

BUILDING VOCABULARY IN EARLY LEARNERS; A LOOK AT INSTRUCTIONAL
STRATEGY IMPACT AND DIFFERENCES BETWEEN LABELING, N3C AND
STORYBOOK CONTEXT

by

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(Under the Direction of Paula J. Schwanenflugel)

ABSTRACT

The effects of two different methods of vocabulary instruction, (a) explicit and implicit vocabulary and (b) implicit only vocabulary, on the vocabulary learning strategies of 4 and 5 year olds were examined. For explicit vocabulary strategies, teachers provided definitions and N3C presentations of target words prior to storybook reading and followed the reading with extension activities involving target words. For implicit only strategies, teachers read storybooks interactively and engaged children in conversation. In two studies, analyses showed that children's ability to use vocabulary learning strategies was unaffected by the strategies that were promoted in the children's classrooms. Across classrooms, however, children with higher vocabulary levels appeared to benefit from labeling, context and N3C, whereas children with lower vocabulary levels did not benefit from labeling alone, but were better served through the N3C presentation or the storybook context.

INDEX WORDS: Vocabulary Development, Storybook Reading, N3C, Elementary Education, Preschool Children

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CHAPTER 1

INTRODUCTION

The importance of vocabulary

Initial differences in vocabulary development levels of young children have a significant impact on both early reading achievement and long term reading comprehension. Cunningham and Stanovich (1977) reported that vocabulary assessment in first grade predicted over 30% of the variance in reading comprehension ten years later in the eleventh grade. Other studies have shown that children who begin school with small vocabularies are more prone to have difficulty in learning to read and become at risk for long-term reading problems (Copeland & Edwards, 1990). A meta-analysis conducted by Scarborough (2001) indicated a significant correlation found between receptive vocabulary and reading achievement (Median, $r=.40$) Thus, finding ways to enhance the vocabularies of children who enter school with limited language and linguistic skills seems key to improving later reading comprehension and even early word decoding skills (Schwanenflugel, Stahl, & McFalls, 1997).

Vocabulary development in preschoolers occurs primarily through participation in conversations and storybook reading. For pre-readers, much incidental vocabulary learning occurs during conversation, through interactions with written language as well as from listening to song lyrics or watching educational television shows using unknown vocabulary (Rice, 1990; Rice, Huston, Truglio & Wright, 1990).

Children enter school with a wide range of vocabulary knowledge. Although estimates of vocabulary size differ dramatically depending on how they are estimated, one moderate

estimate provided by Biemiller and Slonim (2001) is that the average first grader knows about 6,000 words. The annual rate of vocabulary growth for school aged children is calculated to be around 3,000 words per year by Nagy and Herman (1987). The vocabulary gap between children entering kindergarten ranges between 3,000 to 6,000 words according to the SES environment that they come from (Hart & Risley 1995). By third grade the gap increases, with children from high poverty homes having a vocabulary with 5,000 fewer words than their peers (Baker, Simmons & Kame'enui, 1995). For teachers seeking to remediate vocabulary deficits in children entering school without the requisite vocabulary, the task is enormous. Providing a multitude of opportunities for vocabulary growth within the classroom seems necessary.

Teachers must address the needs of children entering their classrooms with dramatic differences in vocabulary levels. This paper attempts to address different ways that storybook reading can be implemented in the classroom to provide the most impact on vocabulary for children in pre-kindergarten and early elementary school.

Socio-economic and Cultural Impacts on Vocabulary Knowledge

Children's vocabulary knowledge is highly correlated with the socio-economic status of their parents (Hart & Risley, 1995; Weizman & Snow, 2001). Unfortunately, parental behaviors that are known to impact vocabulary are also ones correlated with socioeconomic level. Most experts agree on some distinct aspects of parental behaviors that are most responsible for the socioeconomic differences in vocabularies of preschoolers.

First and foremost among these socioeconomic status differences in parental behaviors is the quality and quantity of parental talk to children. There is a clear relationship between the number of words that parents speak to their young children and vocabulary size (Huttenlocker, Haight, Bryk, Seltzer & Lyons, 1991). The quantity of parental talk tends to be correlated with

quality features of language (Hoffs-Ginsberg, 1991, 1992), but Weizman and Snow (2001) have found that the sophistication of language is a stronger predictor of later vocabulary than sheer number of words spoken. The density of sophisticated words embedded in interactions at home, such as meals or play, predicted 50% of the variance in children's second grade vocabularies. Children's vocabulary improves when parents engage in high level conversations with their children during storybook reading compared to when their interchanges are limited to very short responses (Weizman & Snow, 2001). Children born into middle and high socioeconomic status families tend to engage in more interactive discussions with their parents and may participate in more trips to libraries, museums and even grocery stores. Such children are usually guided through language by a parent intending to build the child's language skills and knowledge (Hart & Risley, 1995). In contrast, language directed at children in low income families appears to include more imperatives and prohibitions, with an emphasis on teaching obedience in direct contrast to the dialogue and engagement in information sharing often found in middle class homes (Hart & Risley, 1992).

The second widely agreed upon socio-economically linked parental behavior is interactions surrounding text. The opportunities children have to listen to storybook reading vary according to parent availability, parental education levels, and income available to purchase books or visit libraries. A child growing up in a low income home may have averaged only 25 hours per year of storybook reading, whereas in a middle income home, a child is estimated to have experienced 1,000 to 1,700 hours of storybook reading (Adams, 1990). The smaller number of hours spent surrounding storybook reading in some homes is likely to have an impact later on when children receive formal reading instruction. Stevenson and Friedman (1990) found a

significant relationship between the frequency of storybook reading to children during pre-school and later individual differences in the reading and spelling among 13 year olds.

Research on storybook reading in African American low income homes highlights factors that differentiate this experience from preschoolers of lower or middle class white homes. Discussion patterns show that African American parents are not as likely to ask questions during storybook reading, whereas European American middle class parents have been observed to interrupt the reading of the story to ask many more what/where types of questions (Vernon-Feagans, Hammer, Miccio & Manlove, 2002). On the other hand, post-storybook interactions also differ. Following the reading of a story, African American children tend to be expected to make up their own stories using originality and creativity. Narratives produced by African American children tend to be topic associated versus the topic centered narratives of European-American children. Teachers sometimes misinterpret the creative embellishments of the African American children as digressing from the topic because it is not the literal repeating back of the story that they expected (Vernon-Feagans et al. 2002).

There is less research on storybook reading in Hispanic families in the United States, although in one study families are shown to value literacy experiences and storybook reading (Delgado-Gaitan, 1992). There is a need for research on home literacy practices of each of the Hispanic subgroups so that childcare programs and elementary schools can best target training to parents and instructional methods for children.

Age and Ability

Because of the long term impact that vocabulary deficits can have on academic achievement, it is important to focus on effective methods to build vocabulary prior to second grade, during what are traditionally considered pre-reading or emergent reading stages.

Systematic efforts in vocabulary instruction do not customarily begin until second grade. Studies appear to indicate that vocabulary development during the Kindergarten through second grade period is due to age effects and not instructional effects (Biemiller, 2001).

There appear to be developmental differences related to age and vocabulary learning. Senechal and Cornell (1993) found that 5- year olds were significantly better able to gain vocabulary from context than four year olds. Brabham and Lynch-Brown (2002) found a significantly improved ability for third graders over first graders. Most research has been conducted with children between third and eighth grade for two probable reasons. By then most children are reading on their own. Before that, vocabulary has not been an articulated part of early elementary school curriculum. Several researchers concluded that developmental differences in children's ability to build their vocabulary are best served by different teaching strategies (Reese & Cox, 1999; Senechal, Thomas & Monker, 1995; Ewers & Brownson, 1999).

Most experts agree that children entering school with larger vocabularies are able to benefit more from listening to stories read aloud than children with small vocabularies (Senechal, Thomas & Monker, 1995; Ewers & Brownson, 1999). The more developed a child's vocabulary the more effective they are at learning words incidentally through context (Nicholson & Whyte, 1992; Robbins & Ehri, 1994). The ability to derive vocabulary meaning from context is influenced by the degree of prior knowledge that children have available to them into which they can integrate new information. Prior knowledge helps children to distinguish relevant from irrelevant information regarding new words (Sternberg, 1984). Children with smaller vocabularies suffer not only from having a smaller vocabulary, but also from a less richly developed understanding of known words already in their vocabulary (Shelfelbine, 1990). The cumulative effect of this variation among children compounds over time as children with larger

vocabularies and knowledge are able to build onto their base more effectively and build even larger vocabularies and greater knowledge.

Customs of Storybook Reading to Pre-kindergarteners

Reading aloud in the elementary classroom has not always been as ubiquitous as it is today. Surveys conducted 40 years ago found that only half of elementary school teachers reported reading aloud to their students (Austin & Morrison, 1963) and those who took time to read only did so a few times a week. A more recent survey found that 100% of classroom teachers report reading to their children a few times a week and many on a daily basis (Lickteig & Russell 1993). Of note, though, is that 90% of those teachers stated that they read to the children in their classrooms for enjoyment and entertainment. Only 11 to 28% added additional reasons such as developing skills of comprehension, vocabulary and knowledge building.

The situation may be particularly grim for preschools with regards to classroom time spent listening to storybooks. Dickinson and Sprague (2002) visited 42 Head Start classrooms in New England and found that in two days of observations only 65% of the classrooms had storybook reading time. The typical time spent reading, by the teachers in those classrooms, was 2 ½ minutes, allowing for no interaction. Additional data collected from typical child care centers serving low-income children, who were not in Head Start, found even lower levels of book use.

Older teachers seem less aware of the need to read to children than younger teachers do. One large scale survey of 1874 teachers found that older teachers were less likely to read to the children in their class, regardless of their years of experience. They found that, on average, Kindergarten teachers read a story every other day, and that they did not feel that storybook time was a part of their reading instruction. (Jacobs, Morrison & Swinyard, 2000). They also found

that reading usually took place after lunch and was designed to be a passive and calming experience.

Observational studies consistently show that the majority of teachers read during large group time. Despite evidence that children learn more in small groups or one on one, studies show that the majority of teachers only read to large groups, probably due to personnel limitations (Dickinson & Smith, 1994). Moreover, even when teachers adopt reading to children in smaller groups, intervention studies suggest that most of the time teachers return to reading to large groups after the intervention ended, the stated reason most often being classroom management (Whitehurst, Arnold, Epstein, Angell, Smith & Fischel, 1994; Wasik & Bond, 2001).

Regardless of the amount of reading that takes place or the size of the groups that are being read to, there are a number of read-aloud strategies that have proven to be helpful in supporting young children's developing linguistic and cognitive skills, among them, vocabulary building. Furthermore reading aloud with an instructional intention is likely to have an effect on the teacher's style of the reading and book choice. In what follows, I outline the research on read-aloud strategies and vocabulary development.

Styles of Reading

Probably the single most important aspect of storybook reading in the development of vocabulary is the interaction between the adult reader of storybooks and the child listeners (Biemiller, 2001). As noted above, teachers often do not have a clear purpose for reading to children. When teachers have a clearer instructional goal, this may promote interactions around storybooks. Teachers' lack of instructional purpose to reading aloud may contribute to the surprisingly low or even negative correlations sometimes found between teacher read alouds and

reading achievement (Share, Jorm, MacLean, & Matthews, 1984). For instance Stallings and Kassowitz (1974) found a correlation of $-.15$ when they looked at the amount of time teachers spent reading aloud and first grade reading achievement. Observational studies conducted in the 1990s found that teachers reading aloud in a ‘just reading style’ correlated with low reading achievement scores (Allison & Watson, 1994; Morrow, Rand & Smith, 1995). It is likely that, simply reading aloud, without interaction or instructional purpose, may displace more productive instructional time.

Studies conducted by researchers interested in interventions for the promotion of vocabulary development and comprehension found positive benefits from storybook reading when teachers read interactively or used a performance style with extensive discussion (Dickinson & Keebler, 1989; Wasik & Bond, 2001). Although there are a growing number of studies that now support the instructional value of storybook reading, there is not clear empirical evidence as to which reading style is the most effective for vocabulary development.

Dickinson and Smith (1994) conducted a quantitative study of teacher reading styles and identified three distinct clusters of teacher reading styles that represent the variety of ways in which teachers in typical pre-school settings read and discuss storybooks. In the *performance-oriented* style, teachers provide a brief introduction that may include predictions before the book and extensive discussion following a straight-through reading. In the *didactic-interactive*, teachers engage in limited talk during the book reading confined to group recall, text repetitions and answering simple questions. In the *co-constructive* cluster, teachers engage in interactive talk with children throughout the storybook reading.

Dickinson and Smith’s (1994) study is useful because it provides information about teachers in their natural settings. They found that although teachers were for the most part

consistent, they sometimes varied styles and used multiple approaches so as to provide benefits for diverse groups of students. For instance the performance style may provide the least compromised enjoyment of the book, whereas the didactic-interactional style may enhance vocabulary for lower performing students.

Performance oriented – dramatic straight-through style. Teachers who read a story straight-through are usually concerned with not compromising the text. Dickinson and Smith's (1994) study found that teachers employing this style often first introduced the book and guided the children in making predictions. Then, following a straight-through reading, they engaged students in analytical discussion and provided opportunities for them to relate the story to their own experience. Although this style may be effective for comprehension, studies consistently find it to be the least useful for vocabulary development, because of the lack of attention to target vocabulary words encountered during the story (Senechal, 1997; Justice, 2002).

The single surprising exception to this is Dickinson and Smith's (1994) study that found that the vocabulary scores of the children in the performance style classroom showed the most significant growth. Because their study was observational and not an intervention, they suggest that the stories teachers had chosen for the performance style reading may have had richer context and vocabulary; whereas the books that teachers chose for other purposes, such as phonics, were contrived for a limited purpose and not interesting, engaging stories.

The performance style may offer an excellent introduction to literature but it appears to better benefit children with advanced vocabularies, probably due to their improved ability to gain vocabulary and meaning from context (Reese & Cox, 1999). For other students, opportunities to build vocabulary and strategic reading skills appear to be more effective when storybook reading is didactic-interactional or co-constructive.

Didactic-interactional style. The didactic-interactional style represents an effort to balance building vocabulary and comprehension, while minimally disturbing the flow of the story. Interactive elements may include having the students chime in and repeat phrases or rhymes, repeat word definitions, or predict an event. But these interruptions are minimized so that the meaning of the story maintains coherence and children are still able to make good use of context supports.

Interactive efforts intended to further generalize the meaning of the target words are likely to be helpful. When children learn new words only in a highly contextualized fashion they are sometimes unable to transfer the definition to a new context. In the didactic-interactional style teachers often pull out the vocabulary word and provide a synonym or recast to broaden the definition of the target word. Teachers vary in degrees of interaction, from minimal (passive students listen to the target word defined, recast or simply repeated) to expressive (students provide an expressive utterance of the word in response to a question or in choral repetition.).

Significant gains in vocabulary have been found for the didactic-interactional style of reading, even with minimal interaction, compared to performance and straight-through reading conditions (Brabham & Lynch-Brown, 2002). Elley (1989) also found that during read-alouds, even with large groups of children and a minimal interaction, during which the reader merely stopped and provided a definition of vocabulary words immediately following their occurrence in the story, vocabulary scores doubled compared to the straight-through reading groups. In Elley's (1989) study, all children (seven and eight year olds) benefited in the definition-provided interactive group, those with low vocabularies benefited similarly to those children having higher vocabularies, with all the children retaining their gains three months later. Reese and Cox (1999) compared didactic-interactional and co-constructive storybook reading and observed that the 4-

year-old children with initially lower vocabulary scores did better with the didactic-interactive style.

In a study supporting minimal interaction, Justice (2002) found that labeling was more useful than questioning to increase vocabulary. She compared questioning and labeling during two book readings and also looked at whether word learning was influenced by perceptual versus conceptual questions. In the labeling condition, after the adult read the target word in the story, they pointed to the picture and said, “This is a _____.” In the questioning condition the adult read the target word and then asked a question such as “What is a _____” for the perceptual questions and “Why do you think the _____ is such a funny shape” for the conceptual questions. Justice (2002) found that the labeling of novel words resulted in significantly greater gains in preschoolers’ receptive novel word learning, but not expressive learning.

A number of studies provide support for interactive strategies that explicitly require children to say target words expressively. An expressive utterance appears to provide learning benefits above and beyond passive listening to word definitions (Senechal, Thomas & Monker (1995). Senechal (1997) used a reading method in which while the book was being read the target words were pointed out and the children were asked to say them expressively. Under this condition the recall of target words was higher than it was for children who were passive listeners. She also found that asking children to answer a simple, direct question about the target word was most likely to result in non-transitory learning of new vocabulary. Similarly, Ewers and Brownson (1999) found that an interactive question condition that prompted the child to use the target word expressively was superior to a passive condition in which the reader provided a synonym following the target word.

However, a number of these studies suggest, although all children appear to be able to benefit from interactional approaches to vocabulary learning, children already possessing larger vocabularies seem to be more likely to benefit from these interactional approaches than those possessing smaller vocabularies (Senechal, 1997; Ewers & Brownson, 1999).

Although research overall provides consistent support for interaction between children and teachers, there have been contradictory findings regarding the most effective degree or type of interaction. In addition there have been inconsistent variables, tests, methods and group-types and some of the contradictions may arise from moderating variables such as teacher quality or book interest. Still, vocabulary benefits are strongest when the didactic-interactional style is used, with the more minimal interactions tending to equally benefit all children and the more complex interactions, such as asking a question that prompts an expressive response using the target word, providing additional benefit for children with more advanced vocabularies.

Co-constructive – open questioning. Co-constructive reading, sometimes called dialogical or interactive reading, involves ongoing dialogue surrounding the story. Continuous open-ended questions are asked throughout the storybook reading to promote high level participation. The book, then, merely serves to be the stimulus around which a high degree of interaction takes place. Dialogic reading differs from co-constructive in that it further specifies that small groups no larger than five children be used.

The co-constructive style appears to be most consistent with Vygotsky's (1978) theory of development, in which the student acquires linguistic skills through social interactions and extended dialogue with the teacher. Although a high level of interaction may be most beneficial for comprehension, it is important to realize both of the other styles of reading previously

described also involve interaction between the teacher and the children and value the social aspect as well as providing more benefit for vocabulary development.

A large-scale study of the effects of co-constructive reading in small groups on vocabulary development in 3-year-olds from low-income families by Whitehurst et al. (1994) suggested the benefits of this approach. But teachers appear not to like it. The teachers in the study did not continue the small group reading after the intervention ended, due to the perceived additional labor.

One key aspect of this co-constructive style may be group size. Children who hear stories in small interactive groups typically do better in comprehension and recalling story elements than children hearing stories either one-on-one or in large groups (Morrow & Smith, 1990; Cornell, Senechal & Broda, 1988). Wasik and Bond (2001) note some positive changes in the classroom when children are placed in small groups that they attribute to the co-constructive experience. The children in such classrooms are more likely to ask their teachers the meanings of words outside of reading time. Teachers, themselves, are more likely to use challenging vocabulary than the teachers are in other classrooms.

The co-constructive style shows particular promise for children arriving at school from lower SES households. The significant improvement in language development shown in Whitehurst et al (1994) provides support for this reading strategy, particularly as an intervention for low performing pre-kindergarten and kindergartners. Most importantly it provides an introduction to the culture of school, to the strategies of active listening and responding and to the process of becoming engaged in activities. Two aspects should be considered in regard to regular classroom use. First, in most child-care and elementary school settings, teachers are not able to consistently read to groups as small as five children. Second, along with the intensive

amount of discussion, which may be on any topic, the sense of the story may be lost and with that the context needed to build meaning and vocabulary.

Re-readings

One strategy that is often recommended by researchers to assist in the enhancement of school children's vocabularies is to re-read books. Research on the effects of repeated readings versus single readings of books consistently finds that more than two readings of the same book results in large gains in comprehension. Children's comments usually become more evaluative and interpretative with subsequent readings (Pappas, 1993). Although the research on multiple readings is persuasive, almost all of it been done with independent readers beginning with 4th grade children. In a study involving multiple readings, Stahl and Fairbanks (1986) found frequency of exposure to be the most important variable affecting gains in learning vocabulary from context. Fourth graders were found to need to read a passage twice in order to significantly improve their vocabulary. Additional readings beyond two continue to increase word learning (Jenkins, Stein & Wisocki, 1984). Furthermore, to reliably increase comprehension, McKeown, Beck, Omanson and Pople (1985) found that twelve encounters were optimal.

For preschool children there may be similar vocabulary development value with multiple exposures as with re-readings, but conclusive research findings do not yet exist. For pre-readers, Senechal (1997) studied the difference in vocabulary gains between a teacher reading a book once straight-through or three times straight-through. The results showed a significant difference in favor of reading the story three times. Children seem to be better able to make use of context with more than one exposure to each new word. Wasik and Bond found that multiple exposures to words, from a storybook and then followed by an extension activities, yielded

significant vocabulary development. For pre-readers, do they need to hear the whole story twice or thrice or could it be as effective to repeat the exposure during the reading and provide a definition?

Recently conducted studies demonstrated that increased readings are not necessary to improve vocabulary if the words are explained during the story, a method that combines context features, repeated word exposure, and direct instruction (Brett, Rothlein & Hurley, 1996; Ewers & Brownson, 1999). Ewers & Brownson (1999) found that kindergartners could learn a significant number of new vocabulary words from a single storybook reading, if the teacher either provided a synonym for the target word, or prompted children to provide an expressive label for the target word through focused questions.

Prevailing practices in elementary schools and child-care centers do not generally include repeated readings. Many pre-school curriculums do encourage extension activities following the reading of a storybook, but do not always highlight the inclusion of target vocabulary words. Including multiple exposures to new words through extension activities, may help generalize meanings of new words for children, as well provide for potential ability differences in children's vocabulary acquisition strategy use.

Storybook reading is not the only strategy teachers can use, however. The next section describes the novel name nameless category (N3C) principle of word learning and suggests an adaptation for the classroom that can be used in an extension capacity.

Novel-Name Nameless Category (N3C) Strategy

For pre-Kindergarteners arriving at school with less developed vocabularies, the N3C strategy may help those less able to use context clues to learn new words. The function of N3C processing is based on emergent developmental theory of language learning (Golinkoff, Mervis,

& Hirsh-Pasek, 1994; Mervis & Bertrand, 1993). According to Golinkoff et al (1994), sometime during the second year, children come to realize that words are used refer to things, that they can be used to refer beyond their originally learned referent, and that new words often refer to objects. Once children come to these understandings, they are ready to move past the most rudimentary stage of word learning and learn new words much more quickly. One strategy that children seem to develop universally is the novel name – nameless category (N3C) principle that allows for a quick map between a novel word and an unnamed object. Golinkoff et al. (1994) state that:

“N3C is a heuristic that moves a single hypothesis for what the novel word might mean to the top of the stack: the novel term maps to an unnamed object” (p.143).

The N3C principle allows 2 year-old children to fast map nouns and then verbs (Golinkoff, Hirsch-Pasek, Mervis, Frawley, & Parillo, 1995).

As children develop more complex vocabulary and categorization systems they are able to move beyond the N3C principle to more sophisticated context learning strategies. But for pre-kindergartners still building basic vocabulary, it may be effective to use the N3C strategy as a supplemental explicit teaching tool. By nesting a picture or object representing a new word along with pictures or objects of commonly known things, a child can be prompted to expressively provide a new word as a label for the object or representation. “Which one is an artichoke?” is likely to elicit a correct response, when an artichoke is displayed between an apple and a banana. The child has built a fast map between the object and the word and when prompted can confidently provide a label for the novel object. Preliminary evidence appears to indicate that this strategy can be flexibly applied to children’s word learning even as an active tool at 7 years old (Liu, Golinkoff & Sak, 2001; Sugimura & Maeda, 1997).

Rationale for the current study

The present research consists of two studies examining whether a teacher's use of different instructional strategies influences the children's use of strategies to learn new words. Of particular interest is whether there will be significant differences among children as young as 4 and 5 years old. Study 1 also examines different methods of vocabulary presentation in relation to children's initial vocabulary level. Study 2 assesses whether children are better able to use context to learn new words following an interactive storybook reading intended to allow for a deeper processing of new vocabulary.

CHAPTER 2

STUDY 1

The purpose of this study was to investigate whether children exposed to vocabulary instruction using context for the explicit learning of vocabulary and N3C learning strategies become better at using those strategies than those not similarly exposed. A secondary purpose of the study was to investigate whether labeling, storybook reading, and N3C vocabulary presentation strategies were equally effective means of introducing new vocabulary to children at different levels of vocabulary knowledge.

Method

Subjects

Participants included 55 children attending public, lottery-funded pre-kindergarten in an urban county in northeast Georgia. The children were a subset of 425 subjects participating in a larger pre-literacy intervention. Out of the sample of 55 subjects, 18% received free or reduced school lunch and 51% were female. There was a mean age of 4 years and 3 months, SD 4 months. According to parental report, 62% of the children were identified as African-American, 27% Caucasian and 11% as other. Only native English speakers were used.

Children were randomly selected to participate from among native English speakers in 8 classrooms, 7 from each classroom. In one classroom, one child left the program, resulting in 6. In four of the classrooms, teachers received general preliteracy training without a special focus on vocabulary. In the other four classrooms, teachers received extensive training on classroom practices for enhancing vocabulary learning in prekindergarten children.

Stimuli and Procedure

Assessments of general vocabulary knowledge. To determine initial vocabulary levels, subjects were given pre-tests of the Peabody Picture Vocabulary Test-III (PPVT-III, Dunn & Dunn, 1997) and the Expressive Vocabulary Test (EVT, Williams, 1997). These receptive and expressive vocabulary tests yielded standardized scores related to national norms and allowed for use as covariates in the study.

Description of Teacher Professional Development Activities around Vocabulary. Two levels of teacher training status were included: (a) training on both explicit and implicit vocabulary enhancement classroom practices (henceforth, implicit + explicit group); and (b) training on implicit vocabulary enhancement practices only (henceforth, implicit only group). Children in the four classrooms with teachers trained to use implicit only vocabulary enhancement practices served as controls, while the experimental group consisted of children from four classrooms where teachers received training in using implicit + explicit vocabulary practices.

Prior to the school year all teachers and paraprofessionals in both implicit only and implicit + explicit classrooms received 3 days of professional development in general literacy practices for prekindergarten children. Implicit only classroom practices were (a) Building Bridges, a program that encourages teachers to plan intentional conversations between themselves and each child several times a week in small groups or individually; and (b) **CAR** Talk, an interactive storybook reading program that includes asking questions during the reading that allows children to demonstrate **C**ompetence (e.g., What did the cat eat for dinner?), **A**bstract thinking (e.g., What do you think the cat will do next?") and **R**elatedness (e.g., Do you know someone who has a cat?).

For explicit classroom practices, teachers were encouraged to develop an overall vocabulary focus and were asked to choose vocabulary from storybooks to target each week. Teachers were shown how to introduce new words using an N3C presentation by placing an object or picture of a novel word between two commonly known objects, e.g. an artichoke between an apple and banana, and asking the children to point to the artichoke; or ask, “Is this the artichoke?” while lifting the banana and so forth. When targeted words appeared in stories, teachers were to point out the word, provide the definition again, or to discuss how the new word fit into context by pointing to a picture or to the linguistic context. Teachers were given instruction on how to prepare extension activities such as vocabulary bingo and ‘get caught using the word’ walls in an effort to promote multiple, generalized exposures of target words.

Teachers received bi-weekly support from pre-literacy specialists who provided technical assistance for the implementation of their program elements during a 15-week period. Additionally, the specialists conducted 5 formal observations, and reviews of lesson plans and materials.

Assessment Activities. Informed consent was obtained from parents and subjects for mid-year testing and post testing, as well as for other school related data. Testing took place within three weeks following the end of the intervention. Children were collected individually from the classroom and taken to a quiet place in the school. Several literacy measures related to the preliteracy intervention were administered, followed by the N3C learning phase, the Context Use task and the N3C test phase:

(a) N3C task. The N3C protocol targeted 8 novel words: sconce, sickle, gavel, quill, pulley, prawn, spatula and weasel. In the N3C learning phase, a picture was presented of each target word on a page with pictures of two common objects. All 8 target vocabulary words were

presented in a similar manner with one target per page. The question was asked “Can you point to the *spatula*?” If the child pointed to the spatula, confirmation was given “Yes, that is the *spatula*.” If the child pointed to one of the common objects, say, the pot, the object was identified “That is a pot,” and the correct object was identified by pointing to the correct picture and saying “This is a *spatula*.” The common objects belonged to the same category as the target word to help provide extra information for the child.

In the assessment phase, children were presented with sets of pictures that each had three drawings, two representing target words previously introduced and one of an uncommon object. For instance, where the child had been introduced to the word *spatula* by presenting a picture of a spatula nested between a spoon and a pot, in the target assessment phase, drawings of the spatula (a novel target word), the pulley (a second novel target word) and a reel (a novel distractor word) were presented. The purpose of the second novel target word was to prevent children from merely using the strategy of pointing out previously seen exemplars. The purpose of the novel distractor word was to ensure that children actually learned the novel target word and were not merely using the N3C procedure to attach the novel target word to the novel object. Sets of four words were queried in a counterbalanced order such that half the children received four target words during the assessment phase as targets, and the other four served as distractors during this phase and the reverse for the remaining children. Children were credited with learning the item if they could point out the correct picture.

(b) Context-Use Task. In the vocabulary learning phase of the context use task, children were read one of two books containing difficult vocabulary. Each book presented a story narrative and factual information along with colorful illustrations. Both books were intended to be read as early readers for preschool children. The books were chosen because they were

approximately the same length, taking about 5 minutes to read aloud. Both of the books had words that were unlikely to be known by young children, and the words were represented in illustrations. The targeted words in *Beavers Beware!* (Brenner, 1992) were considered unlikely to be known by children in an urban setting. They were *warden, beaver, dock, refuse, and gale*. In *As the Crow Flies: A First Book of Maps* (Hartman, 1991) the words were *lighthouse, harbor, skyscraper, factory and meadow*. Five picture cards representing the five target words from each book were copied from the illustrations resulting in a total of 10 picture cards. Pilot testing of five children confirmed that the texts were engaging and the words were initially unknown, but learnable for 4 year old children. The experimenter presented each card and provided a label. Then, one of the books containing five of the target words was read to each child in a counterbalanced order.

The assessment of context use was designed to measure the development of receptive and expressive vocabulary, following similarly constructed tests by Senechal (1995) and Robbins and Ehri (1994). After finishing the book, the experimenter presented all 10 cards, one at a time, and asked the child for an expressive label, 5 from the book just read and 5 from the alternate book that had not been read to the child. The child was credited for knowing a word if they said the exact label that had been presented to him/her during the learning phase. Next, all ten cards were placed on the table and the experimenter said each target word, one at a time, and asked the child to point to the correct card. Cards were not moved or removed by the experimenter, and no feedback regarding accuracy was provided to the child. The child was credited with knowing the word if he or she pointed to the correct picture.

Design. For the N3C task, a 2 Teacher Practice (explicit + implicit versus implicit only) between-subjects design was used, and the total number of correct pictures pointed to by each

child in the N3C assessment phase was used as the dependent variable. For the context use task, a 2 Teacher Practice (explicit + implicit versus implicit only) X 2 Context (Book versus No Book) design was used. Teacher Practice was a between-subjects variable and context was a within-subjects variable. The two dependent variables were defined for this task: (a) the total number of pictures for which the child provided a correct expressive label (henceforth, expressive knowledge) and, (b) the total number of pictures pointed to correctly when provided with the label (henceforth, receptive knowledge). The child's PPVT-III standard score was considered a covariate.

Results

Preliminary analyses indicated there were no significant effects of gender or ethnicity on any of the dependent variables, nor did gender or ethnicity interact with the independent variables (all $p > .20$) so they were not considered further as variables in the analyses.

Children's correct answers on the N3C test ($M=1.9$, $SD=1.09$) are displayed in Table 1.

Table 1
Difference Between Teacher Practices On Vocabulary Measures

Teacher Practices	N3C	
	M	SD
Implicit Only	2.11	1.25
Implicit & Explicit	1.78	0.89

For the N3C task, a one-way analysis of variance was conducted to evaluate the relationship between different conditions of teacher training and N3C skill as measured by the number of words learned from the N3C task. The main effect of teacher training was not significant, $F(1, 52) = 1.27$, $p=.265$. It appears that children with teachers, who taught vocabulary using N3C strategy, were not significantly more successful on the N3C task. A one-

way ANCOVA was conducted comparing levels of teacher training, using children's PPVT-III scores as a covariate. Because PPVT-III scores were unavailable for three children, they were not considered in this analysis. Again the main effect of teacher training was not significant, $F(1, 48) = 1.15, p = .29$. The PPVT-III covariate was not significant either, $F(1, 48) = .13, p = .734$. The lack of significance on the second analysis suggests that the N3C presentation was equally successful for all the children, regardless of their initial level of vocabulary or level of teacher training. It appears to be an equal opportunity method of teaching new vocabulary.

For the context task, a two-way within-subjects ANOVA was conducted comparing levels of teacher training (between subjects) and levels of context (words presented within a book versus no book). The results of the ANOVA indicated a significant context effect on the expressive vocabulary measure, $F(1, 53) = 6.49, p = .01, \omega^2 = .09$, but not the receptive vocabulary measure, $F(1, 53) = 1.41, p = .241$. The children were better able to provide the label for an initially unknown item followed by the presentation of the word in the context of a storybook, than when the item was merely labeled and presented without context. There was no effect for teacher training on the expressive, $F(1, 53) = 2.54, p = .117$, or receptive vocabulary measures $F(1, 53) < 1, p > .10$. The interaction between teacher training and context was also insignificant for expressive, $F(1, 53) = .002, p = .96$, and receptive vocabulary, $F(1, 53) = .309, p = .58$, as seen in Figures 1 and 2.

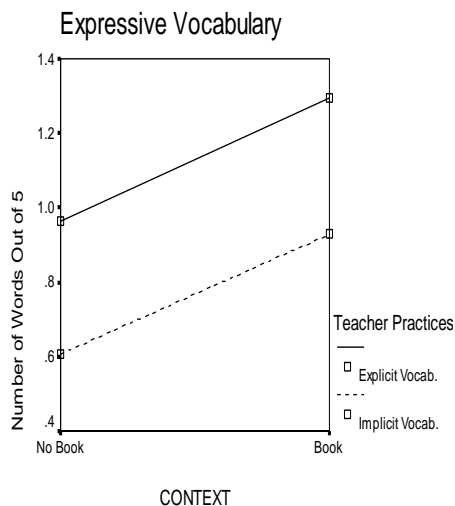


Figure 1

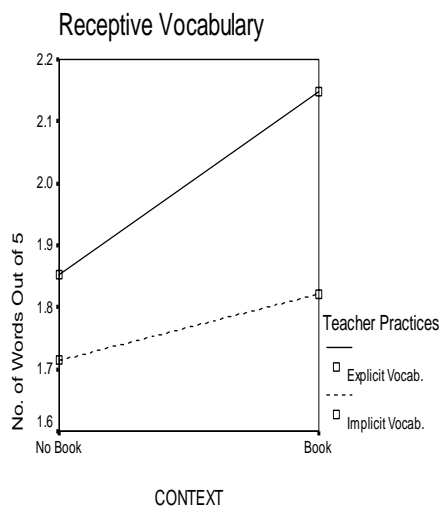


Figure 2

From this data, it appears that students in classrooms where teachers taught using explicit methods of learning vocabulary in context did not use context based vocabulary learning strategies any more effectively than the children in the other classrooms. The means and standard deviations for children's scores on the context task are shown in Table 2.

Table 2
Differences Between Teacher Training on Children's Learning
New Words from Context

Teacher Practices	Expressive Book		Expressive No Book		Receptive Book		Receptive No Book	
	M	SD	M	SD	M	SD	M	SD
Implicit Only	0.93	0.86	0.61	0.74	1.82	0.82	1.71	1.05
Implicit & Explicit	1.3	1.17	0.96	1.05	2.15	1.26	1.85	1.38

An ANCOVA was conducted with the PPVT-III score used as a covariate to examine the influence of teacher training and context use as a function of children's initial vocabulary level. There was a nonsignificant effect of context on children's expressive vocabulary learning, $F(1, 49) < 1, p > .20$, and receptive vocabulary learning, $F(1, 49) = 3.18, p = .081$. There was also a nonsignificant effect of teacher training on both expressive, $F(1, 49) = 1.29, p = .26$, and

receptive measures, $F(1, 49) < 1, p > .20$. The interaction between teacher training and context was also not significant for expressive vocabulary ($F(1, 49) = .428, p = .43$) or receptive vocabulary ($F(1, 49) = .098, p = .75$). Neither was the interaction between context and PPVT-III score significant for expressive $F(1, 46) = 1.81, p = .185$, or receptive, $F(1, 49) = 2.56, p = .116$, vocabulary learning. There was, however, a main effect of PPVT-III on expressive, $F(1, 49) = 36.450, p < .001$, and receptive vocabulary learning, $F(1, 49) = 20.62, p < .001$, on the number of words learned. The results are displayed in Figures 3 and 4.

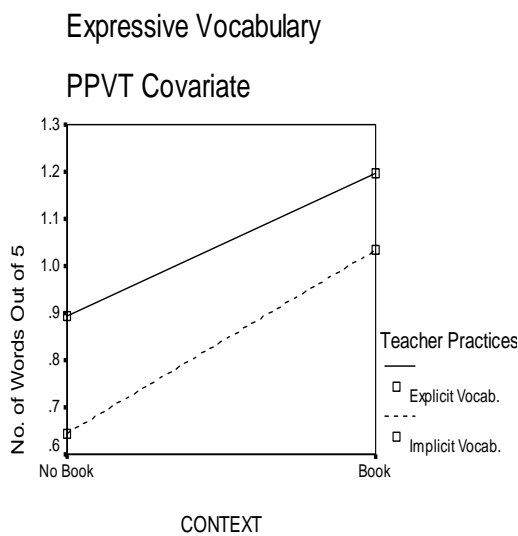


Figure 3

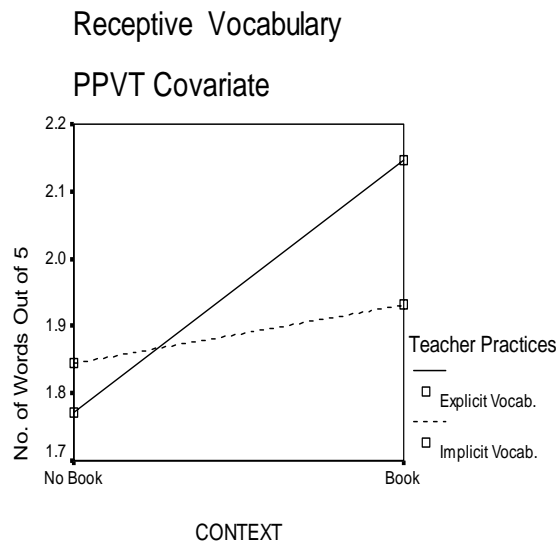


Figure 4

The set of analyses presented above hinted at the possibility that different strategies might be more-or-less effective for children at different levels of *a priori* word knowledge, as indicated by the PPVT-III. Given that no effects of teacher training were found in any analysis, we collapsed across this variable to determine whether any presentation strategy (i.e., the simple labeling required by the No Context condition, the N3C strategy, or the context use required by the storybook reading Context condition) was differentially better for one strategy over another for children at different verbal skill levels. A one-way within-subjects ANOVA was conducted

to see if there was a relationship between vocabulary strategy effectiveness (simple labeling, N3C, and storybook reading) and children's general vocabulary knowledge (PPVT-III score). In the current study, the effectiveness of each of these strategies was measured by determining whether children learned any of the words assessed. As before, general vocabulary knowledge was measured by baseline PPVT-III scores. The results of the ANOVA indicated a significant main effect of strategy, $F(2, 48) = 4.31, p = .019$; as well as a Strategy X Vocabulary knowledge interaction effect, $F(2, 48) = 3.35, p = .044$. In order to clearly display these results, the subjects were divided into three groups of *a priori* vocabulary knowledge by PPVT-III scores. Figure 5 shows that the N3C strategy works similarly well for children at all levels of vocabulary knowledge, while the contextual exposure and simple labeling (no context) conditions appear to become increasingly effective for children with higher initial vocabulary knowledge. Interestingly, it appears that high verbal children benefit just as much from labeling alone as they derive from their additional appearance in context. However, children with low vocabularies do not derive much benefit at all from simple labeling and benefit more greatly from contextual exposure or processing through the N3C strategy for new words to be learned at all.

Strategy Effectiveness across Receptive Vocabulary Levels

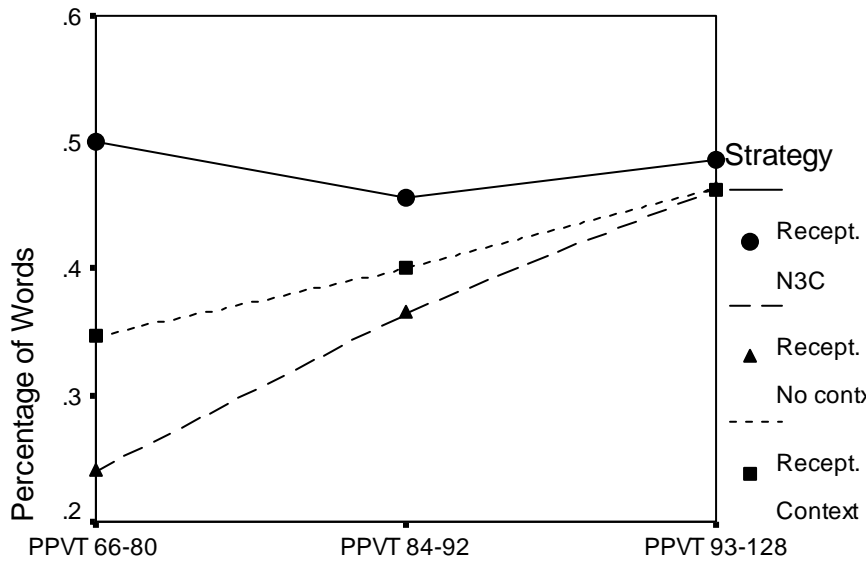


Figure 5

A second ANOVA was conducted to see if there was a similar relationship between the expressive measures of vocabulary (No context and Context) and the baseline EVT scores. The N3C was considered to be a receptive task only, so it could not be included in this analysis. The results of the ANOVA did not indicate a significant main effect of strategy, $F(1, 43) < 1, p = .93$. In order to clearly display these results, three groups of expressive vocabulary knowledge were arranged from the EVT scores. Figure 6 shows that children with higher verbal scores scored higher on both measures. However, this time, it could be seen that all groups benefited from contextual exposure for the new words.

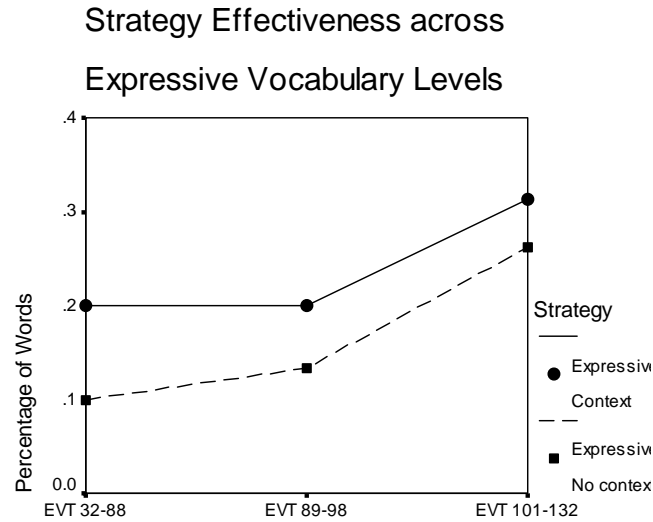


Figure 6

Correlation coefficients were computed among the strategies. Using the Bonferroni approach for control for Type I error across the 12 correlations, a p value of less than .004 ($.05/12 = .004$) was required for significance. The results of the correlational analyses presented in Table 3 show that the majority of correlations were statistically significant and were greater than or equal to .38. The correlations between N3C and the other strategies and verbal skill were lower and not significant ranging from .02 to .31. In general, the results suggest that if children score higher on the PPVT-III, they tend to score higher on the receptive and expressive context measures, but there is not a relationship between the N3C and the other measures.

Table 3

Correlations among Strategies and Verbal Skill (N = 52)

	PPVT	Receptive No Context	Expressive No Context	Receptive Context	Expressive Context
Receptive No Context	.54 **				
Expressive No Context	.53 **	.60 **			
Receptive Context	.38 **	.40 **	.38 *		
Expressive Context	.64 **	.46 **	.54 **	.64 **	
N3C	.02	.06	.31	.16	.14

* Correlation is significant at the .01 level

** Correlation is significant at the .004 level

Discussion

One striking finding that permeates all of the results of Study 1 was the decided lack of a finding that children's ability to use vocabulary learning strategies was related to the strategies promoted in the children's classrooms. Teachers who used an explicit vocabulary focus had children who were no better at capitalizing on those strategies than children whose teachers did not have an explicit focus on vocabulary. This occurred despite the fact that teachers had been shown to use the strategies that their training had suggested. However, there are a number of possible reasons for the lack of teacher training effects.

One possibility for the lack of findings with regard to teacher training group in Study 1 could be that children had been randomly selected from classrooms. There may have been *a priori* differences between the groups of children that hindered reliable observation of the effect of teacher training on children's abilities to employ vocabulary learning strategies. In Study 2, matched pairs of children were selected for participation in the study based on the preassessment of vocabulary, and substitute words were included if it was discovered that a given child knew a particular vocabulary item *a priori*.

An alternative explanation for the lack of differences in Study 1 could be that the books were not read in an interactive manner consistent with either of the teacher training conditions, but were read straight through. Children in the explicit strategy classrooms had teachers who had read storybooks using the CAR strategy. It may be that young children need to process their new vocabulary by having interactions that require the extended use of such vocabulary by interacting around storybooks containing the new words. In Study 2, the books were read using the CAR strategy. Additionally, each of the target vocabulary words was used in one of the interactive

questions, creating at least one additional exposure as a part of the strategy. (In some cases, children used the target word in their answers to the questions, providing a 4th exposure.)

A third possibility for the lack of significant difference in Study 1 is that a fairly low level of vocabulary learning was required by the methods used in the previous study. Children only needed to be able to recognize the identical exemplar of the target vocabulary word that was presented when the word was queried in the assessment phase. Extensive exposure to the strategies in the classroom might enable children to extend the meanings of new exemplars better than if they had not had this exposure. In this study, children were presented different exemplars of the new word during the initial presentation of the words, and in the assessment phase. Presumably, if children learned the meanings of the new words at a deeper level during presentation, they might be better able to extend the meanings of this new word to a different exemplar.

CHAPTER 3

STUDY 2

As before, the purpose of the study was to learn whether the children were better able to use context to learn the meaning of new words in classrooms where teachers received enhanced vocabulary and support. However, this time, it was hoped that some methodological improvements would allow differences in vocabulary learning between children whose teachers had included an explicit + implicit vocabulary focus in their classrooms than children whose classrooms had an implicit only vocabulary focus.

Method

Subjects

Participants included a subset of 46 children from urban northeast Georgia who were taking part in the same intervention as Study 1. Children were selected and matched *a priori* according to baseline EVT scores from 12 classrooms. Out of this sample, the mean age was 5.0 years (SD = 4 months). According to parental report, 37% of the children were identified as African-American, 23% Caucasian, 7% as other and 33% did not respond to the ethnicity question, 7% received free or reduced school lunch and 50% were female.

Stimuli and Procedure

Two storybooks were chosen to provide context for the learning of new words based on colorful illustrations and similar themes based on animal adventures. Novel words were selected from *A Night on the Tiles* (Ingman, 1999) and included *torso*, *Vespa*, *salon*, and *finial* (*periscope* and *canteen* were substitutes). Words in *Do You See a Mouse?* (Waber, 1996) were *goatee*,

valise, *skillet* and *surrey* (*florist* and *wardrobe* were substitutes). *Do You See a Mouse?* was edited to be the same length as the *A Night on the Tiles* without disturbing the story, so that children would have approximately the same amount of context to use in deriving the meanings of the new words. In some cases, to derive a target vocabulary word, some of the words in each story were replaced by synonyms that were low frequency words that five-year-olds were unlikely to know.

Children were taken individually from the classroom to a quiet place in the school. Cards, copied from book illustrations, represented 8 novel words, 4 from each story. During the word-learning phase, all 8 cards were presented to each child one at a time. To ensure that the children did not have prior knowledge of any of the words, they were asked for an expressive label. If they were unsuccessful, a label was provided. If they provided the novel label, a card representing a substitute word was used and the child was asked to name it, until eventually four words were found that each child did not know. The stories were read in counterbalanced order, using the CAR-talk strategy. Each of the CAR questions included one of the novel words to direct children's attention to the use of the word in the context, e.g. "What is pulling the *surrey*?" Following the book reading, to assess whether the child was able to extend the meaning of a new word to a new exemplar, 8 different cards representing the novel words were presented one at a time. In this study, cards were made from photographs representing the novel word. The expressive test consisted of asking the children to provide an expressive label for each of the photographs. The receptive test involved placing the 8 photographs on the table and asking the child to point to a photo when provided one of the novel words. The child was not given an indication whether they answered correctly and the 8 photos remained on the table, while the

child was asked to point to one for each novel word. Children received points for providing an expressive label, or pointing to a correct photo.

Results

The means and standard deviations for scores from Study 2 are presented in Table 4. ‘No book’ scores represent the number of words children were able to name or point to without the benefit of the storybook, just the initial labeling at the introduction the new vocabulary. ‘Book’ scores represent scores earned from having the additional context of the storybook. Expressive scores are not included or considered further because expressive knowledge was very low. Only two children provided one expressive label each for the experimental condition and one child provided one expressive label for one of the control words.

Table 4
Differences in Vocabulary Learning between Children having Teachers using Different Vocabulary Practices

	Receptive Book		Receptive No Book	
Teacher Training	M	SD	M	SD
Implicit Only	1.04	.86	.58	.65
Implicit and Explicit	.95	.90	.58	.65

For this context task, a two-way within-subjects ANOVA was conducted with two levels of teacher training (implicit versus implicit + explicit) and two levels of context (book versus no book). The number of vocabulary words learned in each condition out of 4 possible was the dependent variable. The results of the ANOVA, displayed in Figure 7, indicated no significant difference between children who had teachers receiving different training on the receptive vocabulary measure ($F(1, 46) = .05, p = .82$). In this study, context was again found to have a significant effect on receptive vocabulary scores ($F(1, 46) = 5.36, p = .02$). The interaction between teacher training and context was not significant, $F(1, 46) < 1, p > .20$. Thus, as in Study 1, even with all of the improvements in study design, it appears that children who had

teachers that had been trained to promote an explicit vocabulary focus in their classrooms with both implicit and explicit strategies did no better at learning new vocabulary than children whose teachers did not have this explicit focus.

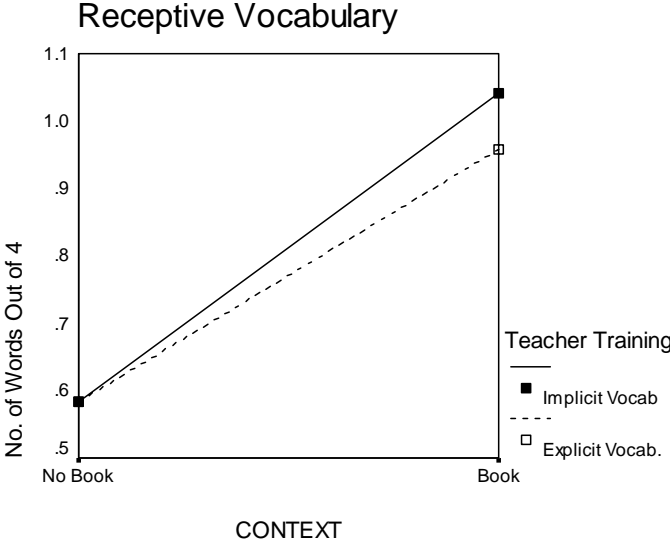


Figure 7

CHAPTER 7

GENERAL DISCUSSION

Summary of findings

The primary purpose of these studies was to investigate whether having teachers who used explicit + implicit vocabulary teaching strategies benefited children's vocabulary learning more than having teachers who used implicit only strategies. In both studies children receiving explicit + implicit vocabulary instruction did not perform significantly better on vocabulary measures compared to those who received implicit only vocabulary instruction. In Study 1 two measures were used, one based on context learning and one based on the N3C principle. In context learning over all children, regardless of instructional group, learned more vocabulary when target words were presented in book context than when the vocabulary was merely labeled and presented without context. The children with better vocabulary learned more new words on both receptive and expressive measures, regardless of whether words were merely labeled or whether words were also presented in a storybook context. Scores on the N3C task indicated a slightly higher level of vocabulary learning and this learning appeared to be equally distributed across children from different verbal skill groups. In Study 2, a protocol intended to be more sensitive to learning vocabulary from context did not yield significant differences among children having teachers with explicit vocabulary focus or merely an implicit one. Instead, over all children appeared to learn more words when they were presented in a storybook context compared to when they were merely labeled.

Wasik and Bond (2001) conducted a study investigating practices intended to build vocabulary in classrooms through interactive book reading and extension activities further emphasizing target words. Teachers received four weeks of in-classroom modeling and support, followed by 11 weeks of practice. Wasik and Bond (2001) found a significant difference on all vocabulary measures providing support for explicit vocabulary strategies, in particular props and interaction. Additionally, they provided teachers with storybooks and supplies that may have facilitated the repeated use of vocabulary words during reading and extension activities. This study compared the training group with a control group that did not receive training in interactive reading. In our study, however, the control group also received training in interactive storybook reading and the importance of vocabulary.

The benefits of learning new vocabulary with storybook context are supported in numerous studies (Robbins and Ehri, 1994; Senechal, Thomas and Monker, 1995; Ewers and Bronson, 1999). The effect of frequency of exposure is also known to have a positive effect on vocabulary acquisition (Stahl and Fairbanks, 1986, Schwanenflugel et al., 1996; Elley, 1989). In Studies 1 and 2, when the target word was presented in context, an additional exposure occurred. The frequency of exposure effect cannot be separated from the context effect in the current studies.

Previous studies of the N3C principle have focused on word acquisition and categorization processes by comparing different levels of success at N3C tasks to age and development. A review of literature did not turn up any research on the application of the N3C principle as a vocabulary teaching tool. N3C could be carried out using a series of pictorial images as in Study 1, or by using concrete objects. The effective use of concrete objects as exemplars for new vocabulary in the preschool setting has been studied (Wasik, Karweit, Bond,

Woodruff, Jaegar & Adee, 2000). Children who had been introduced to new words by the use of concrete objects were better able to remember new words than children who had not been so exposed. Because the findings in Study 1 showed that some vocabulary learning had occurred and that it benefited children equally across ability levels, further study on using the N3C presentation of new vocabulary items is indicated.

One finding that occurred in both studies is that there seemed to be no particular benefits of teacher practices on children's abilities to capitalize on those strategies to learn new words. One might have anticipated that children who were taught to learn new words using the N3C strategy might be better able to use that strategy to learn new words later. This did not occur. Similarly, one might have anticipated that children who had teachers who explicitly taught children to use contextual features in learning the meanings of new words might be better able to capitalize on such features as a word learning strategy later. This also did not occur.

One possible factor accounting for the lack of significant difference between the two teacher training conditions is that the differences in training and implementation between the explicit and implicit vocabulary groups may have been too subtle to produce an effect. Both groups of teachers received training that emphasized the importance of vocabulary as a preliteracy skill and some of the implicit only teachers may have used classroom opportunities to naturally emphasize vocabulary in explicit ways as well. Had there been a control classroom with no extra training there may have been stronger results supporting the explicit training. Additionally, the children may have been too young to have instilled and extended the skill of extracting the meaning from the context, even given the additional explicit exposures. It is possible that a longer intervention or period of teaching may be necessary for young children to change their listening and attention habits, and to transfer new habits outside of the classroom.

Another possibility for the lack of finding of teacher training might be that too many images may have been introduced all at once for children to retain and consequently overloaded working memory. In one session, 12 new vocabulary words were introduced (4 in the N3C, 4 in the No Context, and 4 in the Context conditions). There may have been too much novel information presented at once.

Children in these studies learned vocabulary both through the Context Use task and the N3C task. Teachers in these studies received training on the importance of vocabulary as a pre-literacy focus, particularly for at-risk populations of children. Accepting the conclusion that incidental instruction alone cannot help bridge the gap between students arriving with smaller and those with larger oral vocabularies (Biemiller, 2001; Beck, McKeown & Kucan, 2002) new strategies are called for. Juel, Biancarosa, Coker, & Deffes, (2003) found that reading aloud to kindergartners and mentioning vocabulary did not significantly impact vocabulary growth, but that the use of multiple methods of exposure proved effective. In the current study, it appeared that requiring some sort of deeper processing, either through N3C exposure or through contextual presentation, might also prove effective. The intentional focus on vocabulary also appears to positively influence teachers to use target words more frequently as well as increasing general discussion surrounding language (Wasik and Bond, 2001). Intensive vocabulary emphasis is critically important for those prekindergartners and kindergartners who begin school with impoverished vocabularies. N3C and interactive storybook reading, with labeling of targeted words, are two useful strategies for teachers; yet continued research needs to be focused on strategy effectiveness and how teachers view and implement their use.

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