

Comparison of Feedback Strategies During Guided Reading Instruction With Children With Language Impairment

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The facilitation of children's literacy skills has become a fundamental practice of speech-language pathologists (SLPs) over the past several years, motivated in part by numerous empirical studies demonstrating concomitant reading deficiencies in children with speech and language impairments (Catts, 1993) as well as by the American Speech-Language-Hearing Association's (ASHA's, 2010) scope of practice statements regarding the treatment and intervention of literacy skills by SLPs.

This focus on literacy training has manifested several different forms in the treatment setting, one

being the implementation of shared oral- and guided-reading activities (Gillam, Olszewski, Fargo, & Gillam, 2014; Justice & McGinty, 2009; Katz & Carlisle, 2009). Guided reading is a teaching approach that was designed to help individual readers build an effective system for processing a variety of increasingly challenging texts over time (Fountas & Pinnell, 2011). This approach was originally referred to by literacy experts as small-group reading lessons and included the use of leveled books, supported reading, and story discussions, among other strategies. This method was established to provide differentiated and

ABSTRACT: Purpose: The purpose of this study was to examine the effectiveness of 3 different types of feedback cueing strategies used with children with reading and language delays during guided reading sessions.

Method: Three feedback strategies—graphophonemic (GP), meaning based, and mixed (combination of phonemic and meaning cues)—were used with 15 school-age children with language impairment when they committed reading errors. The effects on the children's word decoding and story comprehension were measured.

Results: Mixed feedback strategies, and to a lesser degree, GP feedback strategies, were more effective than meaning-based strategies in facilitating word error corrections, as indicated by a number of word

decoding measures. Individual patterns of performance across the 3 cueing conditions indicated that most of the children corrected more decoding errors when mixed cues were used.

Conclusion: A combination of phonemic and meaning-based cues are important to consider when responding to the reading errors of children with language impairment. Further analysis is needed to determine which cueing procedures may be more effective with different types of reading miscues and at different levels of reading and language ability.

KEY WORDS: guided reading, cueing, feedback strategies, language impairment, reading comprehension, decoding, literacy

individualized literacy instruction in the classroom. In the current study, we refer to the term *guided reading*, which we borrowed from the reading literature (Fountas & Pinnell, 2011), as a form of literacy instruction in the clinic setting whereby a student is engaged in oral storybook reading as a clinician provides guidance to facilitate the student's oral reading skills.

Guided-Reading Practices

Although the use of guided oral reading has met with controversy over the years, according to several reports, it can be used effectively to assess and promote reading growth in elementary school-age children (Iaquinta, 2006; National Reading Panel, 2000; O'Connor & Davidson, 2013; Rasinski & Hoffman, 2003). However, many practices associated with guided reading are backed by limited efficacy research. One aspect of guided reading that has undergone much theoretical scrutiny, yet very little empirical examination, is the management of children's word reading errors (miscues) in shared reading contexts. This begs the question as to what a clinician should do while he or she is engaged in oral reading with a child who mispronounces or gets stuck on a word. Clearly, what the clinician should do depends on each individual child and the specific reading errors encountered, but generally, SLPs have limited evidence-based information to guide their practice in the management of oral reading errors. Even though much evidence surrounds the development of children's word reading patterns (Ehri & Snowling, 2005; McGee, Kim, Nelson, & Fried, 2015), specific, evidence-based applications have not been established for the clinic setting (Katz & Carlisle, 2009). The focus of this preliminary study was to compare corrective feedback cues for children with language impairments during one-on-one guided oral reading interactions.

The literature on children's word reading over the past decades has yielded much information about the importance of assessing children's miscue patterns (McGee et al., 2015), as well as the complexity of factors influencing decision making in responding to students' oral reading errors (Goodman & Goodman, 1977; Schwartz, 2005, 2015). Many researchers have endorsed the practice of providing corrective feedback cues when a child gets stuck on a word, rather than simply supplying the correct word (Brown, 2003; Rasinski & Hoffman, 2003).

It is believed that in order to develop increased accuracy, fluency, and comprehension in children, strategies must be taught to increase children's self-monitoring skills when confronting unfamiliar words

or committing reading errors (Schwartz, 2005, 2015). According to Brown (2003), the consistent use of word-recognition prompts can be highly influential in shaping a child's independence in the reading process. The best readers are those who can actively monitor their own strategies to repair reading breakdowns (Afflerbach, Pearson, & Paris, 2008). Yet, the importance of using different types of feedback cues is not always recognized by reading instructors (Brown, 2003; Schwartz, 2005, 2015). As for SLPs who are engaged in shared reading activities, access to storybook materials that address corrective feedback cues and strategies are not consistently available, and if they are, feedback strategies are likely to be generally aligned with certain theoretical frameworks of reading instruction. For example, in the spirit of maintaining a focus on phonological awareness (e.g., segmenting and blending), SLPs will often ask a child to sound out an errored word. Even this seemingly practical strategy has met with considerable controversy (Schwartz, 2015), albeit with limited evidence relative to other feedback procedures.

Feedback Cueing Procedures

Decisions regarding the type and method of corrective feedback to use represent a broad gamut of perspectives on literacy development and teaching. One distinction made in the earlier literature regarding feedback strategies is the use of code-oriented or holistic cues (Brown, 2003). Historically, this dominated much of the discussion regarding best practices for promoting early reading skills. The use of code-oriented or skill-based feedback cues is grounded in the assumption that successful word recognition for early readers comes from close attention to letter-sound correspondences, phonemic blending, segmenting, and other phonemic awareness skills that will facilitate the decoding process over time and build automaticity (Adams, 1990; O'Connor & Davidson, 2013; Troia, 2014). It has been proposed that children first learn to decode words using letter-sound associations and later develop the orthographic knowledge necessary to recognize words visually, without performing letter-sound translations (Ehri & Snowling, 2005; Kamhi & Catts, 1999). Recent efforts in the educational and clinical setting have been designed to ensure that young students who are learning to read acquire the alphabet principle and other critical phonemic awareness skills (O'Connor & Davidson, 2013).

Code-oriented feedback procedures have traditionally followed a hierarchy of prompts and cues based on letter-sound identifications, vowel corrections, segmenting, blending, chunking orthographic units, and other graphophonemic (GP)-based strategies designed

to help a child in decoding miscued words during an oral reading session (McCoy & Pany, 1986; Meyer, 1982). It is believed that if a child is unable to decode words through letter-sound information, then reading fluency and comprehension will ultimately be compromised such that letter-sound decoding is far more efficient than guessing a word's identity on the basis of contextual information (Snow, Scarborough, & Burns, 1999).

Despite the plethora of research indicating the tremendous impact of phonemic and phonological awareness skills on children's early word recognition and decoding, experts who promote holistic, context, or meaning-based perspectives do not prioritize GP information in corrective feedback (Krashen, 2002; Routman, 1991; Smith, 1997). It is believed that effective readers draw on all aspects of meaningful contextual information, including syntactic, semantic, pragmatic, pictorial, and even GP cues, and then use that information to predict what is coming next in a line of text (Weaver, 1994). They also use various contextual information to confirm their predictions, and as an impetus to reread and try to correct reading miscues (Weaver, 1994). As such, cross-checking strategies for potential decoding errors would include questions such as "Does that make sense?" "Does that sound right?" and "Does that look right?" (Routman, 1991). Clay (1991) indicated that an important assessment that a child can make when reading is whether or not what is being read "makes sense." Based on an analysis of children's early reading patterns, word meaning is an important factor driving children's early word recognition that evolves over time into an increased integration of meaning and orthographic information for rapid text processing (Clay, 1991; Schwartz, 2015).

Issues surrounding the promotion of code-oriented versus meaning-based reading feedback strategies have evolved in an epic way throughout the years, partially in light of the highly scrutinized National Reading Panel (2000) report as well as due to subsequent, detailed research having important implications for corrective feedback practices. For instance, in an elaborate assessment of children's reading errors over first grade, dramatic changes evolved in the use of contextual versus graphic information for monitoring and self-correcting reading errors, thus distinguishing grade-level versus below grade-level children at year's end (McGee et al., 2015). Regardless of many such elegant studies, few direct comparisons of corrective feedback strategies have been made, especially with children with language disorders.

Crowe (2003) compared the effectiveness of a meaning-based approach called communication reading strategies (CRS; Norris, 1988) to a decoding-based program emphasizing word-analysis and

word-attach skills in 8- to 11-year-olds with language-learning disabilities. In the CRS condition, a teacher provides input before and during a story reading that focuses on different aspects of contextual meaning (e.g., vocabulary, pronoun referencing, summarizing ideas, and question asking). Results of the study indicated that children in the CRS condition performed significantly better than children who had been provided GP-based feedback on a post-test measure of reading comprehension. Results led Crowe to conclude that meaning-based feedback is more effective than decoding-based feedback in improving children's reading comprehension. However, as Crowe noted, the discussion of sound-symbol relationships was one of the strategies used in the CRS condition, therefore making the unique contribution of phonemic and meaning-based feedback difficult to decipher.

In a direct comparison of corrective feedback cues, Kouri, Selle, and Riley (2006) compared GP to meaning-based cues with 7- to 9-year-olds with specific language impairment (SLI) who committed word reading errors during guided reading sessions. Findings indicated that more miscued words were corrected overall through the use of GP feedback cues, and higher story comprehension scores were produced in the GP condition for both groups. Interestingly, both of these studies, which focused on input cues during oral reading, yielded contrastive results for children's comprehension outcomes in that Crowe (2003) obtained higher comprehension scores in a meaning-focused reading context whereas Kouri et al. obtained better reading comprehension scores (as measured by specific text comprehension questions) with GP-based corrective feedback. This discrepancy in findings is attributed to different measures of comprehension and apparent differences in the types of feedback used in the oral reading contexts, thus leaving further questions regarding best practices for guided reading with children with language impairment.

Word Reading and Reading Comprehension in Children With Language Impairment

In light of the dramatic increase in research focusing on children's literacy, speech, and language skills, a number of considerations have come to bear on the choice of best practices by SLPs who want to incorporate literacy-related activities such as guided reading into their treatments. The recognition of words in text is essentially the largest contributor to reading comprehension, and likely the greatest obstacle to effortless reading by children with language and learning disabilities, as reiterated by O'Connor and Davidson (2013).

Different studies have documented how various aspects of speech and language disorders are associated with reading difficulties in children with SLI, including speech-sound disorders (Apel & Lawrence, 2011; Skebo et al., 2013), grammatical and morphological knowledge (Catts, Fey, Tomblin, & Zhang, 2002; Kamhi & Catts, 2011), phonological awareness (Hogan, Catts, & Little, 2005), vocabulary skills (McGregor, 2005; Nation & Snowling, 1999; Wise et al., 2010), and unique combinations of different linguistic skills (Kim, Apel, & Al Otaiba, 2013), at different ages and stages of development.

Ehri, Cardoso-Martins, and Carroll (2013) discussed how various deficiencies in young children with speech and language impairment may constrain their progress through critical phases of alphabetic mapping and consolidation (e.g., understanding grapheme-phoneme units in words), thus resulting in word recognition and comprehension problems early and later on in reading development. Herein lies the difficulty for professionals who are treating children with language impairment. Given the highly heterogeneous nature of this population, there is not one common basis for the weakness in children's early reading skills, nor is there one best practice for all. Even though decades of data underscore the robust association between children's strengths in phonological awareness and reading and the positive impact that phonemic awareness training has on children's reading progress (National Reading Panel, 2000; Troia, 2014), there are other skill areas that may transcend this association in children with language impairment (Nation & Snowling, 2004). That is, even with a concentrated emphasis on phonics and phonological awareness training early on, many children with language impairment still do not catch up to their peers in their reading abilities (Hoeft et al., 2011; Troia, 2014).

Some researchers have posited that children with language impairment may not be able to naturally apply or map the alphabet principle or other more complex GP manipulations during reading (Ehri et al., 2013; Hoeft et al., 2011; Katz & Carlisle, 2009), or that even if they have acquired significant phonics and phonemic awareness knowledge through instruction, they may not be able to apply this in the reading context (Schwartz, 2005). For whatever reasons that phonology and language deficiencies constrain children's oral communication skills, so may they also affect their decoding and comprehension abilities.

As professionals, most SLPs realize that one size does not fit all in terms of the types of procedures used in treatment, and that may be the case for teaching literacy. This may be in part why different professionals have endorsed mixed methods of literacy teaching for reading fluency and comprehension (Crowe,

2003; Katz & Carlisle, 2009; McCoy & Pany, 1986). When it comes to reading words in text, unskilled readers who often lack the phonological skills needed to decode words will use various semantic, syntactic, and visual context cues to bootstrap their word reading (Goodman & Goodman, 1977; Nation & Snowling, 1998; Troia, 2013).

Pressley (2002) supported the notion that good readers process every letter while their mind is actively constructing hypotheses about what a text might mean and generating inferences based on prior knowledge. As such, good readers acquire the skills to decode words based on letter-sound information as well as using contextual cues in checking for reading accuracy. The ability to not only manipulate phonemic information in text, but to also capitalize on the various pieces of contextual information available for facilitating word recognition and comprehension, may require increased guided instruction for children with language impairment. Although many researchers would agree that a balanced interaction between meaning and phonemic-based reading instruction is desirable (Iaquinta, 2006; Pressley, 2002), few studies have actually tested this hypothesis with children with language impairment.

Recently, Katz and Carlisle (2009) used a close procedure combining morphological analysis with a method of context analysis, called SLAP, whereby children were taught to identify clues from reading passages that could be useful in analyzing words in text. Following a 12-week reading program, testing results for 3 fourth graders indicated that each student improved his or her word reading and comprehension skills on standardized and experimental tasks, whereby the authors underscored the utility of implementing morphological training along with context analysis during guided reading.

Although the use of balanced meaning and phonemic-oriented approaches are endorsed in most educational settings, more research is needed with children with language impairment. Furthermore, increased empirical information is needed with respect to children's specific language skills in order to determine which type of reading instruction is most effective.

The present study, which is a follow-up of Kouri et al. (2006), focused on the comparison of three different corrective feedback cueing strategies—GP, meaning, and mixed (phonemic plus meaning)—in an effort to determine what type corrective feedback cues are most effective to use with children in their decoding and comprehension of storybook texts. The intent of this study was to serve as a preliminary investigation gathering evidence-based information for SLPs who conduct guided oral reading activities with school-age children with language impairments.

Research questions were as follows:

- Are more feedback cues required before words are accurately decoded in conditions in which GP, versus meaning, versus mixed corrective feedback cues are provided?
- Are more miscued words correctly decoded after GP, versus meaning, versus mixed corrective feedback cues are provided?
- Is children's storybook comprehension better in conditions where GP versus meaning, versus mixed types of corrective feedback cues are provided?
- Are there consistent trends across individual participants indicating specific response patterns in GP, versus meaning, versus mixed feedback cueing conditions?

METHOD

Participants

Participants were 15 children, seven girls and eight boys, ranging in age from 7;5 (years;months) to 9;11. All but one of the participants were second and third graders; the first grader had repeated kindergarten. Children with documented histories of speech-language delays were solicited on a volunteer basis from a university speech and hearing clinic and three local schools in northeast Iowa. Based on educational histories and parent report, the participants selected for the study had no known hearing impairment, emotional disturbance, or neurological impairment. All of the participants had histories of speech-sound disorders, which had been addressed in clinical speech and language services, and all had undergone some type of phonemic awareness training, including letter-sound associations, rhyming, segmenting, blending, and letter-sound manipulations, in their clinical speech program and/or classroom setting. Most of the participants had been exposed to a variety of whole-language and phonemic/phonics-based practices through their classroom or ancillary (resource or remedial) reading programs.

Participants were administered a series of formal assessments by four graduate student clinicians, either at their school or in a university speech and hearing clinic. In order to qualify for this study, participants had to score at least 1 *SD* below the mean on the Receptive and/or Expressive Language scales of the Clinical Evaluation of Language Fundamentals, Fourth Edition (CELF-4; Semel, Wiig, & Secord, 2003) and at least 1.25 *SDs* below the mean on two or more subtests of this measure. Also, participants

had to score at least 1 *SD* below the mean on a standard reading measure.

All of the participants demonstrated typical levels of intellectual functioning according to the Test of Nonverbal Intelligence, Third Edition (TONI-3; Brown, Sherbenou, & Johnsen, 1997). The Gray Oral Reading Tests, Fourth Edition (GORT-4; Wiederholt & Bryant, 2001) was administered, revealing Oral Reading Quotients of at least 2 *SDs* below the mean for seven of the children, 1–1.5 *SDs* below the mean for seven children, and average for one participant. All of the children but one demonstrated delays of 1.5 or more *SDs* below the mean on two or more subtests (i.e., Rate, Accuracy, Fluency, Comprehension) of the GORT-4. (Table 1 and 2 provide information on each participant's age, grade, and CELF-4 and GORT-4 scores.

Guided Reading Materials

A total of 28 storybooks were selected from the Scott Foresman (Afflerbach et al., 2002) graded reading series, which was not used in any of the participants' classrooms. Each child read three different storybooks, one in each of the three conditions: GP, meaning, and mixed. Storybooks were matched to each child's instructional reading level, which is defined as "the reading ability or grade level of material that is challenging, but not frustrating for a student to read successfully with normal classroom instruction and support" (Harris & Hodges, 1995, p. 118). These levels were determined by the children's classroom teachers and reading specialists.

Stories were excluded if previous exposure had been determined by a child's classroom, parental input, and/or other service provider. Story choices were based not only on reading level, but also on uniformity of page length, evidence of story theme and characters, colorful picture stimuli, and high interest content as deemed by the author. Various books were viewed by the author and four graduate student clinicians (hereafter referred to as the investigators) before final book selection was made in order to rate books on perceived interest level, visual appeal, and story complexity. Consensus on these factors determined final book selection for the study.

Before each guided reading session, each participant was asked if he or she had read the selected story. If so, an alternative story at the same reading level was chosen for that participant. Stories were randomly assigned and counterbalanced across participants and the three experimental conditions. In order to counterbalance potential response carryover from one condition to another, the order in which reading condition was implemented was also counterbalanced across

Table 1. The children's composite scores on the Clinical Evaluation of Language Fundamentals, Fourth Edition.

<i>Statistic</i>	<i>CA</i>	<i>Grade</i>	<i>CF</i>	<i>WCR</i>	<i>SST</i>	<i>RL SS</i>	<i>WS</i>	<i>RS</i>	<i>FS</i>	<i>WCE</i>	<i>EL SS</i>
<i>M</i>	102.40	2.53	6.27	6.80	6.25	78.07	4.58	4.73	7.00	8.40	73.60
<i>SD</i>	7.79	0.64	2.89	2.78	2.86	10.59	2.61	2.40	2.95	4.34	14.93
<i>Range</i>	89–119	1–3	3–12	2–12	1–11	63–98	1–9	1–8	2–12	1–9	51–95

Note. CA = chronological age in months, Grade = grade level, CF = Concepts and Following Directions subtest, WCR = Word Classes–Receptive subtest, fSST = Sentence Structure subtest, RL SS = Receptive Language standard score, WS = Word Structure subtest, RS = Recalling Sentences subtest, FS = Formulated Sentences subtest, WCE = Word Classes–Expressive subtest, EL SS = Expressive Language standard score.

Table 2. The children's composite scores on the Gray Oral Reading Tests, Fourth Edition.

<i>Statistic</i>	<i>Rate SS</i>	<i>Rate GE</i>	<i>Acc SS</i>	<i>Acc GE</i>	<i>Flu SS</i>	<i>Flu GE</i>	<i>Comp SS</i>	<i>Comp GE</i>	<i>Sum SS</i>	<i>ORQ</i>
<i>M</i>	5.79	2.64	6.74	3.64	6.81	2.87	7.46	4.58	12.4	78.6
<i>SD</i>	2.89	1.27	3.44	0.98	4.33	1.86	6.36	0.95	4.91	15.47
<i>Range</i>	3–12	<1.0–4.7	2–12	<1.0–4.7	2–16	<1.0–7.4	1–25	<1.0–5.7	6–25	55–155

Note. Rate SS = rate standard score, Rate GE = rate grade equivalent, Acc SS = accuracy standard score, Acc GE = accuracy grade equivalent, Flu SS = fluency standard score, Flu GE = fluency grade equivalent, Comp SS = comprehension standard score, Comp GE = comprehension grade equivalent, Sum SS = sum standard score, ORQ = oral reading quotient.

participants. Due to the different reading instructional levels used, as well as the control for previous storybook exposure, a total of 28 different storybooks were ultimately chosen for 45 guided reading interactions, thus resulting in overlap across storybook assignments. A list of the storybooks selected is provided in the Appendix.

Procedure

Following initial testing of the participants, guided reading sessions were implemented, one per week, so that 1 week or more elapsed between each condition. Near the beginning of each guided reading session, the participants were read the following instructions:

Today we are going to read a story. Do not worry if you get stuck on a word, I am here to help you along. We will read the story, and then I will ask you some questions. It is not a problem if you make some mistakes when you read. We are reading for fun.

Before reading, the investigators introduced the name of the story and each of the proper nouns (e.g., names of characters, etc.) in the story in order to familiarize the participant with the terms before reading the story. Each story was typed out verbatim on a separate recording sheet. While the child read, an investigator marked self-corrections and miscues (i.e., skipped and mispronounced words) on the recording sheet. If the participant (a) stopped reading because he or she was unable to decode a word and could

not self-correct, (b) skipped a content word, or (c) miscued on a word and kept reading, the investigator would implement a cueing strategy based on the condition in which the story was assigned.

Participants were not given prompts when they made errors on certain grammatical morphemes believed to have minimal impact on the general meaning or theme of the story line (e.g., *to*, *at*, *of*). Word substitutions that had similar phonetic and semantic properties (e.g., *house/home*) that did not make a difference to the syntactical structure of a sentence also were not addressed. Reading miscues (e.g., a child mispronounced a word or failed to attempt a word) were addressed at natural pauses, usually at the end of sentences, in order to allow enough time for a child to independently notice and/or correct the error, as suggested by Schwartz (2005). If a miscued word was not corrected after four cues, the investigator essentially provided the correct word in a way that was consistent with each condition's experimental procedure. Four or fewer corrective prompts have been recommended for preserving reading fluency and comprehension (Brown, 2003). The investigators transcribed the participants' miscues and self-corrections on separately typed story scripts in each condition. They also recorded the number of attempts that the participants made to correctly identify a word in text, as well as the number of prompts given by the investigator before a word was correctly produced.

Cueing Conditions

GP condition. In the GP condition, the participants were given assistance in word decoding through prompts that adhered to various GP properties. Participants were first encouraged to sound out any misread words. Various phonetic regularities (e.g., “an *e* at the end of a word is usually silent”; “when two vowels go walking, the first one does the talking”) were pointed out as they applied to particular words. To draw attention to letter-sound correspondences, the investigators asked the participants, “How does the word start/end” or “What is the first/last sound?” Particular phonograms were also reviewed, as in “What does *ing*, *ed*, *tion* usually say at the end of a word?”

Sound-blending cues were provided by asking the participants to say individual sounds or syllables in a word and then to put them together to make a whole word. Similarly, a participant might be asked to find the parts of a word that he or she knew (e.g., “chunk”) and then put them together. Sometimes, participants were asked to run their finger along the word with the examiner in an effort to blend the sounds together. If an accurate word production was unsuccessful after four prompts, the effort was recorded as such and the participant was told, “Let’s sound it out together,” and the word was provided.

Meaning condition. In the meaning condition, the participants were given feedback cues based on semantic, syntactic, and visual information that was associated with the story text and context. Using feedback procedures borrowed largely from the reading recovery program (Brown, 2003; Clay, 1993), the investigators provided the participants with semantic, syntactic, and visual questions in order to facilitate correction of a word error. After a miscue, the participants were typically asked “Let’s go back and look at this word” or “Something tricked you, let’s start again from here,” indicating to the child to reread a particular sentence again in which a miscued word occurred. The following are examples of cueing strategies used by the investigators: (a) semantic cue: “You said ____, does that make sense?” (b) syntactic cue: “You said ____, do we say it that way?” and (c) visual cue: “You said ____, does that look right (based on picture illustrations)?”

Following a miscue, the participants were given the appropriate type of feedback depending on the type of error (i.e., semantic, syntactic, visual) that was made (e.g., “Try that word again and think about what makes sense/sounds right/ right here”). Asking if something read made sense was the most commonly used cue. If correct word identification was unsuccessful after four prompts, the effort was recorded as such, and the participant was given the following

cues as they applied to the type of miscue made: (a) semantic cue: “Would [correct word] make sense?” (b) syntactic cue: “Would [correct word] fit there?” and (c) visual cue “What does the picture show?” as the correct word was provided.

Mixed condition. In the mixed condition, cueing strategies included a combination of phonemic and meaning-based cues. After the first reading error occurred, a reader was prompted either to sound out the word (GP cue) or with a meaning cue (i.e., “You said ____; Does that make sense?”). After a reader’s unsuccessful attempt at the word, depending on what type of cue was used previously, the alternate type of cue was used on the next miscued word. For instance, if a meaning-based cue did not yield success, then a GP cue was provided, and so on, until either the word was accurately decoded or a total of four prompts was provided.

Comprehension Probes

Following the story readings, the participants were asked seven to nine comprehension questions about each story, focusing on the story’s characters, location, main problem, details, and how and why information. When the participants responded to the comprehension questions with an incomplete or confusing answer, they were prompted with, “Anything else?” or “Can you tell me more?” The participants’ answers to the comprehension questions were each assigned 0 to 3 points for responses ranging from no response at all to a fully accurate response. Percentages were then calculated by dividing the number of points earned across all questions by the total points possible. Story retellings and comprehension answers were audio recorded for later transcription.

Procedural Fidelity

Four graduate student clinicians in their fourth semester of graduate training tested the potential research participants and conducted the guided reading sessions. These students were trained on guided reading procedures through four 1-hr sessions that included discussion of numerous examples of treating word errors in the different experimental conditions. Scripts were provided for the students that included examples of feedback cues in various situations. Two student clinicians attended a majority of the reading sessions, whereby one conducted the guided reading interaction and the other recorded miscues on the story scripts and tracked the number of feedback cues provided in real time. Experimental sessions were also audio recorded so that error and cueing analyses could be verified.

Twenty percent, or nine audio-recorded sessions (3 from each condition), were analyzed by a graduate clinician who did not attend the guided reading sessions in order to verify that the particular feedback cues provided were associated with a particular feedback condition. For the GP and meaning conditions, 98.0% and 95.5% of the cues used were associated with the respective protocol. For the mixed condition, 100.0% of the cues were consistent with the experimental protocol, although 4.0% were not presented in an exact alternating order (e.g., GP, meaning, GP, meaning, etc.).

Reliability

Interobserver reliability ratings were generated for 20% (10 different participants) of the guided reading sessions, which were randomly chosen and audio recorded. Two (of the four) graduate students independently recorded the reading miscues and the number of cues required before word decodings on a typed reading script during reliability sessions. Point-by-point miscue frequencies were computed by each rater, yielding 89.6% agreement for the number of miscues and 96.4% agreement for the number of cues required for decoding. Interobserver reliability comparisons were also made on the participants' answers to the comprehension questions, resulting in interobserver agreements of 95.6%. Disagreements were resolved through discussion between observers and/or review of the audio-recorded reading samples.

RESULTS

A series of repeated measures analyses of variance (ANOVAs) and Tukey's HSD (Mendenhall, Beaver, & Beaver, 1999) post hoc comparisons were used to analyze multiple variables across the three experimental conditions. Cohen's *d* values were calculated to examine effect size, with 0.20 described as a small effect size, 0.50 as medium, and 0.80 as large (Cohen, 1988).

Decoding Analyses

The following variables were measured for the decoding of miscued words:

- number of words requiring one, two, three, or four prompts
- percentage of miscued words correctly decoded
- number of words not decoded after four prompts
- average number of prompts: calculated by dividing the total number of prompts given (i.e., 1–4,

or 5 for words not decoded) by the total number of miscued words

- total number of prompts given across all miscued words

There was no difference in the overall number of miscued words (before cues were given) among the three conditions. The first analysis was done to determine how many feedback cues were required before the miscued words were corrected. In this way, the number of words decoded after one, two, three, and four prompts was submitted to a within-subjects ANOVA, yielding significant condition, $F(2, 28) = 4.17, p = .01$, and prompt, $F(3, 154) = 33.88, p = .00$, effects. Tukey's post hoc analyses revealed that more words were decoded after one to four prompts in the GP ($M = 18.67; SD = 18.52$) than in the meaning ($M = 12.07; SD = 7.61$) condition ($d = .46$). Tukey's analyses also indicated that more words were decoded overall after one prompt ($M = 7.66; SD = 5.63$) than after two ($M = 5.29; SD = 5.08$), three ($M = 2.33; SD = 3.42$), or four prompts ($M = .98; SD = 1.30$), and more words were decoded after two rather than three and four prompts, revealing medium to large effect sizes ($d = 0.44$ – 1.62) for all but one comparison. Table 3 and Figure 1 provide the means, standard deviations, and ranges of the number of words that were decoded after one to four prompts.

The percentage of words decoded in each condition was represented by dividing the number of words decoded after one to four prompts by the total number of words attempted. Percentages were submitted to a within-subjects ANOVA with condition (i.e., GP, meaning, mixed) and percentage of words decoded serving as the main variables. A significant condition effect was revealed, $F(2, 28) = 10.46, p = .00$. Tukey's analyses indicted higher percentages of decoded words in the GP ($M = 73.17; SD = 18.21; d = .90$) and mixed conditions ($M = 82.35; SD = 12.37; d = 1.69$) as compared to the meaning condition ($M = 53.09; SD = 21.00$). Table 3 shows the percentage of words decoded in each condition.

The number of words not decoded after four prompts was submitted to a within-subjects ANOVA with condition (GP, meaning, mixed) and number of words not decoded as the within-subjects variables. Results revealed a significant main effect for condition, $F(2, 28) = 5.48, p = .01$. Tukey's post hoc analyses indicated that, on average, significantly more words went undecoded in the meaning condition ($M = 15.13; SD = 17.99$) than in the mixed condition ($M = 3.66; SD = 2.74; d = .89$). Table 3 lists the number of words not decoded in each condition; Figure 1 depicts the number of words not decoded in each condition.

Table 3. Number of miscued words decoded after one, two, three, and four prompts, percentage of total words decoded, and number of words not decoded.

	1 Prompt	2 Prompts	3 Prompts	4 Prompts	%Words decoded	Not decoded
Graphophonemic						
Mean	8.19	5.94	3.13	1.56	70.92	7.07
SD	5.76	6.54	5.26	1.71	18.21	5.98
Range	2–26	0–26	0–21	0–6	19–87	1–21
Meaning						
Mean	5.25	4.38	1.44	0.81	53.09	15.13
SD	4.14	4.04	1.36	1.11	21.00	17.99
Range	1–16	0–15	0–4	0–4	33–72	1–65
Mixed						
Mean	9.5	5.69	2.38	0.44	82.35	3.66
SD	5.97	3.94	1.82	0.73	12.37	2.74
Range	0–20	1–15	0–7	0–2	76–87	0–9

The average number of prompts needed to decode miscued words was submitted to a within-subjects ANOVA with condition (GP, meaning, mixed) serving as the within-subjects variable. Results revealed a significant main effect for condition, $F(2, 28) = 10.36, p = .00$. Tukey's post-hoc analyses indicated that, on average, significantly more prompts were required for word decoding in the meaning ($M = 3.39; SD = 0.78$) than in the mixed ($M = 2.28; SD = 0.52; d = 1.64$) and GP conditions ($M = 2.72; SD$

$= 0.64; d = .91$). The average number of prompts needed for each condition is shown in Table 4.

The total number of prompts needed to decode miscued words was submitted to a within-subjects ANOVA with condition (GP, meaning, mixed) serving as the within-subjects variable. Results revealed a significant main effect for condition, $F(2, 28) = 5.01, p = .01$. Tukey's post hoc analysis indicated that more prompts were required overall in the meaning ($M = 97.53; SD = 95.99$) than in the mixed condition

Figure 1. Number of words decoded after one, two, three, and four prompts, and number of words not decoded in each condition.

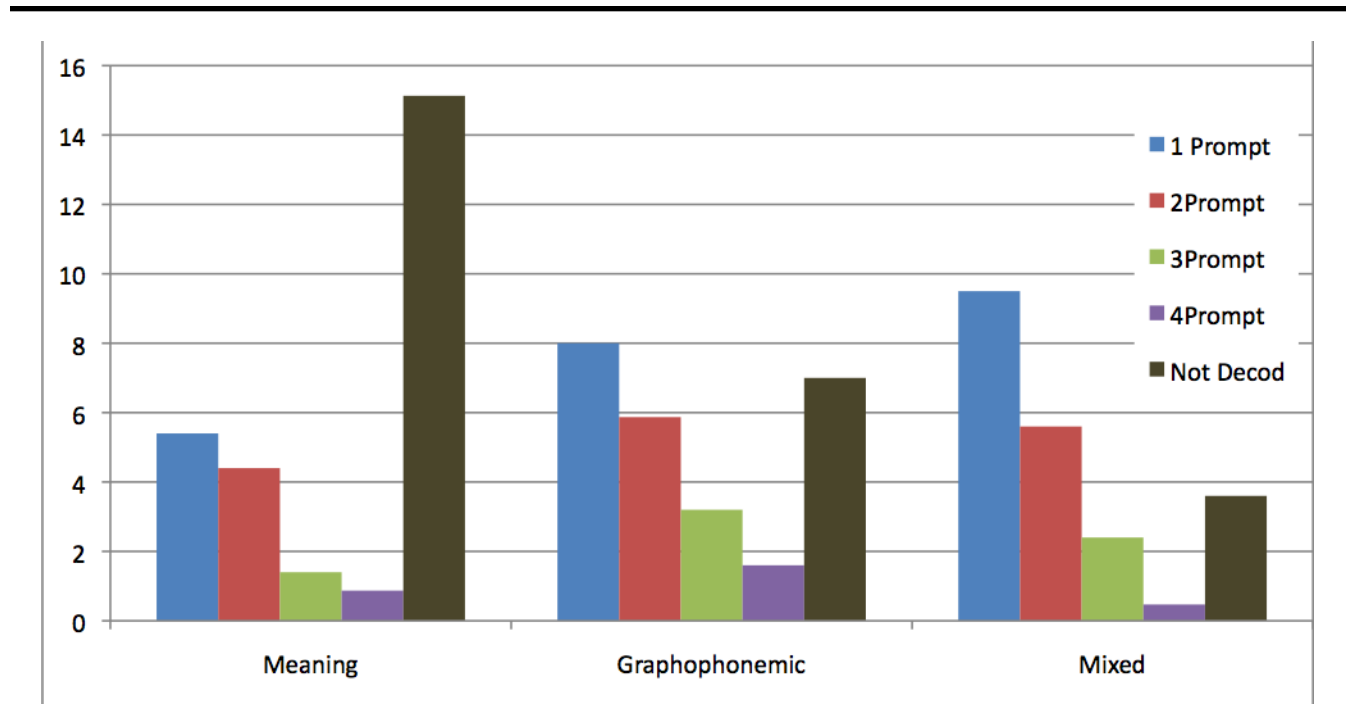


Table 4. Average and total number of prompts needed to decode miscued words in each condition.

	<i>Graphophonemic</i>	<i>Meaning</i>	<i>Mixed</i>
Average # of prompts			
Mean	2.72	3.39	2.28
SD	0.64	0.78	0.52
Range	1.25–4.13	1.88–4.37	1.08–3.50
Total # of prompts			
Mean	70.20	97.53	48.13
SD	60.06	95.99	27.30
Range	20–270	15–354	13–103

($M = 48.13$; $SD = 27.3$; $d = .70$) to decode miscued words. Table 4 provides the total number of prompts needed to decode words in each condition.

Comprehension Analysis

The percentages of correctly answered comprehension questions were submitted to a within-subjects ANOVA with condition (GP, meaning, mixed) serving as the within-subjects variable. Although a similar pattern of performance as that demonstrated with word decoding was evident, no statistically significant differences were revealed.

Qualitative Performance Patterns

As a group, the participants' patterns of response across the three feedback cueing conditions reflected a majority performing better in the mixed condition, followed by the GP condition and then the meaning condition. Table 5 lists the number of participants who showed specific patterns of performance for select variables, including the percentage of words that were decoded, the average number of prompts required before a word was decoded, and the percentage of comprehension questions that were correctly answered in each condition. As indicated in Table 5, out of 15

participants, 13 and nine participants demonstrated higher percentages of decoded words and comprehension scores, respectively, in the mixed condition. Thirteen participants required fewer prompts in the mixed condition than in the other two conditions. Figures 2, 3, and 4 portray the trends across individual participants for words decoded, number of prompts required, and comprehension questions answered in the three cueing conditions.

DISCUSSION

The purpose of this study was to examine the effectiveness of three different types of feedback strategies used during guided reading with school-age children with language impairment. Results corroborated and extended those of Kouri et al. (2006), as indicated by the finding that GP cueing procedures were more effective than meaning-based procedures in helping children with word decoding errors. Furthermore, the increased efficacy of applying a balanced approach including GP input in conjunction with meaning-based feedback during guided reading was demonstrated by the fact that the children consistently corrected more miscued words with the use of mixed feedback cues. Participants decoded more miscued words overall after receiving GP and mixed feedback cues. Conversely, more miscued words went uncorrected after receiving meaning-based cues. More prompts were required overall to make word corrections in the meaning than in the mixed condition, and the average number of prompts per word was highest in the meaning condition. Conversely, participants required the least number of prompts to decode miscued words in the mixed condition.

Overall, each of the decoding measures indicated that the use of GP cues, on their own and in addition to meaning-based feedback cues, were more facilitative than meaning-based cues alone for children's correction of reading errors during guided reading sessions. Ultimately, the number of words decoded after

Table 5. Performance patterns of the participants in each condition for the percentage of words decoded, number of average prompts required, and comprehension scores.

<i>Performance measure</i>	<i>% of words decoded</i>	<i>Avg. # of prompts required</i>	<i>Comprehension score</i>
Condition [N]	Mix ^a > GP ^b > M ^c [8]	M > GP > Mix [5]	Mix > GP > M [8]
	Mix > M > GP [3]	M > GP = Mix [5]	M > Mix > GP [3]
	Mix > M = GP [2]	GP > M > Mix [3]	GP > M = Mix [2]
	GP > Mix > M [2]	GP > M = Mix [1]	Mix > GP = M [1]
		Mix = GP = M [1]	Mix = GP = M [1]

Note. Mix = mixed, GP = graphophonemic, M = meaning.

Figure 2. Percentage of words decoded by the participants by condition.

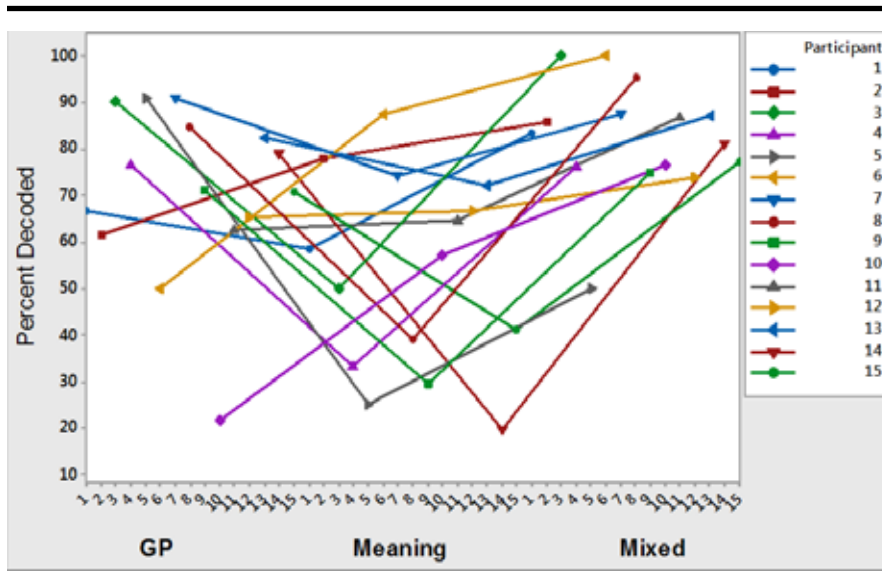
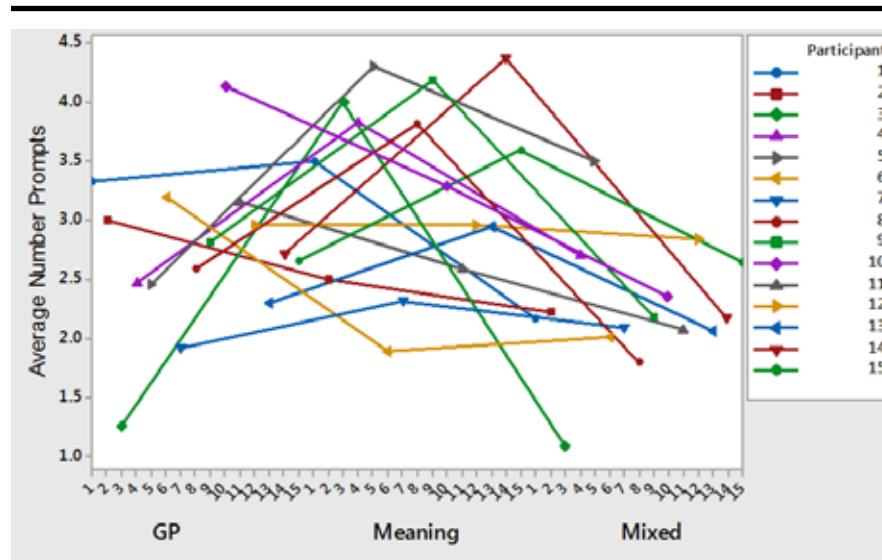


Figure 3. Average number of prompts required by participant by condition.



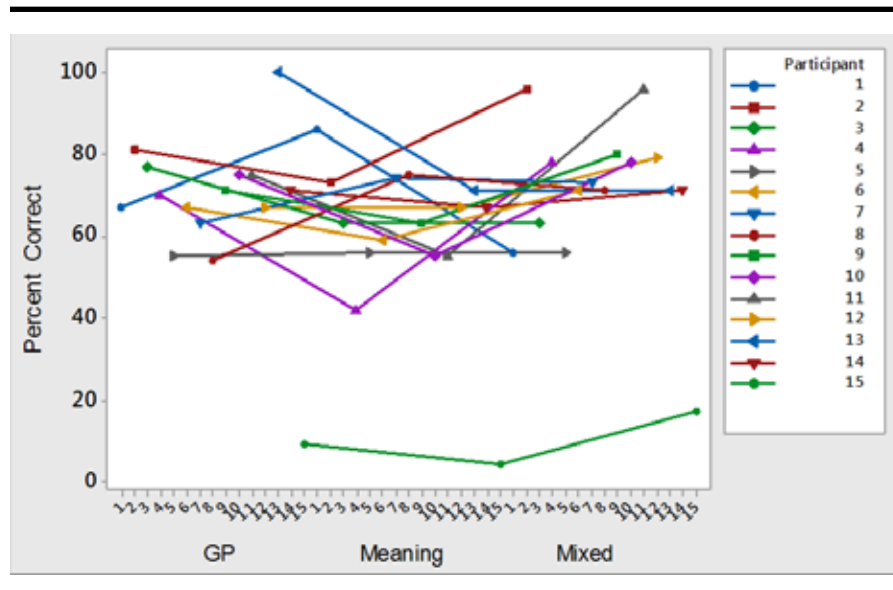
one to four prompts yielded the best results with the use of mixed cues, thus indicating that, although GP types of input are more instructive than meaning-based cues, a balanced type of phonemic and contextual information may enhance more proficient decoding when a child experiences word reading breakdowns.

Although this study provided a general contrast of cueing procedures, individual performance patterns indicated that most of the participants performed better with both decoding and comprehension when provided with both GP and meaning cues, followed by GP cues only. In only one case did the particular cueing procedure not seem to matter as this participant's

performance was similar across all cueing conditions. This happened to be the one participant with typical reading abilities, as indicated by GORT-4 scores. However, this participant's comprehension scores were slightly better with mixed cues. The one and only participant who fared better with the use of meaning cues demonstrated the relatively lowest GORT-4 and CELF-4 receptive and expressive scores of more than 2 SDs below the mean.

These findings lend credence to the proposal that proficient reading reflects a balance, or an interaction, between the use of phonemic and meaning-based information by readers when they are faced with word

Figure 4. Percentage of comprehension questions answered correctly by the participant by condition.



decoding challenges. As Weaver (1994) suggested, a young reader may use both types of cueing information to sound out a word in question and then use surrounding contextual information to verify if a word makes sense or fits into the story line, not necessarily in that order. On their own, meaning-based strategies may hinder efficient decoding of unfamiliar words.

Considering that the participants in this study were challenged with various language deficits, perhaps the task of examining the surrounding text for the appropriate word (i.e., meaning-based strategies) was too complex for them. However, in conjunction with phonemic input, the added meaning information may have helped them fill in with some additional information for identifying a word. Or, participants may have relied on the use of phonemic information to facilitate specific word decoding and then checked their hypotheses with the use of additional contextual information that was provided through meaning cues. These results support the idea that children require letter-sound information as well as meaning cues to facilitate word decoding, which potentially should lead to improved reading comprehension.

Reading Comprehension

When comparing the percentage of comprehension questions that were answered correctly by the participants in the three conditions, significant differences were not revealed, although the same trend was indicated as that with word decoding. Performance was slightly better in the mixed and GP conditions than in the meaning condition, which contrasted

with Kouri et al. (2006), who found a significant advantage for the GP condition for comprehension. This could be explained by the inclusion of typically developing children in Kouri et al., which may have driven the GP advantage to a significant level. GP information may have had less impact on the comprehension of the participants with language impairment in this study due to potentially confounding weaknesses in their short-term memory, auditory comprehension, and expressive language skills.

Although one would expect that more efficient decoding would contribute to higher comprehension skills in children, story comprehension in this study may not have been assessed in a sensitive enough fashion to reflect story comprehension in the participants with language impairment. Or, other concomitant weaknesses in the participants' language comprehension and related cognitive skills (e.g., memory) may have overshadowed the potential contributions of more efficient word decoding to story comprehension. Worth noting is that individual patterns of performance did indicate that nine of the participants demonstrated increased story comprehension when both phonemic and meaning cues were provided. In this way, a type of balanced cueing procedure may be relatively more facilitative of reading comprehension in children with language and reading delays during guided reading interactions.

Clinical Implications and Future Directions

This study focused on a topic that has minimal evidence in the literature for guiding SLPs who are

working with oral reading skills. This type of investigation is warranted given the incidence of children with reading delays in SLPs' caseloads (e.g., Tambyraja, Farquharson, & Justice, 2015), and the fact that SLPs do not regularly address the literacy needs of children in treatment, likely because of a lack of training and information (Tambyraja, Schmitt, Justice, Logan, & Schwarz, 2014) as well as available resources. Because the participant numbers were very low in the present study, caution is warranted in terms of generating conclusions for best practices. However, based on the results, a preliminary set of evidence-based practices may be derived for those SLPs who interact with children in a guided reading context.

Initially, a clinician might question the importance of weighing the effectiveness of different strategies for word breakdowns in guided reading interactions. Why not just provide a child with the correct word when he or she stumbles during joint reading? Or, why not consistently require a word sound-out? The issues surrounding this question are multidimensional. An SLP who is working on reading with a young child may first want to decide the goal of the guided reading session and from there determine if and what type of cueing strategies to use.

There are many reasons to engage a child in joint reading (McGee & Richgels, 2014), including a focus on comprehension skills, narrative ability, print awareness, decoding skills, vocabulary facilitation, among others. A clinician may decide to refrain from using corrective feedback cues when, for instance, focusing a child on text comprehension, narrative retell, grammatical usage, or other skill areas, whereby a disruption in text flow is counterproductive. On the other hand, a focus on phonological and phonemic word properties and/or contextual meaning information may merit the use of corrective feedback to provide a child with strategies to work through certain decoding errors (Kouri et al., 2006). It is believed that the provision of appropriate corrective cues may ultimately facilitate an increase in reading independence such that when faced with a difficult word in text, a reader will have strategies for independently decoding more miscued words (Schwartz, 2005). Becoming an independent reader may be one of the most important keys to success in the academic setting, and as such, aligns with a number of common core academic standards (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010).

This investigation focused on a population of children with language impairment that may be typical of a school SLP's caseload. However, various subcategories inherent throughout populations of children with language impairment were not

delineated in the current study. A number of studies have subcategorized groups of children with language abilities, including those with and without reading and related weaknesses (Catts, 1993; Catts, Adlof, Hogan, & Weismer, 2005; Catts et al., 2002), as well as the heterogeneity within speech and language caseloads (e.g., Tambyraja et al., 2015). It is apparent that children with language impairment do not constitute a homogenous group in terms of their language and/or reading skills, nor do they necessarily remain stable over time in terms of their delays in these areas (Tambyraja et al., 2015). As such, this study only tapped the surface in terms of identifying best practices for cueing guided reading breakdowns with children presenting with a variety of speech and language delays.

Future attention should be focused on the different language/literacy strengths and weaknesses of children with language impairment to determine differential patterns of responding to phonemic and meaning-based cues during reading breakdowns. Specific phonological awareness profiles should also be considered for future study. In the present study, the focus was on children who had received speech and language services for speech-sound problems and various language deficits. The phonological skills of the participants varied across the board, therefore not forming a homogenous group profile. Each participant had knowledge of the alphabet principle and could segment and blend at the word level and, to some extent, the phonemic level. Because books were chosen according to each participant's reading level, it was assumed that individual phonemic skills were inadvertently controlled for in this study. Although phonological awareness skills are not always exclusive predictors of word attack skills in children with language impairment (e.g., Krashen, 2002; Troia, 2014), it is possible that particular phonological awareness profiles might impact the choice of effective feedback strategies for word decoding breakdowns, which is a possible topic of future research.

Another variable that warrants further investigation is the increased specification of different types of feedback cues. In the current study, a composite set of feedback cues was used in each condition. Examining the relative effectiveness of individual feedback cues may reveal that specific cues are more effective than others, whether they are based on contextual information, phonemic properties, or other. Schwartz (2015) described a procedure called "thinking through a word," whereby a student initially makes predictions based on the meaning aspects of a text and then cross-checks by considering various visual (orthographic) properties of the word. Schwartz maintained that a method like thinking through a

word facilitates growth in proficient reading more effectively than does sounding out words letter by letter.

In an elaborate investigation by McGee et al. (2015), it was revealed that children's reading errors take on a number of dimensions, including errors that reflect a child's lack of acknowledgment of an error (i.e., child errors on word and continues reading) versus errors that indicate a child's effort to correct the word through multiple attempts. In this way, a prompting system that distinguishes between reading errors reflecting children's "self-monitoring" versus "searching" skills would seem productive. Furthermore, McGee et al. explicitly described 18 different gradations of word errors that have been observed in children's oral reading which draw on different sources of text information, including meaning, syntactic, visual and graphic, and combinations thereof. As such, feedback cues specifically tailored to address various sources of text information from which a struggling reader draws may prove to be relatively efficacious in developing reading independence. These and other perspectives on corrective feedback warrant further comparative research with children with speech and language impairments.

In conclusion, a practical aim of this study was to provide a taking-off point for clinicians when considering the provision of various types of corrective feedback during guided reading interactions with young children with language impairment. Ideally, a thorough miscue analysis of a child's oral reading errors would potentially reveal critical information about types of word errors, as well as evidence regarding the use of visual, grammatical, and phonemic context for working through a miscue. However, SLPs are not reading teachers and generally do not possess the same tools and/or background information for these types of in-depth analyses. Rather than attempting thorough miscue analyses, an effort to apply efficacy-based cueing strategies may be a sensible place to start during guided reading interactions. Based on the present findings, a balanced mix of GP and meaning-based feedback strategies could be incorporated into guided reading activities in order to facilitate school-age children's decoding and other reading skills. If SLPs have more access to efficacy-based reading procedures, a focus on the reading skills of children in clinical caseloads may increase.

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APPENDIX. STORYBOOK NUMBER (USED FOR RANDOMIZING ASSIGNMENTS), TITLE, AND READING GRADE LEVEL

Story Number	Story Title	Reading Level
1	Can You Find It	1.2
2	Jog Frog Jog	1.2
3	A Big Job	1.2
4	Sweet Potato Pie	1.2
5	Biscuit	1.3
6	Fox and Bear	1.3
7	Fox and Bear Look at the Moon	1.3
8	Lily Reads	1.3
9	The Garden	1.6
10	Fox on Stage	1.6
11	Doggy Art	1.6
12	The Snow Glory	1.6
13	Daddy Could I Have an Elephant	2.1
14	Poppleton and the Grapefruit	2.1
15	Play Ball	2.1
16	Wanted: Best Friend	2.1
17	The Great Ball Game	2.2
18	Paul Goes to the Ball	2.2
19	Missing: One Stuffed Rabbit	2.2
20	Stone Soup	2.2
21	Guys From Space	3.1
22	Tops and Bottoms	3.1
23	Mom's Best Friend	3.1
24	Brave as a Mountain Lion	3.1
25	Ananse's Feast	3.2
26	Thunder Cake	3.2
27	Brave Irene	3.2
28	More Than Anything Else	3.2