. (2015) examined the word-decoding abilities of kindergarten and first graders who were receiving school-based language therapy for LI. Approximately 25% of children in that sample ($n = 198$) scored below 1 *SD* on a standardized measure of word decoding. Corroborating evidence comes from a population-level study (Gosse et al., 2012) that found that 25% of kindergarteners and first graders who received school supports for speech–language therapy also received services to address reading difficulties.

At first blush, these data may stand at odds with other studies and simply indicate that research is mixed. However, three important points must be made. First, although the proportion of children with LI who need reading services may seem less in some studies, the fact remains that the overall proportion of risk is still quite high. Second, the focus of reading instruction in

the earlier years (e.g., phonemic awareness, grapheme–phoneme correspondence) is different from that as children get older and when oral language skills are more predictive of reading comprehension abilities. Thus, although fewer children may exhibit difficulties in word decoding, the proportion of children with LI who experience concomitant reading comprehension difficulties may be understated when only considering word decoding deficits. Finally, these "mixed" findings actually underscore the importance of supporting literacy skills as early as possible. Indeed, some children with LI will exhibit depressed code-based abilities in kindergarten and first grade. But even among those who do not, many more likely will experience reading difficulties as they get older due to poor language comprehension skills.

Despite the varying reports of how many children with LI are likely to have reading difficulties, it is evident that the presence of a language disorder is a risk factor for reading problems that may or may not be detectable in the early school years. Furthermore, it is clear that any practicing SLP, particularly those working in school settings, will have at least one child on their caseload whose literacy skills will need to be addressed. Therefore, SLPs must be prepared to integrate literacy interventions within the context of school-based therapy.

## READING OUTCOMES OF SCHOOL-AGED CHILDREN WITH LI

Regardless of how many school-aged children with LI struggle with reading, studies investigating the long-term outcomes underscore the importance of remediating literacy difficulties as early as possible. Overwhelmingly, research examining the reading trajectories of children with LI suggests that early deficits in literacy acquisition predict later reading difficulties (Catts et al., 2002; Morgan et al., 2011; Skibbe et al., 2008; St. Clair et al., 2010). For example, Morgan et al. (2011) used data from a large national data set (Early Childhood Longitudinal Study [ECLS])

to examine the reading trajectories of children who were classified as either typically developing or having LI. Children with LI had lower skills in kindergarten than the typically developing group, and those differences appeared to increase over time. The authors argue that this pattern aligns with a *cumulative deficit* model, sometimes referred to as the "Matthew effect" (Stanovich, 1986), in that children who start off with below average skills perform more poorly over time such that their deficits become magnified in severity as they lose ground respective to their peers.

However, other studies have reported a slightly different long-term trajectory pattern with respect to reading acquisition for children with LI (Catts et al., 2002; Skibbe et al., 2008; St. Clair et al., 2010). For example, Skibbe et al. (2008) found that children with LI had significantly poorer reading abilities specific to letter identification, word decoding, and reading comprehension, compared with typically developing children at each of the four assessment points. However, the pattern of reading development was actually quite similar between groups. That is, both groups demonstrated greatest growth in the preschool years, with gains tapering as they neared fifth grade. Other studies examining longitudinal outcomes have yielded comparable findings. St. Clair et al. similarly found that, although children with LI had poorer outcomes at each testing point than normative data with respect to word reading and reading comprehension abilities, the shape of the trajectory throughout the testing period was consistent with that of children with normal language skills. Together, these studies suggest that for children with LI, lags in reading skills do not necessarily increase over time; however, the additional gains needed to perform comparably with their typically developing peers are not realized either. The finding that the developmental trajectories are similar between children with LI and typically developing children substantiates the idea that addressing reading-related deficits should occur as soon as possible.

Considered altogether, research reviewed earlier converges on three main points. First, as a group, clinically identified children with LI who receive school-based services are at elevated levels of risk for reading difficulties. This risk cannot be overstated; indeed, as Skibbe et al. (2008) note in their introduction, there is no available research to date that suggests that children with LI will fare as well as typically developing children. Second, however, not every child with a diagnosed LI has reading difficulties. Indeed, even though the rate of reading difficulties among children with LI is more than twice that of typically developing children, some evidence specific to word-decoding deficits suggests that it is lower than previously reported (e.g., ~25%; Gosse et al., 2012; Tambyraja, Farquharson, et al., 2015)]. Third, and importantly, children with LI may follow a developmental trajectory that is similar to that of their typically developing peers. That is, it is possible that their developmental capacities are not qualitatively different from children with normal language skills; thus, treatment should commence as early as possible.

## LITERACY INTERVENTIONS FOR CHILDREN WITH LI: DO THEY WORK?

Supporting the reading development of children with LI is a task in which SLPs can and must engage; however, action toward meeting their needs must be thoughtful, deliberate, and evidence-based. Fortunately, the decades-long research examining documented effects of reading interventions on struggling readers is robust and compelling (e.g., Bus & van IJzendoorn, 1999; Hatcher et al., 1994; Justice & McGinty, 2009; Lundberg & Reichenberg, 2013; Snowling & Hulme, 2012). In this section, we review a sampling of these interventions specific to children with LI.

Perhaps one of the most salient findings from the literature is that oral language interventions in and of themselves *do not* have causal impacts on the code-based literacy skills of children with LI (e.g., Bowyer-Crane et al., 2011; Gillon, 2000; Hatcher et al., 2004). Indeed, children with LI who receive oral language therapy show gains in oral language abilities alone; there is no documentation of carryover effects from language intervention. Rather, children with LI who receive interventions targeting code-based skills (phonological awareness, print knowledge, early decoding) are responsive to these interventions, yet also demonstrate significant improvements in literacy skills (Bowyer-Crane et al., 2008; Snowling & Hulme, 2011), which may facilitate continued oral language development (Storch & Whitehurst, 2002).

For example, Bowyer-Crane et al. (2008) investigated two intervention programs for 152 preschoolers with language deficits. Participants were randomly assigned to a 20-week daily intervention, with half of the children receiving language intervention focused on vocabulary, comprehension, inferencing, and narrative skill. The remaining children received a literacy-focused intervention that targeted letter–sound knowledge, phonological awareness, and decoding. Children who received the language-focused intervention outperformed children who received the literacy-focused intervention on measures of oral language. Children who received the literacy-focused intervention outperformed the language therapy group on measures of code-based skills. Of note, no crossover effects (improvements in nontargeted areas of language or literacy) were noted for either group.

Gillon (2000) tested the efficacy of a code-based intervention for ninety-one 5- to 7-year-olds—61 with LI and 30 with typically developing language skills. The children with LI were randomly assigned to one of three conditions: code-based intervention, traditional language therapy, or minimal therapy (i.e., SLPs provided recommendations and worksheets to parents and teachers but did not administer direct therapy). Results showed that children with LI who received the code-based intervention showed significantly greater gains than the groups receiving traditional language intervention on measures

of phonological awareness, word recognition, and word decoding. The implications from these studies are clear: Interventions focused exclusively on oral language will have a positive effect on oral language abilities; however, they do not inherently transfer or affect reading skills in the absence of direct, explicit reading instruction. To address children's literacy needs, SLPs need to identify and implement evidence-based interventions that focus on promoting literacy skills.

As previously stated, children with LI are at risk for weaknesses not only in code-based skills (e.g., phonological awareness) but also in reading comprehension (the intersection of oral language and code-based skills). Reviews of the literature consistently highlight that children with LI, despite their weaknesses in oral language, can participate in and benefit from literacy interventions. In accordance with the Simple View of Reading (Hoover & Gough, 1990), we highlight a few of these studies, organized by those addressing code-based skills and those addressing reading comprehension.

### Code-based interventions

There is a wealth of research available highlighting the impact of code-based interventions on children's literacy outcomes (Brooks, 2007; Duff and Clarke, 2011; What Works Clearinghouse, 2012). More recently, researchers have investigated the efficacy of these interventions for children with LI (e.g., Justice et al., 2015) and have found that participation in such interventions has a significant and positive impact on outcomes. We highlight a few such studies here, understanding that this is far from a comprehensive review of all emergent literacy interventions.

Justice and colleagues examined the efficacy of a print awareness program that addressed emergent literacy skills for children in early childhood special education programs (Justice et al., 2015; Justice & McGinty, 2009). Teachers and caregivers in the intervention condition (vs. a traditional reading condition) were taught to make explicit references to print during storybook readings, includ-

ing words, letters, and print meaning. Children demonstrated significant improvement in print awareness when the fidelity of implementation was high. Although these findings are specific to preschool-aged children, the results indicate that children with LI, even at a young age, can significantly benefit from targeted and intensive literacy-focused interventions.

Importantly, some studies suggest that children with specific reading deficits in early childhood may need more, and more explicit, instruction to benefit from the "regular" literacy instruction that typically occurs in classrooms. Hatcher et al. (2004) investigated a reading intervention for 410 typically developing preschool children. Their study found that approximately two thirds of the participants ($n = 273$) were able to learn and master alphabet knowledge (as measured by a letter identification task) and basic decoding with a structured phonics curriculum. However, students at risk for reading delays (defined in their study as the lowest third of participating children determined by a battery of vocabulary and emergent literacy tasks) benefited from additional explicit training in phonological awareness and instruction on associating letters with phonemes. Considered together, this sampling of research on emergent literacy interventions suggests that children with LI can benefit from explicit instruction and intervention in code-based skills as a mechanism to boost current literacy skills and mitigate long-term negative effects of subsequent and persistent code-based deficits.

### Oral language comprehension interventions

Research on the efficacy of reading comprehension interventions for children with LI is somewhat less robust. The research that is available suggests that oral language may play a more significant role in the reading comprehension abilities of older elementary children and adolescents (Clarke et al., 2010; Cutting & Scarborough, 2006; Storch & Whitehurst, 2002), in large part because measures of reading ability at older ages assess oral language

skills more directly. As an example, Clarke et al. (2010) investigated three interventions for children 8–9 years of age with deficits in reading comprehension. These interventions included text comprehension (metacognitive tasks, reciprocal teaching, inferencing, and written narratives), oral language (vocabulary, listening, figurative language, and oral narratives), and a combination of these two approaches. Their findings indicated that all three groups made significant progress in their reading comprehension abilities between pre- and posttests compared with children in a control group who did not receive any intervention. However, children assigned to the oral language group made greater gains than the other conditions on reading comprehension between the immediate posttest and a 6-month follow-up.

In sum, there is ample evidence to support the efficacy of literacy interventions to improve code-based abilities for children with LI, and some, albeit less, evidence to suggest that interventions targeting the skills that underlie reading comprehension also may be effective for boosting reading comprehension. Given the significant association between children's language and literacy skills, and the link to later reading comprehension and academic success, it is critical that children with LI who have documented weaknesses in early literacy skills receive explicit instruction in those literacy skills. However, these interventions must be intentional and target the specific skills that relate to word decoding and/or reading comprehension. To date, it is unclear whether traditional, or business-as-usual, school-based language therapy is sufficient for supporting the literacy skills of children with LI.

## CURRENT LITERACY PRACTICES IN THE PUBLIC SCHOOLS

Speech–language therapists have the potential to significantly and positively affect the long-term reading trajectories of children with LI, and there is substantial evidence to support the effects of literacy interventions. The reality of what occurs in everyday practice, however, suggests that there may be challenges and barriers that must be considered. A handful of studies over the past decade have investigated the extent to which literacy skills are addressed by SLPs for children with LI (Brandel & Loeb, 2011; Fallon & Katz, 2011; Schmitt et al., 2014; Tambyraja et al., 2014). A consistent conclusion from this body of work is that school-based SLPs may not be addressing, and oftentimes do not feel prepared to address, the literacy needs of children with LI within the context of school-based language therapy sessions. Tambyraja et al. (2014) analyzed video footage of business-as-usual therapy practices in the public schools to quantify the exact time SLPs addressed literacy during therapy for kindergarten and first graders ($n = 151$). For the purposes of this study, "literacy" was considered any code-based skill including phonological awareness, print knowledge, alphabet knowledge, decoding, spelling, or writing. Collectively, the average time these school-based SLPs addressed literacy targets was 1.8 min per therapy session (range = 0–11.3 min) or 7% of the session (range = 0%–44%). Thirty-four percent of the therapy sessions never targeted any form of literacy.

Schmitt et al. (2014) found a similar pattern with respect to children's speech and language Individualized Education Program (IEP) goals. This study looked at the IEP goals for 99 kindergarten and first-grade children with LI in the public schools and asked whether or not those goals were aligned with their areas of weakness, as determined by norm-referenced measures. Using a stringent cut point of 1.5 *SD* below the mean to determine whether or not children had a marked deficit in literacy, results indicated that 29 children fell at or below the cutoff. However, of those 29 children, only two had an IEP goal to address literacy. Findings suggest that not only are children not receiving literacy services by SLPs but also that perhaps their needs are not being identified, or prioritized, in their treatment plans.

Fallon and Katz (2011) conducted a large, nationwide survey of school-based SLPs to determine the extent to which SLPs provided written language services to children on their caseloads. They collected and analyzed data from 645 full-time SLPs, representing 49 states across the United States. Thirty-five percent of their sample ($n = 225$) indicated that they never provide written language services, regardless of whether or not the children on their caseload needed it.

As staggering as these data are, studies examining practices to support literacy also suggest considerable variability. The studies noted earlier identified a subsample of SLPs who frequently and consistently provide literacy services to children on their caseloads. For example, Tambyraja et al. (2014) identified 53 of 220 videotaped therapy sessions in which literacy was targeted more than the average (1.8 min; 7% of the session). In fact, for some therapy sessions, the SLPs directly targeted literacy for as much as 11.8 min (44% of the therapy session). The study by Fallon and Katz (2011) identified 128 SLPs (19.8% of the sample) who addressed written language for every child who needs it, with 45% of remaining SLPs ($n = 292$) from their sample indicating they provide written language therapy to some children who require such services.

How do we explain this variability? These data suggest that much of the inconsistency in whether or not children with LI receive appropriate literacy interventions can be attributed to the child's SLP. In fact, Farquharson et al. (2015) found that 10% of the variance in children's spring literacy scores in the public schools (among children receiving therapy) was attributable to their SLP, after accounting for child-level factors including grade and fall literacy. This finding highlights that a noteworthy amount of a child's literacy progress (or lack thereof) over an academic year can be explained by their SLP. In short, SLPs have the potential to significantly impact children's literacy skills, which necessitates a deeper understanding of the dichotomy we see in these data. Why do some SLPs consistently address literacy and others not at all? Or, asked differently, can we predict which SLPs are more likely to address literacy targets for children on their caseloads who need it and which SLPs will not?

The research conducted by Tambyraja et al. (2014) not only asked how much time SLPs spent addressing literacy in therapy sessions but also asked which SLP-specific characteristics were associated with an increased likelihood of children receiving literacy intervention. Of all the variables considered, the factors that significantly predicted the likelihood of SLPs providing literacy intervention during therapy were SLPs' years of experience and the location of therapy. Specifically, SLPs who had more years of experience were more likely to provide literacy intervention for more than the average length of time (7% of the session) than SLPs with fewer years of experience. In addition, SLPs who provided classroom-based therapy were more likely to address literacy targets for more than 7% of the therapy session.

Fallon and Katz (2011) in their study of the 645 SLPs across the United States considered numerous variables that could differentiate SLPs who consistently provided literacy intervention for children on their caseloads who had literacy needs ($n = 125$) from those who never did ($n = 225$). Three variables significantly predicted the odds of an SLP addressing literacy targets for children on their caseloads who needed it. The first was training related to supporting literacy-related skills (77% reported some level of training; 52% of recent graduates reported receiving training in their master's program). An SLP who received literacy training was five times more likely to provide those services to children on their caseloads than SLPs without such training. The second was perception of expertise. Fifty-two percent of the 645 SLPs believed they had the expertise needed to adequately address literacy and meet children's needs. Those who believed they had the required expertise were 60% more likely to address literacy needs than SLPs who did not believe they had the required expertise. The third

significant factor was agreement with ASHA's position statement and the scope of practice regarding literacy. The odds of an SLP addressing literacy for every student who needs it more than doubled when they agreed with the scope of practice stating that SLPs are mandated to address literacy needs for their clients (ASHA, 2012).

Furthermore, the study by Fallon and Katz (2011) identified three barriers, as communicated by the SLPs, to providing more literacy intervention for children with LI. The first barrier was time to collaborate. As Tambyraja et al. (2014) identified, SLPs who provided therapy in the general education classroom were more likely to address literacy targets than SLPs who provided therapy in a more traditional pullout model. However, the SLPs in Fallon and Katz (2011) indicated that finding the time to collaborate with general education teachers and specialists was a barrier to providing appropriate literacy intervention. Eighty-five percent of the SLPs in their study indicated that they did not have adequate time required for effective collaboration. The second barrier was training and expertise. Indeed, the fact that only 52% of recent graduates reported receiving instruction in literacy-related skills is concerning, at best. Fortunately, the most current certification standards issued by ASHA (2020) unequivocally state that SLPs must demonstrate knowledge in addressing literacy; thus, future work likely will reflect a more consistent level of training in the area of literacy. Finally, the third barrier was disagreeing with literacy being included in the SLP's scope of practice. A concerning 26% of the sample (*n* = 168) strongly disagreed with the current scope of practice. This particular barrier is likely the most concerning of all. The scope of practice for SLPs is not optional; rather, it is a mandate of areas in which SLPs are to serve clients in need. As such, SLPs who feel underqualified to serve in this capacity have the ethical obligation to seek appropriate training and continuing education to provide competent services.

An important consideration regarding the data from Fallon and Katz's (2011) survey is the self-reported nature of the data. That is, the researchers did not directly assess SLPs' knowledge about literacy and related skills; thus, it is possible that there may be a disconnect between SLPs' perceptions of how often they address literacy and their actual knowledge about the content areas related to literacy-focused interventions. Although the data from Tambyraja et al. (2014) may offer a more representative perspective of what occurs in "business-as-usual" school-based therapy sessions, it was unclear as to whether SLPs were intending to address literacy or not. Taken together, the available research underscores the need for understanding SLPs' overall knowledge about embedding evidence-based practices to support literacy in order to support their implementation of those practices.

## MOVING FORWARD: APPROACHES TO EMBEDDING EVIDENCE-BASED PRACTICES TO SUPPORT LITERACY

The previous section highlights a research-to-practice gap that cannot be ignored. Not only are school-based SLPs legally obligated to advocate for and support the reading success of students on their caseloads, but doing so also can impart significant and enduring effects for so many children whose long-term academic outcomes are at risk. The research base to support evidence-based practices in school settings is clear and consistent; yet, the execution of these practices in school settings is ambiguous and variable. In the following section, we consider ways SLPs can facilitate the inclusion of evidence-based practices and overcome the challenges and barriers in school-based settings.

### Double up: Use your assessments to identify children's needs

Every study examining the reading outcomes of children with LI finds that many are at risk for reading difficulties and indeed demonstrate significantly depressed reading

abilities. However, every study also finds that some children with LI do not have reading problems. Overall, this suggests that there will be considerable variability with respect to the reading abilities of children on each caseload. This uncertainty may contribute to SLPs' indication that feeling inexperienced or insufficiently trained to address literacy prohibited their doing so (Fallon & Katz, 2011).

However, drawing on a robustly supported framework such as the Simple View of Reading (Catts et al., 2006; Hoover & Gough, 1990) can be useful for streamlining the optimal ways to meet each child's needs. Certainly, evaluating every child with LI for reading difficulties can be time-consuming and may be unnecessary. However, because the underlying foundational skills that are associated with reading are often inherent in SLPs' assessments, SLPs may find it useful to use those assessments to help identify children who may require additional reading supports. For example, assessments that measure children's phonological processing skills (phonological awareness, rapid automatized naming speed and accuracy, verbal short-term and working memory) can provide some information as to whether children might be at risk for code-based difficulties. For kindergarteners and first graders, a phonological awareness assessment can yield important information about a child's foundational skills and can inform the need for incorporating a phonological awareness intervention. These assessments may need to be dynamic in nature, as many younger students may have limited experience with completing these types of tasks and may struggle. The use of dynamic assessments to evaluate phonological awareness and decoding abilities may be particularly useful for kindergartners and first graders (see Gellert & Elbro, 2017; Petersen et al., 2018). Relatedly, assessments that measure children's comprehension-related skills (morphosyntax, vocabulary, pragmatics, background knowledge) may highlight which children are likely candidates for reading comprehension-focused supports. Children with vocabulary deficits, for example, may benefit from additional targeted word-learning interventions within a book reading activity.

Considered this way, utilizing the assessments that are routinely done to determine children's therapy targets and measure progress is an efficient way to understand the type and scope of reading interventions that may be required. In short, although many SLPs may not feel as though they possess the training to support the skills needed to specifically address children's reading development (e.g., Fallon & Katz, 2011), it is very likely that they are indeed already evaluating and assessing the code-based and meaning-based language skills of children on their caseloads as part of their practice. Speech-language pathologists may consider using the information obtained from these assessments to meet two needs: (a) therapy targets for school-based speech–language services, and (b) identifying children who may be in need of additional and concurrent reading supports.

## Make efforts to collaborate

Results from Tambyraja et al. (2014) indicated that the provision of therapy in the classroom was a predictor of greater-than-average provision of literacy-focused therapy. The directionality of these findings are unclear; that is, it is very likely that SLPs who prioritized literacy instruction for their school-aged students would have done so regardless of the therapy setting. However, these data align with other intervention studies that suggest SLP–teacher partnerships can be an efficient and effective approach for contextualizing and applying the literacy skills they work on in therapy (see Archibald, 2017, for a review). Thus, although efforts to collaborate with classroom teachers will not automatically translate to increased literacy intervention, aligning literacy goals and instruction within the child's most familiar learning context can serve to both deepen children's learning and broaden the effects of SLPs' interventions.

Finding ways to collaborate with other educators can help address barriers relating to time constraints, which is a particularly salient concern for school-based SLPs (Hoffman et al., 2013). Admittedly, findings from Fallon and Katz (2011) suggest that school-based SLPs feel they do not have time to facilitate collaborations with other educational professionals. However, developing literacy teams in school-based settings can and should be a priority that can be time-saving for the long run. For example, SLPs can work with teachers to select books that can be read in the classroom, but then additionally used in a therapy session, to target either code-based skills or meaning-based skills. Staskowski and Zagaiski (2003) describe some guidelines for school-based SLPs to initiate and build literacy teams in their own schools and increase collaboration among educational specialists. Similarly, Roth and Troia (2006) explain several scenarios for how effective collaborations can be facilitated to support specific skills, including emergent literacy skills. Specifically, Roth and Troia (2006) describe three potential models of collaboration between teachers and SLPs and note that shared knowledge of a content area (in this case, literacy) is the foundation for successful collaboration. Suggested models include the following: demonstration, where one professional model demonstrates an instructional practice and the other observes; team teaching, where both professionals combine resources and expertise to co-teach lessons; and consultation, where one professional implements the intervention but seeks guidance and support from the other.

It is important to note that, ultimately, it is the responsibility of administrators and school leadership to recognize the importance of team building and provide time and encouragement to do so. With the support of leadership, proactively seeking ways to collaborate with other educators also can ease any discomfort or feelings of inadequacies that SLPs may experience when faced with the daunting task of addressing literacy in addition to other therapy goals. However,

armed with knowledge about potential collaboration methods and associated benefits, both SLPs and teachers may be able to advocate for increased time and resources to do so.

## Seek training and support

The research examining SLPs' involvement in addressing literacy determined that an SLP's years of experience (Tambyraja et al., 2014) and receipt of training specific to incorporating literacy targets (Fallon & Katz, 2011) were positively related to how often they actually included literacy goals and targets within the context of therapy. Data from Fallon and Katz also suggested that many SLPs perhaps do not receive literacy-specific training in their programs. As argued throughout this article, SLPs already possess the skills to assess and evaluate children's foundational literacy skills; however, determining efficient and practical ways to incorporate literacy-focused targets within therapy can be the challenge, particularly for SLPs whose clinical training did not include how to address children's literacy skills.

We concede that meeting this research-to-practice gap requires two critical action steps. First, the academic community must ensure that the topic of literacy development, and the ways in which SLPs can be central to supporting the literacy skills of children they serve, is woven into the curriculum of SLP training programs so that future SLPs are prepared to meet this challenge. Second, for SLPs already practicing, the research and academic community must increase and broaden the professional development opportunities to be made available. For example, Weber-Mayrer et al. (2015) note that professional development offerings for experienced educators must not assume a "one-size-fits-all" model but instead should vary in terms of format and content to meet the diverse needs of the target population. Indeed, the research reviewed here suggests that SLPs' formal training in addressing literacy varies considerably; thus, professional development activities must be able to adjust for varied backgrounds

**Table 1.** Examples of evidence-based curriculum for addressing literacy skills

| Skill/Curriculum | Age Group | Research Group | Website |
|---|---|---|---|
| Early language and literacy: vocabulary, narrative, phonological awareness, print knowledge | Preschool | Crane Center for Early Childhood Research and Policy | Read it Again! https://earlychildhood.ehe.osu.edu/files/2016/05/Curriculum-Supplement.pdf |
| Phonological awareness | Prek to second grade | Schuele & Murphy | The Intensive Phonological Awareness Program https://products.brookespublishing.com/The-Intensive-Phonological-Awareness-IPA-Program-P732.aspx |
| Foundational skills for reading comprehension | Prek to third grade | Language and Reading Research Consortium (LARRC) | https://larrc.ehe.osu.edu/curriculum/ |
| Narratives | Prek to third grade | Language Dynamics Group; Trina Spencer | Story Champs https://www.languagedynamicsgroup.com/products/story-champs/ |
| Reading comprehension | Adolescents | Meadows Center for Preventing Educational Risk | https://www.meadowscenter.org/ |
| Print awareness, phonological awareness, vocabulary, narrative, comprehension | Preschool through elementary grades | A free resource that provides access to evidence-based information about reading and teaching children to read | Reading Rockets https://www.readingrockets.org/ For SLPs https://www.readingrockets.org/audience/professionals/asha |
| Print awareness, phonological awareness, vocabulary, narrative, comprehension | Preschool through elementary grades | Institute of Education Sciences website reviews available research and provides intervention reports and practice guides to inform evidence-based educational practices | What Works Clearinghouse https://ies.ed.gov/ncee/wwc/ |

*Note.* Prek = prekindergarten; SLP = speec–language pathologist.

and knowledge levels. Although there are opportunities available for currently practicing school-based SLPs to advance their own knowledge and practice in this area through professional organization memberships, there are some freely available resources for evidence-based literacy curricula and supplements that practicing SLPs could draw on as well (see Table 1 for some examples).

### Embrace a growth mindset

Perhaps one of the most alarming findings from Fallon and Katz's (2011) survey was that a significant proportion of respondents did not agree with current mandates that addressing literacy is within the scope of their practice. This suggests that for some SLPs, there may be a barrier of a fixed mindset, which can be particularly difficult to overcome. The term "mindset" refers to a set of ideas, assumptions, or notions that one believes to be true, based on one's experiences, training, or environment. Research suggests that although some people maintain a fixed mindset and are thus resistant to altering their views, it is possible to develop a growth mindset, in which people believe that their skills and knowledge are the foundation for continuing to advance their skills and knowledge (Hochanadel & Finamore, 2015). Within the context of education, and indeed speech–language therapy, encouraging a growth mindset in young children is advantageous and facilitates their belief in themselves that they can learn and improve their language abilities. As argued by Zurawski and Mancini (2016), school-based SLPs have a new opportunity at the beginning of each school year to adopt a growth mindset in their own practice as well and engage in opportunities that will allow them to continually improve and adapt their intervention services.

### CONCLUSION

There is considerable evidence that school-aged children with LI are at risk for concurrent reading difficulties and that, fortunately, many of these children are receptive to, and can benefit from, targeted and explicit instruction that focuses on literacy skills. Unfortunately, evidence concerning the extent to which school-based SLPs support the reading skills of children on their caseloads suggests that many SLPs experience significant barriers to addressing literacy in therapy and, moreover, that some SLPs either do not feel equipped to address literacy or do not believe that they should. Legislation and the undeniable needs of children on their caseloads suggest otherwise. Indeed, newly adopted certification standards explicitly reflect literacy as an area of required knowledge and competence (ASHA, 2020). However, the research community and clinical training programs must prioritize literacy as a focal point of school-based language therapy. Clinical training must now systematically incorporate coursework and practical experiences that better prepare school-based SLPs to implement literacy-focused interventions and capitalize on the unique ways their training and expertise can result in significant, positive, and long-lasting effects for children with LI.

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