

Applying Lessons from the Lab to the Classroom:
Using Play to Promote Language Development

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Development

If falling in love is anything like learning how to spell, I don't

want to do it. It takes too long. -- *Glenn, age 7*

As Glenn observes above, learning to spell takes a long time. So does learning language and learning how to read. Some children sail through and some have a harder time. Much of this has to do with the kind of environment children find themselves in. Some environments promote language acquisition and pre-literacy skills while others are less than ideal. Hart and Risley (1995) reported that by three years of age, children from low socio-economic status (SES) homes hear roughly 25% of the words that pass the ears of their peers of higher SES. Their classic study found that the amount of parental input is tightly linked to differences in children's vocabulary size. At three years of age, children of professional-level families knew 1,116 words while children of families on welfare knew but 525 words. Moreover, follow up studies demonstrate a strong correlation between children's vocabulary size at age three and their Peabody Picture Vocabulary Test scores (a measure of receptive vocabulary) at age nine. In the U.S., the gap in children's academic achievement (e.g., vocabulary size, literacy) is often associated with SES

(Hoff, 2009).

Additionally, early language abilities have tremendous consequences for children's later literacy skills (Dickinson, Golinkoff, & Hirsh-Pasek, 2010; Fernald, Zangl, Portillo, & Marchman, 2008). Strong early language skills help children become skilled readers. Children need to master both *phonemic awareness* and *decoding* to learn to read. *Phonemic awareness*, or the idea that spoken words are comprised of separate sounds (phonemes) (Liberman, 1973), is necessary to understand how English orthography works. English is an alphabetic written language; written symbols (i.e., letters) systematically represent the smallest units of sound (phonemes) (Scarborough, 2009). Similarly, decoding printed words requires learning the correspondences between particular letters or letter groups and phonemes (Scarborough, 2009). A longitudinal study by Storch and Whitehurst (2002) found a moderate-sized effect ($d = .43$) of oral language ability on fourth-grade reading, supporting the assertion that early language experiences are important to children as they build their vocabularies and engages them in the mechanics of reading.

In America, the correlation between children's SES and academic achievement is sometimes confounded by the fact that some of these low performing students are children of immigrant parents. The poverty rate for immigrant families is 21% compared to 14% in native-born families in the US (Haskins, Greenberg, & Fremstad, 2004). To what extent is this

trend generalizable to other countries? A similar phenomenon appears to exist in Germany. The latest Program for the International Student Assessment (PISA) shows that on average, the gap between second-generation immigrant children and native students in Germany is 90 points, an educational deficit that is the equivalent of approximately two years of study. This report demonstrates the tremendous challenge facing the German educational system. However, the large size of the German immigrant population does not fully account for immigrant children's underperformance in German schools. Immigrant societies such as Canada, Australia, and New Zealand, show significantly better results than Germany (OECD, 2002). Second-generation 15-year-olds with an immigrant background in Canada score *three times higher* on average than their counterparts in Germany. In Germany, the gap between native and immigrant children is particularly pronounced in those cases with poor immigrant families that do not speak German (Auernheimer, 2006). Additionally, German primary schools appear to have difficulty alleviating the socio-economic and cultural problems that immigrant students face (Ibid.).

The United States has not fared much better than Germany if at all. The American education system still labors under a persistent 25-year achievement gap. In fact, since the implementation of No Child Left Behind in 2001, kindergarten through third grade classrooms across America have become narrowly focused on reading and math test scores. A report from the *Alliance for Childhood* (Miller & Almon, 2009) suggests that 30% of kindergarten teachers

in Los-Angeles and New York claim to have no time for student-chosen activities or play.

Approximately 80% of the teachers interviewed indicate that they spend 20 minutes each day in test preparation. For example, children often spend a significant amount of time memorizing new vocabulary words for their upcoming test. The *motivation* behind the attempt to increase children's vocabulary input is essential for trajectories of language and literacy acquisition (Hart & Risley, 1995). However, the *techniques* used to increase vocabulary are antithetical to 40 years of research on language development (Harris, Golinkoff, & Hirsh-Pasek, 2011).

The large literature on language and literacy acquisition can provide a useful guide to fostering strong language skills in children. Distilling from the literature, we suggest six principles that can be used to promote language learning in children of all backgrounds, including children of immigrants who do not speak the country's language in their homes. We present each principle and supporting evidence, arguing that language development is enhanced by playful learning rather than from rote memorization.

Principle 1. Children learn the words that they hear most

Research unequivocally shows that the amount of input children receive influences their language acquisition (Goodman, Dale, & Li, 2008; Hart & Risley, 1995; Hoff, 2003; McCartney, Scarr, Philips, & Grajek, 1985; Naigles & Hoff-Ginsberg, 1998; Smolak & Weinraub, 1983).

When learning to speak, children's first words tend to be the words that they heard spoken most

often by their mothers (Harris, Barrett, Jones, & Brookes, 1988; Huttenlocher, Haight, Bryk, Seltzer, & Lyons, 1991; Naigles & Hoff-Ginsberg, 1998). In fact, research demonstrates that the amount of early language exposure predicts children's later vocabulary growth rate (e.g., Hart & Risley, 1995; Huttenlocher et al., 1991). Again, there are marked SES differences: parents of lower SES talk to their children less than higher SES parents (Gottfried, 1984; Heath, 1989), affecting their later language development beginning in early childhood.

Along with the sheer amount of words that children hear, the *variety* of words they encounter is also a crucial component of language development. Research shows that children who are exposed to a wider variety of words will use a greater diversity of words in their own speech (Huttenlocher, Waterfall, Vasilyeva, Vevea, & Hedges, 2010). Lexical richness (number of different word types) in children's input is positively correlated with the level of children's vocabularies, both in terms of understanding other's speech and formulating their own speech (Bornstein et al., 1998). Moreover, the ratio of word *types* to the total word count more accurately predicts children's vocabulary development than just the total number of different word types that children encounter (Hoff, 2003; Hoff & Naigles, 2002; Huttenlocher et al., 1991; Pan, Rowe, Singer, & Snow, 2005). Perhaps of even greater importance than the ratio of word types to total word count is the exposure to sophisticated words that children are unlikely to already have (Dickinson, Flushman, & Freiberg, 2009; Malvern, Richards, Chipere, & Durán,

2004). Such sophisticated input may allow children to expand their vocabulary.

Parents are important for children's vocabulary growth but so are teachers at childcare facilities (Hoff, 2006; Hoff & Naigles, 2002; Hoff-Ginsberg, 1991; McCartney, 1984; NICHD Early Child Care Research Network, 2000, 2002, 2005). Teacher's input quality (the complexity and variety) is crucial for children's syntactic development (Huttenlocher, Levine, & Vevea, 1998; Huttenlocher, Vasilyeva, Cymerman, & Levine, 2002).

Much research examining the link between children's vocabulary growth and teachers' input has focused on book reading. Books provide a medium that facilitates vocabulary learning through text, including the presentation of low frequency words (Dickinson & Tabors, 2001; Weizman & Snow, 2001). Books provide the opportunity for repeated and varied exposure in a context that is helpful and engaging for children (Elley, 1989). In addition to vocabulary gains, storybook reading provides an opportunity to engage children in a conversation regarding the meaning of the story, which in turn facilitates vocabulary learning (Feitelson, Goldstein, Iraqi, & Share, 1993). In sum, both quantity and quality of input from a variety of sources influences vocabulary development, allaying potential future language and literacy difficulties. The next principle discusses the types of input that facilitates language development.

Principle 2. Children need to hear diverse examples of words and language structures

Children can attach a novel label to an object or action after a single exposure, an

occurrence termed fast mapping (Arunachalam & Waxman, 2011; Carey & Bartlett, 1978; Golinkoff, Hirsh-Pasek, Bailey, & Wenger, 1992; Kucker & Samuelson, 2012; Waxman, Lidz, Braun, & Lavin, 2009). However, children's understanding of a newly learned word is limited and the ability to retain the mapping between a novel term and its referent in the real world is short (Horst & Samuelson, 2008). Horst and Samuelson found that children struggle to retain an object-label mapping over a 5-minute delay. Retaining a label-referent mapping over time is crucial for slow mapping, the process by which children gain additional information about new lexical entries and form adult-like representations of words (Kucker & Samuelson, 2012). During the process of slow mapping, hearing words repeatedly and in varying contexts helps children form a more complete representation of the newly learned term (Booth, 2009).

Part of knowing a word means being able to extend the newly learned name to other appropriate category members, while at the same time not applying it to non-category members. For example, knowing that cats say "meow" and dogs say "arf", even though they share many perceptual features, is an important part of the formation of complete and distinct concepts of cats and dogs. Thirteen-month-old infants can succeed at this task by extending the label of an object to new members of the same category (Waxman & Markow, 1995). Similar work has compared children's ability to extend novel words for objects and actions (Arunachalam & Waxman, 2011; Imai et al., 2008; Waxman et al., 2009). In these studies children watched video

clips of unfamiliar actions with unfamiliar objects. Children heard a novel label for either the action (e.g., “He’s pilking the balloon!”) or the object (e.g., “He’s waving the pilk!”; Waxman et al., 2009). After viewing the event, 24-month-old children extended the novel noun even when the action changed, but only extended the novel verb when provided with rich linguistic and observational structure (e.g., “The man is going to pilk the balloon!”; Arunachalam & Waxman, 2011; Waxman et al., 2009).

Imai et al. (2008) looked at the mapping of novel nouns and verbs to similar objects and events in English, Japanese, and Chinese. Again, nouns were learned and extended more easily than verbs, but verb learning required different amounts of grammatical and pragmatic support depending on the language. Specifically, Chinese-speaking children required pragmatic and grammatical support while English-speaking children required only grammatical support. Thus, children can learn a new noun or verb with limited exposure and can extend a noun to unfamiliar objects, but require more linguistic and contextual support to extend a newly learned verb.

It is clear that word learning requires more than just exposure to the word over a single teaching opportunity and sparse linguistic cues. The more exposure to new words, and the wider the contexts of their use, the more complete children’s understanding of new words will be (Elley, 1989). Since children with different backgrounds vary in the amount of adult language exposure they experience (Weizman & Snow, 2001), it is important to ask how we can improve

children's vocabularies. Can classroom experiences bring up children's vocabulary levels? An exploration of spontaneous adult language suggests that meal times promote more diverse and complex language than reading books with children (Ibid.). However, in a shared book reading experiment, children's understanding of a word increased when adults provided scaffolding that increased in difficulty each time that word appeared (Blewitt, Rump, Shealy, & Cook, 2009). For example, first parents might ask the child to point to the label referent in a storybook (e.g., a monkey). The next time the word 'monkey' appears parents might ask the child if they remember seeing the monkey at the zoo. Finally, parents might ask the child what monkeys eat. This work suggests that simply reading a story to a child will not automatically teach children new words. Only certain methods of book reading (i.e., scaffolding) aid children in language development.

To summarize, children need diverse examples of word-object mappings and time to process the full meaning of a word. Moreover, engaging children in increasingly difficult questions about new words aids this process beyond simply providing definitions. The next principle explores the relationship between grammar and vocabulary and the effect it has on language development.

Principle 3. Vocabulary learning and grammatical development are reciprocal processes

Children's vocabulary size and grammatical understanding not only increase simultaneously (Dixon & Marchman, 2007), but also influence each other. First, syntactic

bootstrapping, the process of using syntactic elements in a sentence to determine the meaning of a new word, enables children to infer the meaning of new words by attending to the linguistic context in which the word is used (Gleitman, 1990; Gleitman, Cassidy, Nappa, Papafragou, & Trueswell, 2005). For example, children use information about noun order in transitive sentences to interpret novel verbs (Gertner, Fisher, & Eisengart, 2006). More specifically, children interpret the first character named in a sentence as the agent of an event, not the patient. Conversely, the second character named is interpreted as the patient, not the agent. In the sentence ‘Mary kissed John’, Mary is the agent and John is the patient. However, this method sometimes leads to incorrect interpretations, as in the sentence ‘Mary and John ran’, because they are both the subjects and therefore both agents (Gertner & Fisher, 2012). Moreover, the amount of syntactic information provided when learning a new verb is directly related to whether children can extend the verb to events involving different objects (Arunachalam & Waxman, 2011; Imai et al., 2008). Children who heard the full sentence “The man is pilking the balloon!” extended the label “pilking” to new scenes whereas children who heard a similar sentence but with subject and object pronouns “He’s pilking it!” did not (Arunachalam & Waxman, 2011). Arunachalam and Waxman (2011) propose that children need linguistic structure to interpret a novel verb and the use of a known object (in this case, balloon) provides this information. Imai et al. (2008) suggest that the amount of linguistic structure necessary to learn a verb may even vary

by language.

Several other factors affect children's ability to learn new words, such as perceptual cues, social cues, vocabulary size, and prior experience with the referent (Blewitt et al., 2009; Golinkoff & Hirsh-Pasek, 2006; Jones & Smith, 2005; Kucker & Samuelson, 2012; Smith, Jones, Landau, Gershkoff-Stowe, & Samuelson, 2002). In fact, the ability to map words onto novel items interacts with infants' vocabulary. Specifically, 18-month-old children with large spatial vocabularies mapped a novel preposition (i.e., "She's putting it toke!") onto a novel spatial relation (i.e., support) but children with smaller vocabularies detected a novel spatial relation when hearing either a novel preposition or noun (Casasola & Bhagwat, 2007). Children did not form the same mapping when a novel noun was presented (i.e., "It is a toke!"). Presumably, these children recognize that prepositions must refer to relations and nouns do not. Infants with smaller spatial vocabularies are uninhibited in their word-referent mapping, probably because they do not have enough language knowledge to disrupt these mappings. In general, vocabulary level is a better predictor of grammar than age is (Mariscal & Gallego, 2012).

In addition to using grammatical information to learn the meanings of novel words, children can use their knowledge of vocabulary words to advance their grammatical knowledge. Children's vocabulary is a predictor of their grammar (Conboy & Thal, 2006; Mariscal & Gallego, 2012) and children's grammar benefits from hearing a known word in varying contexts.

For example, 4-year-old children's syntactic abilities improved when they were exposed to complex language (Huttenlocher et al., 2002). Additionally, in a book reading study, 4-year-old children experienced a boost in understanding and producing passives after repeated experience with passive sentences (Vasilyeva, Huttenlocher, & Waterfall, 2006).

In conclusion, vocabulary and grammatical ability are reciprocal processes and children with weaker language skills may not benefit from language exposure to the same extent as their peers who have a better understanding of language. To address this difference, specific language interventions and educational programs must be put into place to provide extra support for children who are struggling to learn language. The next three principles offer suggestions as to how we can provide interesting, engaging, and meaningful interactions to boost children's language development.

Principle 4. Children more readily learn words for things and events that interest them

Children encounter numerous objects and events that are unfamiliar to them in their daily lives. How do they choose which objects and events to attend to? Research suggests that children are more successful in language learning when caregivers build on what children find appealing. Pruden and colleagues discovered that infants as young as 10 months of age could associate a label with interesting, perceptually salient objects (e.g., colorful, noisemakers) but not with boring objects (e.g., a homogenous beige plastic bottle top opener) (Pruden, Hirsh-Pasek,

Golinkoff, & Hennon, 2006). The same is true for learning action words. Brandone, Pence, Golinkoff and Hirsh-Pasek (2007) showed that children learned the names of actions they found interesting at 22 months, but they did not learn the name for boring actions until they were 34 months old.

This finding, in conjunction with research in the joint attention area, highlights the importance of the choice of topic when parents engage in conversation with children. Joint attention occurs when two individuals simultaneously focus on an object or event (Baldwin, 1991; Bruner, 1978). This happens when one individual alerts the other to share a focus of interest by pointing, eye-gaze, and other verbal and non-verbal cues. Joint attention stimulates and promotes children's early vocabulary learning (Akhtar, Dunham, & Dunham, 1991; Harris, Jones, Brookes, & Grant, 1986; Tomasello, Mannle, & Kruger, 1986; Tomasello & Todd, 1983). For example, children learn object names more easily when a parent identifies an object the child is already paying attention to, as compared to when a parent labels an object that the child has not shown interest in (Dunham, Dunham, & Curwin, 1993). In fact, children learn fewer words in situations in which mothers redirect their attention rather than follow the child's attention (e.g., Dunham et al., 1993; Hollich, Hirsh-Pasek, Tucker, & Golinkoff, 2000; Golinkoff, 1981). The more parents redirect infants' attention the fewer words toddlers learn (Baldwin & Markman, 1989; Carpenter, Akhtar et al., 1998; Carpenter, Nagell et al., 1998; Schmitt, Simpson, & Friend,

2011).

Another way to stimulate children's interests, which benefits their vocabulary learning, is to have children participate in symbolic play with their peers. Symbolic play refers to a "story-related reality" (Hirsh-Pasek & Golinkoff, 2008), in which children take on identities of fictional characters and enact a story using appropriate props and contextual descriptions (Dickinson, Cote, & Smith, 1993; Nicolopoulou, McDowell, & Brockmeyer, 2006; Pellegrini & Galda, 1990). Symbolic play engages children to use imagination, social skills, problem solving, and group cooperation to participate in the story (Nicolopoulou, 1993). Children rely on verbal communication to discuss aspects of the play itself such as major plot points, character descriptions, the assignment of characters, and permissible behavior given a character's role (e.g., what is acceptable behavior for a doctor) (Vedeler, 1997). While engaging in play, they work at duplicating the talk associated with particular roles (e.g., talking like a doctor), making them use more rare words and offering them opportunities to use specialized vocabulary (e.g., stethoscope) (Harris et al., 2011).

In addition, preschool children engage in discussion during pretend play centered on language when inventing imaginary scenarios, using complex mental-state verbs (e.g., say, talk) (Pellegrini & Galda, 1990; Pellegrini, Galda, Dresden, & Cox, 1991). Participation in pretend play predicts language and reading skills at the kindergarten level (Bergen & Mauer, 2000;

Dickinson & Moreton, 1991; Dickinson & Tabors, 2001; Pellegrini & Galda, 1990). Moreover, there is evidence that the amount of time 3-year-olds engage in pretend play predicts to their vocabulary size two years later (Dickinson, 2001a). In addition, pretend play also develops the linguistic skills necessary for literacy (Nicolopoulou et al., 2006). As these examples illustrate, playful activities increase children's interest, attention, and motivation to learn, resulting in improved language skills (Hirsh-Pasek & Golinkoff, 2003; Hirsh-Pasek, Golinkoff, Berk, & Singer, 2009; Singer, Golinkoff, & Hirsh-Pasek, 2006).

Principle 5. Interactive and responsive environments build language learning

What are the types of interactions that facilitate language development among children?

Children's language skills appear to be strongly related to proximal measures of quality in parent-child interaction such as sensitivity, cooperation, acceptance, and responsiveness (Hirsh-Pasek & Burchinal, 2006; Landry, Smith, Swank, Assel, & Vellet, 2001; Tamis-LeMonda & Bornstein, 2002; Wakschlag & Hans, 1999). However, what exactly does a sensitive, interactive, and responsive parent-child interaction entail?

Sensitive and responsive environments involve interactive rather than passive contexts.

For example, passively hearing words through television does not guarantee that language learning will occur (Kuhl, Tsao, & Liu, 2003; Roseberry, Hirsh-Pasek, Parish-Morris, & Golinkoff, 2009), and indeed may take time away from adults who otherwise take turns in

interactions with children and share periods of joint focus and positive affect, providing the scaffolding necessary to promote language development (Bradley et al., 1989; Bronfenbrenner & Morris, 1998; Clarke-Stewart, 1973; Howes, 2000; Katz, 2001; Tomasello & Farrar, 1986). Thus, it is important to talk *with* the child rather than talking *at* them since interactive contexts encourage optimal language acquisition.

Another element of responsive interaction includes noticing children's interests and commenting on them. Studies show that physical or verbal reinforcement, and sensitivity to children's requests, interests, and feelings are significantly associated with academic achievement and cognitive growth (Bornstein & Tamis-LeMonda, 1989; Burchinal, Campbell, Bryant, Wasik, & Ramey, 1997; Cunningham & Stanovich, 1997; Howes, Phillips, & Whitebook, 1992; Howes & Smith, 1995; Landry et al., 2001). Additionally, in storybook settings, children whose parents engage in conversations that go beyond the explicit information presented in a storybook performed better on vocabulary measures as compared with children whose parents focused primarily on the explicit message of the story (De Temple & Snow, 1992). Therefore, sensitive parental interactions build on the child's interests and perspective and encourage more conversation rather than limiting it.

Sensitive interactions are especially beneficial when accompanied by rich linguistic input. A study that investigated the effect of interactive book reading on the language and literacy

development of 4-year-olds demonstrated that children who were asked open-ended questions and encouraged to engage in conversation scored significantly better on the Peabody Picture Vocabulary Test III than children who were simply read to (Wasik & Bond, 2001). Similarly, a longitudinal study that examined teacher-child conversations (with 4-year-olds), found that exposure to higher quality conversations and richer vocabulary during free play and group book reading related to children's language comprehension and writing skills at the end of kindergarten (Dickinson, 2001b; Tabors, Snow, & Dickinson, 2001). This was true even when controlling for children's language ability (i.e., the mean length of their utterances) at age three, parental income, education, and home support for literacy (e.g., reading). In sum, interactions that take the child's perspective, encourage engaging conversation, and use rich linguistic input facilitate language development.

Principle 6. Children learn best in meaningful contexts

Research on memory suggests that people learn best when information is presented in integrated contexts rather than as a set of isolated facts (Bartlett, 1932; Bransford & Johnson, 1972; Bruner, 1972; Neisser, 1967; Tulving, 1968). For example, remembering a line in a dramatic play is easier than the same words without context. The same is true for children. Meaningful connections between words are also fostered in studies that use thematic play as a prop for language development. Christie and Roskos (2006) find that children who learn

connected vocabulary for categories of objects like hammers, hard hats, screwdrivers, tool belts (i.e., the category of building) better remember and use these words than children who do not learn in an integrative way.

Additional support for children's increased language production in meaningful contexts comes from the work of Ferrara, Hirsh-Pasek, Newcombe, Golinkoff, and Lam (2011). To investigate how play affects children's use of spatial language (words like *above*, *around*, *through*), parents and children were assigned to 1 of 3 conditions: *free play* with blocks, *guided play*, or *play with preassembled structures*. In the *free play* condition, parents and children were asked to play with a set of blocks as they would at home. In the *guided play* condition, the parent and child were given five numbered photographs depicting the steps to build either a garage or a helipad (much like the instructions one receives for IKEA furniture assembly). In the *preassembled play* condition, a glued together model of the garage or the helipad was given to the dyad. The results indicate that parents in the guided play condition produced significantly higher proportions of spatial talk than parents in the two other conditions, and children in the guided play condition produced significantly more spatial talk than those in the free play condition. Thus, although interaction with blocks naturally elicits increased levels of spatial language compared to other play contexts, children's production of spatial words is especially

enhanced in guided play. Pedagogical approaches that employ scaffolded tasks with predefined objectives (i.e., guided instruction) confer particular benefits for children.

Educational theory also suggests that guided play approaches promote superior learning, retention, and academic achievement compared to direct instruction or mixed method practices (Burts, Hart, Charlesworth, & Kirk, 1990; Burts et al., 1992; Hirsh-Pasek & Golinkoff, 1991; Lillard & Else-Quest, 2006; Love, Ryer, & Faddis, 1992; Marcon, 1993; Roskos, Tabors, & Lenhart, 2004). With guided play approaches, educators can structure an environment around a general curricula goal by encouraging children's natural curiosity and exploration (Fein & Rivkin, 1986; Harris et al., 2011; Hirsh-Pasek et al., 2009; Marcon, 2002). Research supports the notion that vocabulary learning is effective when it takes place in a playful context. Han, Moore, Vukelich, and Buell (2010) examined the influence of playful instruction on vocabulary development. Low performing 4- and 5-year-olds from Head Start classrooms were randomly assigned to either the *explicit instruction only* condition or the *explicit instruction and play* condition. Using picture books, children in both conditions were taught 64 words in total, twice a week for four months. The findings show that children in the *explicit instruction and play* condition were significantly more likely to correctly name the target words at the end of the study than those in the *explicit instruction only* condition. Research and educational theory encourage conversations that take place between adults and children in the context of playful

activity and that build on children's interests. Playful learning may offer children new lexical concepts that are more likely to be retained than direct instruction alone (Harris et al., 2011; Golinkoff, 1986).

Conclusion

In the United States and in other countries such as Germany, the gaps in academic achievement between poor and advantaged students are substantial (Post & Pong, 2000; Rowan, Cohen, & Raudenbush, 2004). The U.S. Department of Education (2001) reported the following key findings regarding the effects of poverty on student achievement in reading and math. The students were in third through fifth grade from 71 high-poverty schools. The students scored below the norm in all years and grades tested. Students who lived in poverty scored significantly worse than other students. Schools with the highest percentages of poor students scored significantly worse than other schools. Numerous studies have found similar links between SES and academic achievement. Additionally, poor students tend to continue underachieving throughout grade school compared to their advantaged student counterparts (Strand, 2010).

Early language ability is crucial for children's academic success. Language is implicated in understanding mathematics (e.g., Jordan, Glutting, & Ramineni, 2010), in science (e.g., Bornstein et al., 2006) and in comprehending literature. Getting off to a poor language start will hamper children's later academic performance (Rowe, Raudenbush, & Goldin-Meadow, 2012).

Thus, the adoption of a set of evidenced-based principles for language learning could play an important role in supporting optimal language development and in narrowing the achievement gap. The principles offered here encourage a combination of pedagogical approaches, including providing children with clear and easily digestible definitions as well as allowing children to explore the meanings of words via playful interaction. Years of research in language development support these principles. We know that by increasing the quantity (principle 1) and diversity of language input (principle 2), recognizing the complementary roles of vocabulary and grammar (principle 3), and having conversations about topics that interest children (principle 4), in interactive (principle 5) and meaningful contexts (principle 6), we can help children in both the US and Germany make significant progress in their language development and academic achievement. Children of all backgrounds can profit from the implementation of these principles. It is time to translate the rich research in our field into practice!

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