

Optimal Contexts for Verb Learning

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Abstract (WC: 189)

Purpose: Verb learning is a critical but challenging part of language acquisition. Children with or at increased risk for developmental language disorder (DLD) may particularly struggle with verb learning, and poor verb representations in turn may negatively impact children's language outcomes. Our goal is to examine literature on children's acquisition of verbs, identifying manipulable factors that may determine the ease or difficulty of acquiring a new verb meaning.

Method: In this narrative, non-systematic review, we discuss findings about how verbs are learned and represented.

Results: Several aspects of the learning environment affect children's efforts to acquire verbs, including the linguistic context in which the verb is introduced, the timing of the linguistic label relative to the event it describes, visual and linguistic variability, and dose frequency.

Conclusions: We conclude that some learning situations are likely to be more helpful for children in the process of verb learning than others. We highlight some of the factors that contribute to good learning situations, and we discuss how these may differ depending on properties of the child and of the verb itself. Finally, we propose hypotheses for future translational and clinical research.

Key Words: Verb learning, typical language development, developmental language disorder, late talkers, syntactic bootstrapping, variability

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Language learning is a multifaceted process requiring the acquisition of many types of knowledge. The acquisition of verbs may be particularly important because verbs are the cornerstone of sentences, and therefore developing a verb vocabulary permits children entry into complex syntax. Indeed, verb knowledge is a better predictor of lexical and grammatical outcomes than noun knowledge in both typically developing (TD) children and children with developmental language disorder (DLD)¹ or at increased risk for DLD (such as late talkers, e.g., Hadley, Rispoli, & Hsu, 2016; Marchman & Bates, 1994; Olswang, Long, & Fletcher, 1997). Verbs are also an area of particular weakness for children with DLD and late talkers (e.g., Black & Chiat, 2000; Eyer et al., 2002; van der Lely, 1994; O’Hara & Johnston, 1997; Olswang et al., 1997; Watkins, Rice, & Moltz, 1993), although it is not fully understood whether these deficits are verb-specific or are more broadly semantic in nature (e.g., de Jong & Fletcher, 2014).

Given the importance of verbs in grammar, deficits in verb representation likely will have cascading implications for grammatical development. In turn, interventions focusing on verb vocabulary development may have a strong impact on children’s language outcomes. But while much research exists on how best to support acquisition of morphosyntactic elements of language (e.g., Eisenberg, 2013; Finestack & Fey, 2009; Leonard, Camarata, Pawłowska, Brown, & Camarata, 2004; Owen Van Horne, Fey, & Curran, 2017), the basic task of acquiring verb meanings—of adding verbs to the lexicon, and of establishing robust, correct representations for them—has been less well addressed. This is a notable gap because the basic

¹ We use the term developmental language disorder (DLD) (Bishop, Snowling, Thompson, Greenhalgh, & CATALISE-2 consortium, 2016), but note that most of the cited studies used the term specific language impairment and excluded children with nonverbal cognitive deficits from their samples.

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challenge of learning verb meanings may at least in part underlie the omission or incorrect use of morphosyntactic inflections (e.g., *-ing*, *-ed*) in children with DLD (e.g., Hadley, 2006).

In this non-systematic review, we synthesize evidence about conditions under which children perform better and worse in verb-learning tasks, focusing on features that can be manipulated in clinical settings. Much of the current literature involves TD children. Even for TDs, learning verb meanings is more challenging than learning noun meanings (e.g., Bornstein et al., 2004; Gentner, 1978; Gleitman, 1990; Imai et al., 2008; Naigles, 2002). Fortunately, a wealth of research has explored factors that contribute to the ease or difficulty of this task, which we hope will inform clinical research and intervention.

1. How verbs are represented in the mind and brain

The nature of our mental representations of verbs, as well as their neural representations, is not well understood. Substantial debate in the language acquisition literature has centered on how verbs are represented and whether these representations change over development (e.g., Chang, Dell, & Bock, 2006; Fisher, 2002; Naigles, 2002; Tomasello, 2003; see, e.g., Arunachalam, 2015 for review). Some researchers argue that “embodiment,” or the idea that perceptual processing regions are engaged when linguistic representations are retrieved, plays an important role in acquiring verb meanings, and that action verbs involve activation in motor regions more so than nouns labeling objects (e.g., James & Maouene, 2009). However, there is also evidence that some brain regions are sensitive to the grammatical category of a word rather than its sensorimotor aspects (e.g., Bedny, Caramazza, Grossman, Pascual-Leone, & Saxe, 2008).

The difficulty of verb meaning acquisition appears to be mirrored in the protracted development of verb processing. Maguire, Magnon, Ogiela, Egbert, and Sides (2013) examined

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Event Related Potentials (ERPs) in 8- to 9-year-olds and adults in response to object nouns (e.g., “chair”) and action verbs (e.g., “sit”), and found that children showed adult-like patterns of neural activation in response to object nouns but not in response to action verbs. They infer that children’s representations of verbs are not yet adult-like.

2. Types of verb meaning

By the time they have produced their first words, TD infants associate unfamiliar nouns with object referents (e.g., Waxman, 1999) and unfamiliar verbs with event referents (He & Lidz, 2017), signaling early sensitivity to links between grammatical categories and categories of meaning. However, identifying the correct meaning for an unfamiliar verb remains challenging: A single scene (e.g., a game of catch) can be parsed into multiple subevents, each lexicalized by a different verb (e.g., “throwing,” “catching,” or “playing”). Preverbal infants can already parse and conceptualize events in the world into components that may be lexicalized, including manner of motion (e.g., “fly”), path of travel (e.g., “come”), and change of state (e.g., “break”); this is evidenced by their sensitivity to changes in any one of these while observing a scene to which they have become familiarized (e.g., Lakusta, Wagner, O’Hearn, & Landau, 2007; Pulverman, Golinkoff, Hirsh-Pasek, & Sootsman Buresh, 2008). This early appreciation of event components provides a framework for the acquisition of verb meaning.

However, there appear to be developmental biases favoring certain event components over others. For example, goal events (which encode the event’s endpoint, e.g., “water the lawn”) are privileged over source events (which encode the event’s starting point, e.g., “weed the garden”) both in non-linguistic event apprehension (Lakusta et al., 2007) and in linguistic encoding (Lakusta & Landau, 2005; Papafragou, 2010; Srinivasan & Barner, 2013). There has also been debate about the relative ease of manner versus result meanings. Manner meanings

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encode how something happens (e.g., “walk,” “run,” or “sing”) whereas result meanings encode the result of the event (e.g., “open,” “close,” or “empty”). Children can recognize both the manner in which actions are carried out and resulting changes of state, but evidence is conflicted with respect to which children find easier to encode in verb meanings (see van Hout, 2018 for a recent review). Further, the complexity of the event matters: Verbs involving one or two event participants may be easier to acquire than verbs involving three event participants (Horvath, Rescorla, & Arunachalam, 2018). Particularly concerning is evidence that late talkers (Horvath, Rescorla, & Arunachalam, 2019) and children with DLD (e.g., Kelly & Rice, 1994; Penner, Schultz, & Wymann, 2003) show different patterns with respect to some of these linguistic biases as compared to TD counterparts, although here too the evidence is mixed about the precise nature of the differences. We suspect that different types of verb meaning are most easily acquired in different contexts, and that it is important to consider the type of verb when evaluating what features of the learning situation will best support children’s learning. We begin to address this issue in the next section.

3. Linguistic context in verb learning

When first encountering an unfamiliar word, children must identify its grammatical category (e.g., noun or verb). By 2 years of age, TD toddlers can identify a novel word’s grammatical category by attending to its distribution in relation to function morphemes (e.g., if it is followed by *-ing* or *-ed*) (He & Lidz, 2017; Mintz, 2003; Waxman, Lidz, Braun, & Lavin, 2009). Whether 2-year-old late talkers can do the same has not been directly studied, but related research indicates that older children with DLD can use distributional information to segment words from a speech stream, although they may require more exposures than TD age-matched peers to do so (e.g., Evans, Saffran, & Robe-Torres, 2009; Haebig, Saffran, & Ellis Weismer,

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2017). Similarly, Eyer et al. (2002) found that 3- to 5-year-olds with DLD identified a novel word as a verb when given multiple morphosyntactic cues (e.g., “It just *kifed*. It’s ready to *kife*.”). These findings suggest that children with DLD can attend to a novel word’s distribution relative to other grammatical morphemes, and can use this information to categorize it as a verb; however, they may require substantial exposures in order to be successful.

Beyond grammatical category, linguistic context can also support verb learning. The ability to derive an unfamiliar word’s meaning from the linguistic context in which it occurs is known as syntactic bootstrapping (Gleitman, 1990). For example, preschool-aged children who observe a girl throwing a ball to a boy and hear, “The girl is *gorping* the ball” are more likely to think that *gorp* means “throw” than those who hear, “The boy is *gorping* the ball” (Fisher, Hall, Rakowitz, & Gleitman, 1994). Some linguistic contexts are more helpful than others. For example, 2-year-olds learn novel verbs flanked by content nouns (e.g., “The boy is *gorping* the balloon”) more easily than verbs flanked by pronouns (e.g., “He is *gorping* it”) (Arunachalam & Waxman, 2015). Content nouns are more informative than pronouns; they help children parse sentences into subject and predicate phrases (Hadley et al., 2017) and determine what kinds of participants can be involved in an event (e.g., only animate beings can “eat,” and only edible things can be eaten; Yuan, Fisher, Kandhadai, & Fernald, 2011). Adverbs that provide relevant semantic information can also support syntactic bootstrapping (Arunachalam, Syrett, & Chen, 2016; Syrett, Arunachalam, & Waxman, 2014).

However, too much semantic information sometimes hinders learning. Before 2 years of age, content nouns may be too difficult to process without additional scaffolding (He & Lidz, 2016). Younger toddlers were more successful in acquiring a novel verb’s meaning when the content noun was repeated before introducing the verb (e.g., “Look at the boy! See the boy? ...

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The boy is *gorping!*”), which reduced overall processing load. Even 2- and 3-year-olds are limited by processing, struggling to process complex noun phrases like, “the tall boy,” even if the modifier contributes useful semantic information (He, Kon, & Arunachalam, 2019). Processing ability, and the ability to use more complex linguistic contexts in syntactic bootstrapping, develop through toddlerhood and beyond (e.g., Borovsky, 2017; Imai, Haryu, & Okada, 2005; Imai et al., 2008; Yazbec, Kaschak, & Borovsky, 2019). Children with DLD and late talkers both have slower language processing abilities than their same-age peers (e.g., Conti-Ramsden, 2003; Ellis-Weismer & Evans, 2002; Fernald & Marchman, 2012; Miller, Kail, Leonard, & Tomblin, 2001), but the extent to which this hinders verb learning is unknown.

Also by 2 years of age, TD children attend to a verb’s syntactic properties and inflectional morphology to identify a verb’s broad semantic category. Naigles (1990) documents that 2-year-olds associate novel verbs in transitive syntactic frames (i.e., frames that include a subject and direct object, such as “The duck is *gorping* the bunny”) with causative meanings (e.g., the duck lifting the bunny’s arm). They can also map novel transitive verbs to non-causative events that can be described with transitive frames, like contact events (e.g., the duck patting the bunny) (Naigles & Kako, 1993), though perhaps with more difficulty than they have with transitive-causative mappings (Arunachalam & Dennis, 2018). Children with DLD appear similarly sensitive to these relationships (e.g., Oetting, 1999). Introducing verbs in contexts that provide relevant syntactic information (e.g., transitive frames for causative verbs) may therefore support verb learning, at least for simple transitive and intransitive syntactic frames. However, before 2 years of age, TD learners may struggle with this task, instead relying on partial syntactic representations by counting the number of nouns in the sentence (Yuan, Fisher, & Snedeker, 2012). Older children with DLD with poor syntactic skills may similarly struggle (as they do

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with complex syntactic structures with noncanonical word order like passive voice and object relative clauses; e.g., Friedmann & Novogrodsky, 2007; van der Lely & Harris, 1990; Montgomery, Gillam, Evans, & Sergeev, 2017).

TD preschoolers also use the syntactic frame in which a verb appears to determine whether the verb is lexically telic (i.e., with a definite endpoint as in, “close a door”), or atelic (i.e., with no clear endpoint as in, “run”) (Li & Shirai, 2011; Wagner, 2010). Similarly, they associate *-ing* endings with ongoing actions and *-ed* endings with completed actions and use these as cues for verb meaning (e.g., Behrend, Harris, & Cartwright, 1995; Wagner, Swensen, & Naigles, 2009). Children with DLD have difficulty using verb endings as a cue to meaning (Carr & Johnston, 2001), suggesting that their representations of the tense/aspect properties of these morphemes may be impoverished (Leonard et al., 2007).

Given these strong associations and children’s reliance on linguistic information for verb learning, the optimal linguistic context for presenting a new verb is probably one that aligns meaning to canonical morphosyntax. In a therapy setting, clinicians will want to consider what meanings the verb encodes in order to identify which linguistic context would best facilitate learning. For example, the verb *break*, which is lexically telic and denotes a change of state, may be more easily learned in a linguistic context that highlights these elements (e.g., “I broke the cup,” with both a transitive frame and past morphology, rather than “The cup was breaking,” with an intransitive frame and progressive morphology).

In sum, the best linguistic contexts for verb learning differ by properties of the verb, like the meanings the verb encodes or the kinds of syntactic frames it can occur in. However, linguistic context must also be accessible to the learner. For children with DLD, whose processing skills may be less developed, linguistic information must also be presented in a way

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that minimizes processing demands.

We also argue that because linguistic context can contain powerful cues for meaning, the use of telegraphic speech likely hinders rather than helps children acquire verb meanings.

Although the majority of clinicians use telegraphic input in clinical practice (Venker, Yasick, & McDaniel, 2019), findings from several studies suggest that that telegraphic speech negatively impacts children's own use of language (e.g., Brendin-Oja & Fey, 2014; van Kleeck et al., 2010; Venker et al., 2015).

4. The timing of the linguistic label

Another important consideration is *when* the verb is uttered in relation to its referent event. Learning nouns is easiest when the referent object is visually salient from the child's perspective at the moment it is labeled (e.g., Medina, Snedeker, Trueswell, & Gleitman, 2011). Timing considerations may be more complex for verbs, however, as verbs denote events that are often ephemeral (Gleitman & Gleitman, 1992). Tomasello and Kruger (1992) found that caregivers of 1-year-olds most often labeled events before they occurred, and that children appeared to understand verb meaning most often in these contexts, likely because children do not miss observing the event if they are prompted to look for it beforehand.

However, the optimal timing of a verb may depend on properties of its referent event, such as how fleeting it is (e.g., "break" vs. "walk") or whether it looks the same at every timepoint of its unfolding (e.g., "sing" vs. "open"). Supporting this hypothesis, Ambalu, Chiat, and Pring (1997) found that manner verbs are learned best when presented before or during the referent event, but result (change-of-state) verbs are learned best if presented after the event (but see Abbot-Smith, Imai, Durrant, and Nurmsoo (2017) for different results with change-of-location rather than change-of-state verbs).

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Reduced processing abilities may make children with or at increased risk for DLD more susceptible to breakdowns when timing is suboptimal. TD children can form at least a broad representation of a novel verb's meaning from its linguistic context alone, in the absence of a referent event (e.g., Yuan & Fisher, 2009). Preschoolers with autism spectrum disorder and below-age language levels, too, have this ability (Horvath, McDermott, Reilly, & Arunachalam, 2018). Therefore, timing may not matter for at least some learning to take place. Nevertheless, to form a robust representation of a verb's meaning, and to integrate this representation with real-world knowledge about its referent event, timing likely plays a critical role.

Finally, there is some evidence that children more easily acquire verb meanings for concrete actions when they themselves carry out the action rather than only observing it (e.g., Wakefield, Hall, James, & Goldin-Meadow, 2017). An open question is how well children attend to linguistic information while performing an action; studies focusing on timing should therefore also manipulate whether the child is performing or observing the referent event.

5. Variability versus consistency

Thus far, we have focused on a single exposure to a new verb, which is important because what children learn on their first encounter determines whether and how they can build on the representation with subsequent encounters. Now we turn to research on multiple exposures, which may occur within the same learning session and/or across multiple sessions. Children with DLD typically require a greater number of exposures than TD children to acquire verbs (e.g., Rice, Oetting, Marquis, Bode, & Pae, 1994; Riches, Tomasello, & Conti-Ramsden, 2005), although there are likely to be thresholds beyond which more exposures do not lead to improvement. More research is needed on where these thresholds lie for verb learning.

Another consideration of multiple exposures is variability, or differences among learning

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exemplars. Variability is often beneficial for learning, including in some word learning tasks (Childers & Tomasello, 2001; Gentner & Namy, 2006; Perry, Samuelson, Malloy, & Schiffer, 2010; Waxman & Klibanoff, 2000), because it permits learners to compare instances and identify the commonality across them. Variability may exist in the linguistic context, the observational scene(s) that are available, or both.

With respect to linguistic context, research indicates that multiple kinds of context better support verb acquisition than a single context. Multiple frames restrict plausible hypotheses about a verb's meaning better than just one. Many types of verbs occur in transitive frames (e.g., "John broke the vase" / "John kicked the wall"), but a subset—specifically, verbs that refer to the object's change of state—also occur in intransitive frames with the patient in subject position (e.g., "The vase broke" / *"The wall kicked"). TD children more often learn novel verbs given both these frames than just one (Naigles, 1996; Scott & Fisher, 2009).

However, if children are comparing events that are of the same semantic category and occur in the same syntactic contexts (e.g., "rolling a ball" vs. "sliding a box," as two caused motion events), variability in syntactic contexts will not contribute useful information. Here, consistent repetition of a single context may yield a stronger representation. In support of this idea, Bedore and Leonard (2000) found that TD 3-year-olds more successfully learned a novel verb's meaning when the verb's morphology was identical during exposure and testing as compared to when it differed. We recently found that both TD and late-talking 2-year-olds show better learning (as measured by eye gaze to a video depicting the correct verb meaning) when they consistently hear the same content nouns paired with novel verbs (e.g., "The boy is *semming* the apple"), as compared to a mix of content nouns and pronouns (e.g., "The boy is *semming* the apple. He is *semming* it.") (Horvath, 2019; Horvath & Arunachalam, 2017).

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In preschoolers with DLD, Plante et al. (2014) found greater gains in use of function morphemes when they were paired with more verbs rather than fewer verbs. However, learning verb meaning and acquiring function morphemes are notably different tasks. Acquiring function morphemes requires children to abstract over the many content morphemes with which they can occur. Learning verb meanings, where children must pair referent and word, may not be so dependent on variability.

In considering the observational scene, variable exemplars (e.g., viewing multiple kicking events with different agents and patients) may highlight the one consistent element (Gentner & Boroditsky, 2001) and help children delineate the *category* of events denoted by a verb. However, experimental evidence is mixed. In some studies, visual variability is helpful—children observing multiple agents engaged in an event learn and extend the verb better than those who see only one agent (Twomey, Lush, Pearce, & Horst, 2014). However, others find the opposite pattern, with better learning with only one agent as compared to multiple agents (Childers, Paik, Flores, Lai, & Dolan, 2017; Maguire, Hirsh-Pasek, Golinkoff, & Brandone, 2008). When components of the event other than the agent are varied across exemplars, such as manners of motion, instruments, or changes of state, variability may be more helpful (e.g., Childers & Paik, 2009; Forbes & Farrar, 1995). Presenting multiple exemplars *simultaneously*, instead of sequentially, may be key, as it allows children to immediately compare and contrast exemplars (Snape & Krott, 2018).

In late talkers, Alt, Meyers, Oglivie, Nicholas, and Arizmendi (2014) found more successful word learning with both increased exposure and increased visual and linguistic variability; however, the majority of target words were nouns. Aguilar, Plante, and Sandoval (2018) suggest that variability may support retention: Although there were no differences in

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initial learning, 4- and 5-year-old children with DLD showed better retention of novel nouns when exposed to varied exemplars. However, it remains to be seen whether late talkers or children with DLD can benefit from high variability if the targets to be learned are more complex, as with verbs.

Although the evidence is mixed, we conclude tentatively that observational variability may be more beneficial than linguistic variability, at least for the specific task of building an initial representation of verb learning. Because variability can incur increased processing demands, we suspect that for children with or at risk for DLD it is best to begin with consistent presentation of a single linguistic context (i.e., providing the same sentence repetitively, as with “The boy is throwing the ball. The boy is throwing the ball”). Linguistic variability may be more useful if it is incorporated after children’s representations become more robust (here, “The boy is throwing the ball. He is throwing it”). Variability then allows children to refine and generalize their initial representation appropriately.

6. Dose frequency

Clinicians must also consider *dose frequency*, or the interval between individual exposures. Some studies have compared “massed” and “distributed” exposure; the total number of teaching episodes is equal, but they are either presented in relatively quick succession or spaced over intervals. These studies indicate that distributed exposure is better for comprehension, production, and retention of both nouns and verbs, for TD children and children with DLD (Childers & Tomasello, 2002; Riches et al., 2005; Schwartz & Terrell, 1983). These findings make sense considering the role of memory consolidation in language learning generally (see Gómez, 2011; Wojcik, 2013 for reviews), and in verb learning specifically (He, Huang, Waxman, & Arunachalam, under revision; Sandoval, Leclerc, & Gómez, 2017). Intervals

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between exposures allow children to consolidate their representations so that they can build upon them in subsequent encounters. This consolidation period may be particularly critical for verbs because children's initial representations for verbs may be weaker and more fragmented than those for nouns (Sandoval et al., 2017).

However, different parts of the learning process may benefit from different dose frequencies. Short-term encoding may in some instances benefit from massed exposure (e.g., Schwab & Lew-Williams, 2016), while long-term retention benefits from distributed exposure. This may be especially important for children with DLD, who begin with weaker representations than their TD peers and have difficulty retaining newly-learned verb meanings (Oetting, 1999). Providing massed, frequent exposures may yield a more robust initial representation that can be refined and consolidated in subsequent, distributed exposures.

General Discussion

The research we have reviewed indicates that some learning situations are more supportive for verb learning than others. Considering factors such as linguistic context, variability, timing, and dose frequency can inform interventions, if these factors are considered in relation to the properties of the target verb to be learned as well as characteristics of the learner. Intervention strategies that lead to robust verb representations while circumventing some of the challenges faced by children with or at risk for DLD, such as slow language processing, may be particularly beneficial.

Consider, for example, how properties of the linguistic context in which a verb appears affect learning. If a child seems to be struggling to identify the referent of an unfamiliar verb, she may require more information, and thus, a more informative linguistic context may be helpful. But if a child struggles to process language quickly, she may not be able to make use of an

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informative linguistic context. Here, other kinds of information, such as additional opportunities to observe the referent event, may be more helpful.

Although we believe that the way in which a verb is introduced strongly influences children's abilities to acquire it, and that there are several manipulable features of the learning situation that can be optimized, substantial research remains to be done. Conflicting findings should be resolved with large-scale studies that explore multiple contributing factors, and these findings must be translated to language-delayed and language-impaired populations.

Another overarching critical area for future work is research on verb learning in languages other than English. In the present review, we discussed data from English because it is the best studied. Some of the features discussed here are likely to play out similarly across languages. For example, the benefits of distributed over massed presentation are not expected to differ. For other features, there may be conceptual similarities, even while the details differ. For example, in verb learning research with TD children, there is suggestive evidence that for learners of languages like Korean and Japanese, that permit syntactic elements to be dropped from the surface of the sentence, the richly informative linguistic contexts that support verb acquisition for English learners are too difficult to process (Arunachalam, Leddon, Song, Lee, & Waxman, 2013; Imai et al., 2005, 2008). Research on language-impaired populations learning other languages is reviewed extensively in Leonard (2014, Chapter 6), but little of this work has focused specifically on learning verb meanings.

Intervention research must investigate how these learning mechanisms are used in intervention settings and whether naturalistic interactions can be modified to incorporate more supportive features. There is often a disconnect between experimental laboratory work and real-time language acquisition; children may show extraordinary proficiency in the former setting but

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prolonged and errorful learning in real life. Not surprisingly, the input given in the lab is of exceptionally high quality, and is infrequent in naturalistic caregiver speech (e.g., Sandhofer & Smith, 2007). But interventions can provide a middle ground. Even in natural dyadic interaction, small but intentional modifications to the language that is modeled may very well have a large impact on learning.

Recognizing the substantial research that remains to be done, we nevertheless offer suggestions for clinicians working with children who have or are at risk for developing DLD. These suggestions synthesize the literature where there is a consensus, recognizing that future intervention research is necessary to refine our recommendations:

1. Avoid telegraphic speech. As we have summarized, there is substantial literature to indicate that children attend to and use the linguistic context in which a verb appears as an indicator for meaning. However, telegraphic speech removes the cues that help children to classify a novel word into the correct syntactic category (via distributional information) and may also remove cues for meaning (like verb endings). Several studies have found that telegraphic speech broadly hinders children's own use of language (e.g., Brendin-Oja & Fey, 2014; van Kleeck et al., 2010; Venker et al., 2015). While the majority of clinicians report using telegraphic speech (Venker et al., 2019), we believe that when the goal for therapy is verb learning, children would be better served given grammatical utterances.

2. Consider the processing demands of the child. Both late talkers (Fernald & Marchman, 2012) and children with DLD (e.g., Conti-Ramsden, 2003) have slower processing skills as compared to their TD counterparts, and this appears to disadvantage them in verb-learning tasks (O'Hara & Johnston, 1997). Clinicians should consider minimizing

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processing demands, like introducing the content nouns separately before the novel verb (He & Lidz, 2016), or using an overall slowed speech rate (Dollaghan, 1987; Ellis Weismer & Hesketh, 1996).

3. *Provide multiple examples.* While questions of variability, dosage, and timing need further research, findings from studies of children with DLD regularly suggest that they need more exposures than their TD peers in order to learn features of language (e.g., Evans et al., 2009; Haebig et al., 2017; Rice et al., 1994; Riches et al., 2005). Providing multiple examples in an initial clinical session will likely help children with DLD build up a sufficiently robust representation that can be built on in subsequent sessions.

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