Children’s vocabulary skills when they enter school are powerful predictors of their reading comprehension years later. This chapter reviews vocabulary instruction and its impact on children’s word learning in early education. Though children also learn from mere exposure to words, rich word meaning explanations support word learning. Vocabulary instruction is most efficient if new words are embedded in meaningful and engaging discourse in which children are invited to participate in identifying word meaning and actively applying the new words. When exposed to new words children have a better chance of arriving successfully at an understanding if they make use of their pragmatic skills. There is some evidence that rich vocabulary instruction such as embedding new words in extended discussions may be more beneficial to children with more developed vocabulary skills. From a practitioner perspective, adapting and fine-tuning the vocabulary instruction to the learner’s needs seems crucial.

The power of words in building narrative and knowledge

Two preschool examples of shared book-reading will introduce this chapter. In the first, teacher Anne and a small group of second-language speakers of Norwegian were reading a wordless picture book about preparing pancakes, the protagonists being an elderly woman and her cat and dog. Turning to the page where the dog and cat are waiting to be served pancakes, the teacher introduced what she expected to be a new word for these young second-language speakers: to ‘anticipate’ something (in italics below). She explained the meaning of ‘anticipating’ by using more common words such as ‘think’, ‘hope’, ‘look forward’ – trying to add a new layer to the story that was not captured by the words she expected the children would know already (for the ease of reading examples are offered in English translation only):

Example 1

Anne: the dog and cat are sitting there and anticipating something.  
Anne: why are they anticipating something?  
Child 1: because they wait until it will taste good – they are wondering if it will taste good.  
Anne: okay – nn – that is why they are anticipating – they are thinking about something – maybe hoping for something – they are looking forward to something.
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Child 2: they are excited about the pancakes because they love pancakes very much.

Anne: yes they are excited about the pancakes – they are anticipating – they are sitting there waiting – they look forward – they love pancakes.

Child 1: Anne?
Anne: yes?
Child 1: I don’t think the dog and cat will get anything.
Anne: I think they will – because they have waited for so long – they have been anticipating so much and now they are sitting there and looking forward – they have collected all the ingredients – the things we mix – and now they are sitting there and fantasizing about the delicious pancakes – they are making an image in their heads about the pancakes that are so nice.

Previously the group had worked with the words ‘ingredients’ and ‘fantasize’ and the example illustrates how the teacher revisited these words in the narrative she co-constructed with the children, re-exposing them to words she wanted them to learn while introducing new ones.

The second example is sampled from another preschool in which the teacher Liv read an expository book about animals on the African savannah. In the text the word ‘herd’ was essential in portraying the zebras’ way of living. While the teacher pointed to the illustration of a group of zebras in the book, she reviewed the word ‘herd’ that she had previously taught the children and checked whether they understood the word before she continued teaching them:

Example 2

Liv: the zebras live in herds – can you remember what a herd is?
Child 1: that is when many animals are together.
Liv: yes the zebras live in herds because then it is easier for them to defend themselves against enemies.

The purpose of this chapter is to review vocabulary instruction and its impact on children’s vocabulary learning in early education. The examples above serve to illustrate word instruction embedded in creating an engaging narrative or building knowledge; word instruction with a purpose outside of word learning per se. The chapter will first address instructional strategies that have proved to be efficient with young children, asking what these strategies are like and for whom they work. Next, the chapter will discuss whether children acquire word-learning strategies in vocabulary programmes that may support their general word learning, beyond the words targeted in instruction. Finally, directions for future research will be identified. But first – what is the research rationale for studying children’s knowledge of the particular language component that words represent?

Why vocabulary?

Children’s vocabularies – their knowledge of word meanings – have for many years received interest in research addressing early literacy. This is not without reason. There is robust evidence suggesting that children’s vocabulary skills when they enter school are powerful predictors of their reading comprehension years later (Cunningham and Stanovich, 1997; Elleman et al., 2009; Snow et al., 2007; Song et al., 2015; Storch and Whitehurst, 2002).
Differences in vocabulary skills among children emerge in early childhood, reflecting the number of words and different words they are exposed to in their home settings (Hart and Risley, 1995; Hurtado et al., 2008; Pan et al., 2005; Rowe, 2012) and in preschool (Bowers and Vasilyeva, 2011; Grover Aukrust, 2007; Rydland et al., 2014). By the time children enter elementary school, there is already considerable variability in the breadth and depth of their vocabularies. For example, Biemiller (2005) estimated that lower-quartile English-speaking children begin kindergarten with a thousand fewer root word meanings than average children and continue to acquire fewer words during the first years of schooling, resulting in 2000 fewer root words by the end of second grade.

The number of words children know is associated with socioeconomic differences in speech directed to young children. Children from low-income families acquire their vocabularies at slower rates than children from more privileged backgrounds (Farkas and Beron, 2004; Hoff, 2003). Hart and Risley (1995) observed children in their homes during the first years of their lives and estimated that a child from a professional family on average was exposed to three times as many words as a child from a poor family (42 million words as opposed to 13 million words). Moreover, children’s relative vocabulary sizes from preschool to the elementary and middle school years demonstrate a remarkable stability (Snow et al., 2007). In a recent study Rydland et al. (2014) found that vocabulary differences among second-language learners at the age of school entry remained until fifth grade, pointing to the importance of promoting vocabulary in the early years. Some studies (e.g. Penno et al., 2002; Sénéchal et al., 1995) have even demonstrated a widening of vocabulary discrepancies across children after the early years, often talked about as the Matthew effect (Stanovich, 1986), referring to the ‘rich getting richer and the poor poorer’ over the course of development; or, those who have more, get more. The stability in children’s vocabulary sizes relative to each other suggests that vocabulary skill trajectories are not easily affected. Still, identifying ways of overcoming the Matthew effect has been a major motivation behind studies asking whether children’s vocabularies can be instructionally supported in early childhood education.

What is efficient vocabulary instruction?

**Word-meaning explanations are more efficient than mere exposure to words**

A substantial body of literature suggests that structured and supported oral activities are a promising way to foster vocabulary development in children. Shared book reading, such as demonstrated by teachers Anne and Liv in the examples above, has been a primary base for vocabulary interventions with young children (for review, see Sénéchal this volume). In experimental studies that have examined the effects of vocabulary instruction on young children’s word learning, a simple research design is characterized by assigning children randomly to an intervention or control group and analysing whether children who receive the vocabulary intervention learn more words than children who do not receive the intervention. In research designs with more experimental groups involved, studies have in addition compared types of vocabulary instruction and identified those that appear most beneficial to children’s word learning.

Penno et al. (2002) examined the potential additive effects of explaining word meaning on children’s vocabulary growth. They compared children’s word learning resulting from mere word exposure with word learning resulting from explicit word-meaning explanations, in both cases when children listened to stories. Although vocabulary learning occurred incidentally through mere exposure, children made greater vocabulary gains when teachers in
addition offered word explanations. A similar conclusion was drawn by Beck and McKeown (2007) in two studies of kindergartners and first-grade children. Children who were taught the targeted words learned more words than children who received no instruction, and the vocabulary gains were larger for words that received more instruction. The findings indicate that word learning does not occur easily and that it requires multiple exposures. Nielsen and Friesen (2012) investigated the effect of a storybook-based intervention on kindergarten students’ vocabulary development. The intervention group received vocabulary instruction (preplanned definitions explicitly taught and reviewed) and made greater gains on both standardized and non-standardized measures of vocabulary than did the control-group children. Similarly, Justice et al. (2005) examined the effect of small-group storybook reading with adult elaboration of words in context on the acquisition of vocabulary words for at-risk kindergartners. Though word-learning results were modest, children in the treatment group acquired more instructed words than the comparison group. They found no effect of storybook reading on non-instructed words. Likewise, Pollard-Durodola et al. (2011) in a study of preschool children at risk for vocabulary delay found significant intervention effects on researcher-developed measures. The intervention supported vocabulary development by using conceptually related books and explicitly teaching word meaning during shared book reading.

Extended and rich word-meaning explanations are more efficient than simple word explanations

While the studies reviewed so far compared word-meaning instruction to mere exposure, other studies have compared different types of vocabulary instruction to young children. Coyne et al. (2007) compared extended instruction of target words (teaching word meaning in a way that included both contextual and definitional information, multiple exposures to target words, and experiences that promoted deep processing of word meanings) to incidental exposure (words appeared in the story, but were not taught or discussed explicitly), and also compared extended instruction to embedded instruction (providing simple definitions within the context of the story). They found that extended discussion resulted in greater word learning than either incidental exposure or embedded instruction. In a follow-up study Coyne et al. (2009) compared embedded and extended word instructional approaches with kindergarten students. Extended word instruction resulted in deeper word knowledge while embedded instruction resulted in more partial knowledge of the target words. Likewise Silverman (2007) found that kindergarten children whose teachers offered semantic instruction (comparing words) or anchored instruction (paying attention to spoken or written forms of the word) learned more words than children whose teachers restricted their word instruction to defining words.

Zucker et al. (2013) examined longitudinal relations between at-risk preschool children’s reading experiences and their language and literacy in kindergarten and first grade. Teachers’ use of extra-textual talk during shared reading in preschool was significantly related to children’s vocabulary development in kindergarten. Their findings converge with other studies regarding the importance of teachers’ extra-textual talk for word learning. A study by Dickinson and Smith (1994) revealed a strong association between teachers’ analytical talk when reading books with children and the children’s receptive vocabulary skills. Dickinson and Porche (2011) showed that children’s fourth-grade receptive vocabulary was related to their exposure to challenging, inferential talk during preschool book reading, with kindergarten vocabulary mediating these effects. Furthermore, Hindman et al. (2008) found that
exposure to talk about inferential topics (predicting, inferencing) rather than literal topics (labelling, describing) predicted children’s short-term vocabulary skills.

Chlapana and Tafa (2014) examined the effects of different instructional strategies on second-language learners’ vocabulary acquisition during storybook reading. Children aged four to six years, learning Greek as their second language, were randomly assigned to two different treatment conditions and one control condition. In the first experimental group, the children were provided brief explanations of target words, in the second group, children were actively involved in discussing target words, while the control group read the stories without any explanation of target words. The researchers found that the impact was larger for instructed than non-instructed words and that children in the interactive instruction setting learned more words than children who only received a brief explanation. Their results converge with findings from other studies of young second-language learners’ response to vocabulary instruction, concluding that children benefit from rich explanations and from being actively invited in the word meaning defining process (Collins, 2010; Lugo-Neris et al., 2010).

Summing up, when comparing instruction-based word learning to word learning resulting from mere word exposure, instruction results in more words being learned. Effective vocabulary instruction offers multiple exposures to the target words, invites the child to participate in discussions of word meaning (rather than solely presenting a definition) and allows rich opportunities to use the word in meaningful contexts.

Who benefits the most from vocabulary instruction?

According to the Matthew effect, privileged children will to a larger extent than their less-privileged peers benefit from good instruction. However, the motivation behind vocabulary instruction is often compensatory: to enhance word learning in children who are demographically at risk and/or are second-language learners, and thus expected to lag behind their peers in vocabulary acquisition. A crucial question therefore is: to what extent do vocabulary interventions support the children who need it most?

Investigations addressing this question have reached contradictory conclusions. Justice et al. (2005) examined the effect of small-group storybook reading on the acquisition of vocabulary words and hypothesized that adult elaboration of words in context accelerated vocabulary growth. Children with low vocabulary scores made greater gains on elaborated words (though results were modest for all children). Other studies have found no differential effects. Zucker et al. (2013) in their study of teachers’ extra-textual talk and its impact on children’s vocabulary did not find that children’s initial vocabulary skills moderated the effects of book reading on vocabulary learning. Similarly, Pollard-Durodola et al. (2011) found effects of vocabulary instruction, but no differential effects as a result of whether children had high versus low entry-level vocabulary knowledge. Thus, the gap between children with high and low vocabulary scores was not reduced in this study. In their review of 19 studies, NELP (2008) concluded that language-enhancing interventions supported a broad range of children, with no differences in intervention effectiveness for children based on socioeconomic or language status.

Conversely, some studies found that children with low vocabulary skills benefitted less from vocabulary instruction than their peers with more word knowledge. Students with higher initial vocabulary scores were more likely to learn word meanings through extended discussion than students with lower initial vocabulary scores (see Chlapana and Tafa, 2014 on bilingual learners; see Cabell et al., 2011; Coyne et al., 2007, Loftus et al., 2010; Penno
et al., 2002 on monolingual learners). Sénéchal et al. (1995) found that children’s entry-level vocabulary knowledge was an important predictor of vocabulary gains from listening to stories. According to these studies, extended vocabulary instruction is differentially effective, favouring students with more developed vocabularies. Likewise, Marulis and Neuman (2010) found in their meta-analysis that socioeconomically advantaged children were significantly more likely to benefit from vocabulary intervention. They concluded that vocabulary interventions are not sufficiently powerful to close the word gap – even in the preschool and kindergarten years. Though their results indicated an overall effect size of .88 when treatment children in vocabulary intervention studies were compared to non-treatment children, the effect sizes were significant lower for economically disadvantaged children. Moreover, some studies have suggested that children with low vocabulary skills tend to be less able to make use of incidental vocabulary learning opportunities; that is, to learn from mere exposure (Justice et al., 2005; Sénéchal et al., 1995), possibly because they know fewer of the other words and thus have less basis for inferring meanings of unknown words.

Few studies have investigated treatment effects by language status, comparing language majority with language minority speakers. Two studies of middle-school students concluded that language-minority students (ELLs) benefitted as much, but not more than children who were monolingual English speakers, hence they remained below their majority-language peers at posttest (Carlo et al., 2012). On the other hand, Han et al. (2014) studied dual-language learners and monolingual English learners from low-income families who received an intervention programme addressing oral language skills over several years. They concluded that although the gap between dual-language learners and monolingual learners developed early, with strong early intervention the gap seemed to be closed. The two groups participating in the study showed similar vocabulary developmental trajectories from kindergarten to second grade and both groups demonstrated age-appropriate achievements on an increasing number of oral language measures over time.

Vocabulary learning as an interaction effect of vocabulary skills and vocabulary instruction

Some studies have investigated treatment effects as a result of interaction between vocabulary skills and specific vocabulary instructional strategies. Coyne et al. 2009 compared vocabulary learning in two treatment conditions, embedded and extended instruction. Children learned more words in the extended condition, but this applied particularly to students with more advanced vocabulary prior to the intervention. Likewise, Reese and Cox (1999) found that pre-kindergartners with higher initial vocabulary skills made greater gains when instruction included extended talk before and after read-alouds. Children with lower initial vocabulary skills benefitted, however, more from instruction that focused on description of pictures during read-alouds. Silverman and Crandell (2010) compared differential effects of various word instruction strategies. They found that acting-out and illustrating words using pictures was positively related to vocabulary learning for children with low pre-intervention vocabulary scores, while this type of intervention correlated negatively with post-intervention results for children with high vocabulary scores before the intervention. Defining words in non-read-aloud settings seemed on the other hand to have a greater effect for children with higher pre-intervention vocabulary scores than for children with lower scores, though the relationship was positive for both groups of children. Consequently, the authors concluded that children with high versus low vocabulary scores before the intervention responded differently to interventions.
Though findings are somewhat contradictory, most studies suggest that vocabulary interventions do not close the gap between children who are disadvantaged due to socioeconomic factors or to being language minority learners and more advantaged learners. There is some evidence, though more would be needed to arrive at a solid conclusion, that advanced vocabulary instruction such as embedding new words in extended discussions may not be equally beneficial to all children irrespective of their initial vocabulary skills. From a practitioner perspective, adapting and fine-tuning the vocabulary instruction to the learner’s needs seems crucial.

**Limited evidence that vocabulary knowledge transfers beyond the targeted words**

Several decades ago Stahl and Fairbanks (1986) concluded in a meta-analysis that vocabulary instruction transferred to global vocabulary measures not containing the target words of instruction. However, later studies have suggested that word learning as an effect of instruction does not easily transfer to non-instructed words in a way that can be assessed by distant, standardized measures (Apthorp et al., 2012; Biemiller and Boote, 2006; Elleman et al., 2009; Pearson et al., 2007). Of the studies reviewed above, only Silverman (2007) and Nielsen and Friesen (2012) concluded with gains in general vocabulary.

Recently, Apthorp et al. (2012) in a cluster-randomized study found a positive effect on students’ vocabulary skills in kindergarten and elementary school after one year of explicit rich vocabulary teaching. The intervention included structured, weekly lesson plans for the teaching of new words and structured language activities to engage children in deep and active processing, providing multiple exposures and opportunities for use. The intervention had positive proximal effects on vocabulary (on measures closely aligned with the content and procedures of the instructional programme). They concluded that the intervention improved targeted vocabulary while ‘expecting global effects may be overly optimistic’ (p. 160). Likewise, Neuman et al. (2011) in another cluster-randomized study investigated the effects of a vocabulary intervention programme for three- and four-year-old preschoolers. The intervention was designed to teach word knowledge and conceptual development. The treatment classrooms outperformed control classrooms on all researcher-created outcome measures (curriculum-related word knowledge), but with no significant differences on standardized vocabulary measurements.

These findings concur with the conclusion drawn by Marulis and Neuman (2010) who in their meta-analysis of the effects of vocabulary interventions on young children’s word learning reported greater effects for researcher-created measures compared to standardized measures. If vocabulary instruction were to result in increased word learning skills (not only increased understanding of the words taught), we would expect such gains to appear in standardized assessment only some time after the intervention, when the child has had a chance to apply the new word-learning skills. As yet, there appears to be some, but limited, evidence of word instruction being generalized to new words above the words instructed.

**Future directions for vocabulary instruction research**

**Supporting teacher capacity to enhance children’s vocabulary skills**

In a study of word exposure in Norwegian preschools Grøver Aukrust (2007) found large differences in the total number of words, total number of different words and the discourse...
complexity that bilingual children were exposed to in preschool, with implications for their long-term second-language vocabulary development. The huge variability in teacher talk was surprising as Norwegian early education commonly is expected to be of fairly homogeneous quality across institutions (Lekhal et al., 2012). Similarly, in a study in US preschools, Dickinson et al. (2008) demonstrated that preschool teachers rarely engaged children in extended discourse and rarely used sophisticated strategies to support language learning. Scheiner and Gorsetmen (2009) also reported that many preschool teachers had difficulties in identifying places in stories where an inference had to be discussed for children to comprehend the text. The findings point to the need for enhancing the capacity of teachers to engage children in vocabulary-supporting talk.

Reviews of vocabulary intervention effects on children’s word learning conclude that effect sizes improve when the intervention is highly controlled and conducted by the experimenter (Elleman et al., 2009; Marulis and Neuman, 2010). When classroom teachers implement the intervention, a larger variability in the outcomes for children is reported, again suggesting variability in the uptake of the intervention by teachers (for discussion, see Vuattoux et al., 2014). Milburn et al. (2014) investigated in a short-term study whether professional development increased preschool teachers’ use of conversational strategies during book reading. They found that teachers in the experimental group used more open questions, were more responsive and used more different words, indicating that professional development can yield promising outcomes and enhance teachers’ abilities to support children’s language. We need more research into professional development that would build on and extend teachers’ instructional repertoire in work with learners with diverse vocabulary skills.

Is vocabulary enough?

Thirty years ago Stahl and Fairbanks (1986) formulated three principles for effective vocabulary instruction: teaching both definitional and contextual information, promoting depth of processing and providing multiple encounters of words. These principles still have some validity. More recent research has additionally taught us that embedding word definitions in extended discussions in which children are invited to participate in identifying word meaning and actively applying the new words supports children’s word knowledge.

When teacher Anne (Example 1 above) revisited words such as ‘ingredients’ and ‘fantasize’ while she developed the pancake narrative with the children, she exposed them to words previously used in another context. Similarly, when teacher Liv checked the children’s understanding of the word ‘herd’ it was because she needed the word to build knowledge about the zebras’ way of defending themselves. The teachers used the targeted words as tools in developing a more complex narrative and in building knowledge with an expository children’s book as a starting point. The examples illustrate word learning embedded in discourse forms that young children are commonly exposed to in preschool. Good text comprehenders tend to have a more sophisticated understanding of discourse types such as narrative discourse, reasoning and arguments which may help them in successfully interpreting word meaning. Studies reviewed above concluded that word instruction embedded in analytic or inferential talk is more efficient. Future research should further examine potential relationships between children’s mastering of basic discourse structures and their word comprehension.

In Example 1 teacher Anne introduced the perspectives of the story protagonists when she taught the children the meaning of the word ‘anticipate’. To fully understand the word the children had to take the perspective of the protagonists in the story – what made the dog
and cat think, hope, look forward to the pancakes? Certainly, comprehending and using words in a sophisticated way presupposes a capacity to take different perspectives: as listeners we apply the perspective of the speaker, inferring what he or she intends to express by using the word, and as speakers, we take into consideration the perspectives of the listener/the audience, how the word will be understood. The teacher in Example 1 was not referring to something that could be pointed out in a picture; to comprehend the specific meaning of the word ‘anticipate’, the children had to take her perspective as narrator – to try to identify which dimensions of the narrative she paid distinct attention to.

Relationships between word learning and perspective-taking are a fairly unexplored area. The two examples introducing this chapter were sampled from conversations between teachers and bilingual learners. Particularly for this group of learners, who might have a less developed vocabulary in either of their languages, considering instructional strategies that invite them to use their discourse knowledge (potentially transferrable across languages) and their perspective-taking skills in interpreting word meaning might be instructionally relevant.

Conclusion

Even an efficient vocabulary instruction programme will only be able to teach children a small percentage of the words they acquire; most words are learned incidentally in everyday settings – and moreover most words are not easily learned. Intervention studies and observational studies of relations between word exposure and vocabulary learning concur in their conclusions: words are learned most efficiently if they are embedded in meaningful, engaging and extended discourse. To get a deeper grasp of word meaning children need multiple exposures in a variety of talk contexts. Finally, when exposed to new words children might have a better chance of arriving successfully at an understanding if they make use of their pragmatic skills such as identifying the type of discourse the word appears within and applying their perspective-taking skills. The ways in which vocabulary programmes might include pragmatic instruction in supporting even young children’s word learning is an area in need of further investigation.

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