

# LANGUAGE EXPANSION AND ORAL COMMUNICATION SKILLS IN PRESCHOOL CHILDREN

by

CHRISTOPHER MACLEAN

(Under the Direction of Paula Schwanenflugel)

## ABSTRACT

Preschool children who live poverty may have fewer opportunities to practice complex language skills, resulting in their kindergarten entrance with a smaller repertoire of linguistic and academic skills. To learn how to enhance oral language skills of preschool children, a ten-week intervention was employed for children attending state lottery-funded PreK classrooms. Experimenters, who met twice a week for 10 weeks with pairs of students, engaged children in a total of 500 minutes of cognitively challenging conversation to expand on children's speech. Adults and children engaged in cognitively complex dialogue through imitation, extension, expansion, recast, repetition, clarification, and open-ended questions. Pre- and post-test language sampling included the use of guided conversation, speech stems and the narration of a wordless picture book. Mean length of utterance at the word level (MLUw) was used as a gross measure of oral language ability. Matched groups of children in intervention and control groups were determined to be equivalent prior to the intervention. Post-intervention findings indicated that children in the intervention made greater gains in MLUw than children in the control group. Analyses revealed children beginning the intervention with low EVT scores made significant gains in MLUw compared with their peers that scored higher on the EVT at pre-test. Results suggest complex input promotes oral language development in children with limited access to early academic and linguistic experiences.

INDEX WORDS: Complex input, Syntax, Mean length of utterance, PreK children, Psycholinguistics, Poverty

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CHRISTOPHER MACLEAN

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CHRISTOPHER MACLEAN

Major Professor: Paula Schwanenflugel

Committee: Stacey Neuharth-Pritchett  
Liang Chen

Electronic Version Approved:

Maureen Grasso  
Dean of the Graduate School  
The University of Georgia  
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## CHAPTER 1: INTRODUCTION

Preschool children who live in communities with depressed economic conditions may not have as many educational advantages and oral communication development opportunities as their peers in more affluent communities. Because opportunities to practice complex language skills are hindered by factors associated with poverty such as maternal age, parental education attainment, limited interaction opportunities between parents and children because of work obligations, and maternal depression (Duncan & Brooks-Gunn, 1994), some children do not receive the same amount of focused attention on spoken language as do their peers who reside in more affluent conditions. Oral communication skills cement language foundation and may have long-term effects on later academic work (Aram, Ekelman, & Nation, 1984; Maxwell & Wallach, 1984; McWayne, Fantuzzo, & McDermott, 2004). Enhancing oral language development has been advanced as a mechanism to close the academic achievement gap between low and middle to high-income students.

### Preschool Settings

Although oral language development is essential for children's readiness for kindergarten and the early years of elementary school, there often is little time spent on activities specifically designed to build such skills in early childhood education environments. While there is an increasing emphasis on academic rigor in these environments as pre-kindergarten classrooms are becoming the normative point of school entry, preschools serving primarily low-income areas tend to be more sparingly funded, have more limited staff, and given some concerns regarding social skill development of young children living in poverty, have teachers who spend a great

proportion of their time attending to management needs and facilitating peer relationships (Tabors, Snow, & Dickinson, 2001). These activities restrict the amount of time available to engage children in conversation. Wilcox-Herzog & Kontos' (1998) research-based intervention, which included a child care center with teachers who had high levels of education and environments with low teacher/child ratios, revealed teachers spend little time engaged in conversations with students (Wilcox-Herzog & Kontos, 1998).

Another problem for teachers working in early care and education environments is teacher salaries and training. Most centers require teachers to hold no more than an Associate's degree in early childhood education while paying low salaries despite taxing working conditions that include high teacher-child ratios and long work days. Although more limited levels of education do not always translate into poorer instruction, limited knowledge of child development and current learning theories puts these teachers at a disadvantage in providing the types of experiences that promote oral language development (Burchinal & Roberts, 1996; Pianta et al., 2005).

### Home Environment

The home environment is another influence on the development of oral communication skills among young children. Compared with children who reside in poor economic environments, children who live in more affluent middle- and high-socioeconomic families experience many more opportunities to support oral language growth (Duncan & Brooks-Gunn, 1994). Children from more affluent families tend to take part in more interactive discussion with their parents and may have a parent with explicit interest in building language skills (Hart & Risley, 1995; Hoff, 2003). This type of complex discussion usually takes the form of analyzing, predicting, summarizing, clarifying or evaluating language (Dickinson & Smith, 1994). Complex

conversation in such environments may also be employed during special outings to playgrounds, grocery stores, libraries, or other community places where children from low-income homes may not have ready access because of lack of family resources such as the financial means, safety, or transportation to experience such community contexts. Maternal input also seems to play a large role in syntactic development as mothers who use a warm, interactive style in their language and communication tend to promote more extensive language development in their children (Edwards & Pleasants, 1997). Research has shown that meal-time conversation in the home environment is an excellent opportunity for children to practice complex language skills (Dickinson & Snow, 1987). The act of maintaining consistent meal-time meetings where sophisticated language is employed is more common among middle- to upper-class families. The experiences noted above, which occur in the homes of young children, appear to profoundly influence the language ability and readiness of children for kindergarten.

Another feature of the home environment that has a strong effect on the development of oral communication skills is the amount of decontextualized language used within the home. Decontextualized language is operationalized as talk that focuses on topics not present in the observable environment. This type of language typically involves abstract dialogue with an emphasis on how and why events occur. Research indicates more affluent families use more decontextualized language with their children than do families living in poverty (Curenton & Justice, 2004). As a result of exposure to decontextualized language, upon school entry, children who have experienced such language score higher on language measures (Snow et al., 1991). On the other hand, talk directed at children from families with more limited economic means includes more imperatives and prohibitions focusing on obedience. This conversation style is typically more concrete with an emphasis on knowledge of basic facts.

### Early Language Interventions

Foundational literacy skills may be strengthened through language intervention practices for children who are low-performing (Whitehurst et al, 1988) through the introduction of complex speech shown to linguistically benefit children who are typically developing. Girolametto, Weitzman, Van Lieshout, and Duff (2000) examined teacher directiveness to determine its effect on preschool child language output (i.e., response control, turn-taking control, topic control, behavioral control, and conversational control). Preschool instructors were recorded taking part in two different activities with preschool children—book reading and open play dough exercises. Conversations were then analyzed coding teacher-child dialogue based on the type of directive strategies employed by the instructor. Results indicated that children who were exposed to more conversational control directives (e.g., open-ended questions, clarification questions, etc) were more likely to produce more sophisticated language output than their peers in the control group who were exposed to more behavioral control directives. The current study uses Girolametto's observational results to formulate a systematic training program where teachers, adults, or other caregivers intentionally introduce children to the type of cognitively challenging conversation practices included in the conversational control directive. In the current study, I extend the intervention by going beyond the observation of existing teacher practices and present a new, systematic way to include children in complex conversation through small group dialogue.

Another example intervention targeting children at-risk for school failure [PAVEd] (Schwanenflugel, Hamilton, Bradley, Ruston, Neuharth-Pritchett, & Restrepo, 2005) demonstrated that a combination of one-on-one conversations among teachers and young students, interactive story-book reading using concrete, relational, and abstract questions and

explicit vocabulary instruction through the use of a Novel-Name Nameless Category Presentation approach was effective in building early reading skills, particularly vocabulary. The PAVEd study did not independently examine the development of specific oral language skills outside of vocabulary. Although PAVEd involved a linguistic practice, Building Bridges, where teachers were asked to engage small groups of children in sessions of complex talk, the pre-kindergarten teachers in the intervention struggled with that component of the intervention in its implementation and documentation of conversations. Therefore, the current study seeks to expand on this work by developing specific strategies to engage preschool children from low-income environments in complex conversation. The specific intervention is a collection of joint attention activities between experimenters and preschool children, linguistic expansion strategies such as extension, expansion and recast combined with slowed dialogue pace and child-directed conversation. By providing experimenters with training in these advanced linguistic practices, the study sought to further support oral communication skills in preschool children. As no research has been conducted specifically on the effect of a structured conversation style on expressive oral language development, it was hypothesized that the intervention might provide evidence that regular individual conversational practices may ready children from low-income environments for academic success at school entry through the predevelopment of preliteracy skills.

The current intervention was also influenced by other early literacy interventions that demonstrated positive results. Wasik, Bond and Hindman (2006) trained Head Start teachers in book reading and conversation practices to determine further linguistic development would occur among children enrolled in Head Start. Experimenters trained Head Start teachers to employ reading practices similar to the dialogic reading method and to focus heavily on asking questions

and attempts to build vocabulary and talk that would relate the reading to children's every day lives. Readings were followed by activities surrounding the theme for the lesson that gave children the opportunity to practice using the vocabulary with concrete objects and items. Specific vocabulary words were targeted both during the reading and extension activity sessions. Instructors used a style of communication that emphasized active listening and modeling sophisticated language while providing verbal feedback simultaneously. Although the study employed multiple conversational strategies similar to those used in the current project, no assessment was conducted on the development of oral communication skills; analysis was only performed on the growth of vocabulary and letter knowledge over the nine month period. Again, by modeling the type of teacher behavior stressed in Wasik, Bond and Hindman's project, the current intervention proposed to determine if similar practices could enhance syntactic development among children from low-income environments.

The current study was also influenced by a preschool intervention study by Girolametto, Weitzman, and Greenberg (2004) who evaluated the use of teacher directive strategies on communicative small group interactions among preschool children who were typically developing. Employing a control group, instructors were trained on the use of verbal directions to enhance adult-child conversation. Researchers created an experimental condition where preschool teachers were taught to use language that encouraged talk between children instead of child-adult conversation. Children were filmed and evaluated on their responses to instructors' prompts. Results of the study indicated no discrepancies in child responsiveness at pretest that there were differences post-intervention. Children in the experimental group demonstrated more uptake and acknowledgement responses (adhering to the instructors' prompts and thus engaging in peer conversation within groups no larger than 4) and surprisingly more override responses

(disregarding a teacher's direction to partake in peer dialogue). This result was hypothesized to be explained by the high number of directives that children experienced in the experimental condition. Most importantly, the study provided evidence that conversations among preschool children in small groups may be encouraged and supported using explicit verbal directions. Despite these positive results, no analysis on the development of child language was conducted. The current project uses Girolametto and colleagues' findings to engage children in complex dialogue within small groups, but goes a step further in evaluating the effect of such conversations on syntactic development.

### Assessments

Mean length of utterance (MLU) was first developed as a basic measure of language development (Brown, 1973) and is a common assessment tool for examining expressive language ability. To calculate MLU, child speech is first transcribed verbatim and separated into individual utterances. In this case, an utterance is defined as connected child speech with pauses lasting less than two seconds and where there are no major changes in voice intonation or attention. Breath marks, pauses, and attention shifts are included in transcriptions to conduct appropriate MLU analysis.

Traditionally, in MLU analyses, child speech is split into morphemes, totaled, and then compared to the number of utterances (number of morphemes/number of utterances) to obtain a ratio, MLUm. Recent research suggests that simply dividing the total number of words in the sample by the number of total utterances is, when converted properly, highly correlated ( $r = .90+$ ) with calculations using morphemes (Parker and Brorson, 2005). Contemporary studies now use mean length of utterance at the word level (MLUw) as a measure of expressive oral language sophistication because the process requires less time in its calculation and inter-rater reliability is

greater as the task has been simplified to look at words as a whole unit. For this reason, in the current study, mean length of utterance at the word level was preferred to the older morpheme method.

Recent research reveals MLUw is strongly related to several other measures of oral communication and syntactic complexity such as the total number of different words used by the child (NDW). For NDW, the experimenter simply counts the number of diverse words contained in the sample while collapsing words across tense (e.g., a sample containing both “run” and “ran” would only be given credit for 1 new word). Because of its simplistic calculation process, NDW is typically considered a quick glimpse into the variety of language used by the child.

Type-token ratio (TTR), another measure of linguistic complexity that builds on NDW and employs a similar calculation divides the number of different words (types, but also called NDW) by the total number of words (tokens). The act of collapsing across tense is present in this type of analysis. Type-token ratio has also been shown to be correlated with MLUw like NDW, especially among children with low-level oral communication skills. Knowledge of how MLU relates to other linguistic measures helps to describe not only language matter and content, but also begins to shed light on early child vocabulary development, one of many emergent literacy skills that serve as a major building block for later literacy success in school (Dethorne, Johnson, & Loeb, 2005). Therefore, MLUw reflects not only simple oral language production, but also describes variety in syntactic sophistication and complexity on multiple levels.

Lastly, mean length of utterance at the morpheme and word level is considered to be an effective tool in identifying children with suspected speech disorders (Einsberg, Fersko, & Lundgren, 2001). Einsberg, Fersko, & Lundgren’s study involving MLU indicated significant differences between two groups of children, one with specific language impairments and the



other without these concerns. Assessment using MLU demonstrated that children without specific language impairments displayed significantly higher MLU than their peers with language impairments. These findings help to support the idea that MLU is a useful tool in making judgments about the complexity of language ability. This research also further validated the fact that the sample population did not include children with specific language impairments as the study was only concerned with looking at children who were typically developing, English-speaking, and living in poverty.

### Statement of Purpose

The focus of the current study was to develop a systematic conversational style that adults might use to promote oral communication skills among children from low-income environments. As early oral language development is an essential component for readiness for reading ability in schools, maximizing opportunities for children who might be at risk for school failure to practice and to refine oral language skills has been advanced as a possible mechanism to support school readiness. Because there has been little research conducted on structured conversations between preschool instructors and their children, the current study was designed to ascertain whether or not oral language development practices could be incorporated into the average preschool day and how receptive preschool instructors might be to implementing conversational activities. The study also sought to determine if cognitively challenging conversation between young children and guiding adults could produce long-term gains in early language development among young children. Conversation among experimenters and pairs of intervention children of 500 minutes over the course of 10 weeks (no more than an hour of complex talk per week for each pair) was examined to ascertain if differences in syntactic skills between the two groups in the study would provide a powerful example of how to include

interactive conversation practices. Further, it was hypothesized that children initially having poor oral language skills as indicated by a standardized assessment measure would show greater benefits from the intervention than children who were assessed as having typical language development.

## CHAPTER 2: METHODS

### Participants

*Children.* Children attending lottery-funded Pre-Kindergarten classrooms in child care facilities in the southeastern United States were recruited for participation in the study. Children who were recruited were identified as children who were from families with limited economic resources. Sixty-two preschool children, who had a mean age of 4.54 years ( $SD = .29$ ) at the beginning of the study, were recruited to participate in the study. Children who were recruited were all English speaking. Gender distribution in the study included 30 girls (18 control, 12 experimental) and 32 boys (13 control, 19 experimental). The experimental and control groups were both comprised of 31 children randomly assigned to the condition and matched using EVT pre-test scores. All children received parental permission to participate.

*Experimenters.* The intervention was implemented by four undergraduate research assistants who had, at minimum, one semester of experience in directing instruction, tutoring, or delivering intervention with young children. These research assistants also conducted the pre- and post-testing. Research assistants received course credit for their participation.

### Intervention Procedure

Experimenters conducting the conversations attended a 2-hour training session prior to the beginning of the intervention. Training included opportunities for experimenters to practice the conversation techniques with young children prior to carrying out the intervention in the preschools. A variety of conversational techniques designed to accelerate the development of children's language skills were employed to elaborate on child language including extension of

children's topics, syntactic expansion of their sentences, vocabulary recasting using low frequency, more specific vocabulary to substitute for children's high frequency vocabulary, repetition, clarification and open-ended questions.

Experimenters were instructed on allowing children to take the lead during conversation. Experimenters were instructed to give children more pause time to respond, as many adults forget that children need more time to process questions directed to them. Experimenters were trained to show interest in what the child had to say at all times and to not change the topic of conversation. Adults were also asked to position themselves face-to-face or side-by-side to express joint attention and not to interrupt children during the flow of conversation.

Among the conversational techniques trained, experimenters were asked to be responsive by imitating or repeating what the child said while demonstrating near-identical facial expressions and voice tone. Extension, syntactic expansions and vocabulary recasts were also used to encourage the development of sophisticated language. To extend on child speech, experimenters would ask a question that would cause the child to say more about their previous statement or topic. Similarly, syntactic expansions were used whenever children provided a syntactically limited sentence. Vocabulary recasts were used where the experimenter repeated what the child says or substituted a complex, more specific and low frequency vocabulary word for one of the more basic words the child had used. Story-telling was encouraged, sometimes beginning with a simplistic prompt relating to the real world.

Several questioning methods were outlined in the training as well. Repetition was used by the experimenter to repeat what the child says, but to turn the phrase into a question. Open-ended questions were highly stressed over forced-choice responses, particularly through the use of how and why questions. Clarifying questions were also introduced in order for experimenters to ask

the children to describe more details of the subject at hand. Further, turn-taking skills were also stressed as experimenters were urged to be explicit about shifting attention equally to both children and to urge the children to talk to one another.

For children that showed some early hesitance to talk to the experimenter, it was recommended to slow the pace of the conversation, employ more basic language, and ask simple questions and try to create joint attention with an unusual object or toy. Finally, props were provided to be used as conversation starters. Some of these objects included ordinary objects like figurines, play dough, books, and used cell phones, or unusual objects such as wire whisks, pasta spoons, shin pads, paint rollers, putty knives, etc. Experimenters were also provided with weekly themes to use as conversation starters if the experimenter needed additional resources to engage their pairs in complex conversation. These themes focused heavily on family, school, and play activities. Lastly documentation sheets were also provided to experimenters to record field notes about their experiences with the conversation sessions.

To assign children to the experimental and control groups, children were first separated into matched pairs as closely as possible on the basis of their pre-test EVT scores and MLUw scores, center, and individual preschool class. Children were paired both within center and individual preschool class to control for the possible effects of different instruction between centers and teachers. One member of each pair was then assigned randomly to the experimental condition on the basis of a coin flip. To ensure that this randomization procedure controlled for initial language skills, a two-tailed t-test was used to compare EVT standard scores and MLUw scores at pretest for the two groups, yielding a non-significant value on each (both  $p > .20$ ). Each experimenter was assigned to a preschool center and then assigned pairs of experimental condition children from that center. Children were paired based on teacher recommendations

with an emphasis on placing compatible children together. The experimenters then met with these pairs of children during school hours for 25 minutes twice each week over the course of 10 weeks for 500 minutes total. Children in the control condition did not meet with the experimenters and instead stayed in their classroom, thus receiving no additional minutes of conversation other than what might have been experienced in their regular classroom. If children were absent from school, they received a “make-up” session in another week so they could meet 500 minutes, meaning that some children occasionally met with their experimenters on a more frequent basis than their other peers in the experimental condition. Conversation partners were kept with the same pairs of children to maintain consistency.

Training and continuous supervision was provided by a supervising doctoral student. The supervising doctoral student also provided intervention, but mainly she served as a substitute to ensure that each child received the requisite amount of intervention. The experimenter team met regularly, exchanged and updated information about the progress of the intervention, and received instruction for upcoming conversations throughout the research project.

#### Experimenter Fidelity

Mid-intervention samples were collected to ensure that experimenters were adhering to the intervention guidelines. One conversation was recorded with each child pair from the experimental condition. Two random mid-intervention language samples were selected for each experimenter and analyzed to examine the use of linguistic expansion through repetition and also to look at the employment of open-ended questions. The middle 10 minutes of each mid-intervention language sample was used to tally the amount of times experimenters used various repetition techniques (extension, expansion and recast) and open-ended question techniques trained. Both strategies were designed to sustain topic maintenance and provide children

extensive opportunities to practice complex language, thus improving their MLUw scores.

Experimenters were considered to meet the fidelity requirement if they used at least 2 linguistic expansion techniques per minute for a total of 20 or more uses during each of the two 10 minute language samples. 100% of the experimenters met this fidelity requirement. Experimenters were also required to use at least one open-ended question per minute for a total of 10 or more uses during each of the two 10 minute language samples. Four out of the five experimenters met this requirement. During the intervention supervisors also met regularly with experimenters to discuss progress, answer questions, and provide ongoing feedback.

### Child Language Assessment

All pretesting took place two weeks before the intervention, while all post-testing was completed within two weeks post-intervention. All testing was conducted by an experimenter who had not provided the intervention to the child or tested him or her previously. Both pretesting and posttesting occurred in two parts: the administration of the EVT and administration of an oral language sampling. The order of administration were counterbalanced across children to reduce order effects.

The oral language sampling protocol included guided conversation concerning daily routines, speech stems in the form of photographs and the narration of a word-less picture book. The purpose of the protocol was to elicit complex speech that could be analyzed for MLUw. For each phase of the assessment, experimenters were instructed not to provide leading questions and to simply allow the child to lead and elaborate on their responses. They were asked not to employ new words or topics not introduced by the child.

Children were first asked to describe activities that take place in the classroom that they enjoy. Next, children were asked what they like to do when they are not in school. Then,

experimenters used such open-ended questions to ask about family, pet, and peer relationships (Evans, Craig, 1991).

Experimenters then presented children with a series of pictures of common sites or practices with which the children would be familiar (Peterson & McCabe, 1983), such as photos of Santa Claus, McDonalds, a doctor's office, and a bumblebee. Experimenters explained to each child what the picture was about (e.g., "One time I was working in my garden and I got stung by a bee, do you see the bee?") and then asked the child to respond using an open-ended question style ("Have you ever been stung by a bee? What was it like?). If a photo did not yield any verbal response from the child after three prompts, a new photo was introduced. The use of the photographs was aimed at eliciting three or more thorough responses from each child. Once three extensive responses were obtained, no more photos were introduced. The presentation order of the seven pictures used was counterbalanced.

For the third task, children were asked to narrate one of two wordless picture books, *Good Dog Carl* (Day, 1991) or *Carl Goes Shopping* (Day, 1989). Both books were selected because they focus on practical daily routines children would be familiar with (going to a store, taking a bath, eating food in the kitchen). Picture books were counterbalanced such that half the children received one book and half received the other at each testing point. Further, if a child received one book to narrate at pre-test, he or she received the other at post-test.

### Design

A 2 group (intervention and control) by time (pre-intervention versus post-intervention) design was used where group served as a between-subjects factor and time was a within-subjects factor. For the purposes of this study, the main dependent variable was mean length of utterance or MLUw.



### CHAPTER 3: RESULTS

To avoid introductory or closing conversation effects that might bias results such as shyness, rapport building or difficulty focusing on the task at hand, it is generally recommended that researchers use the middle 50-100 utterances from the language sample instead of looking at every child utterance (Retherford, 2000), although some debate exists concerning MLUw variation explained by transcription length and number of utterances included in analysis (Brorson & Dewey, 2005; Miller & Chapman, 1981). In this way, shy children were not punished for early hesitance to speak with the experimenter. Similarly, fatigue effects at the end of a conversation caused by long dialogue were not included in analysis of MLUw.

To calculate MLUw, language samples were first transcribed from audio recordings using a software program called Transcriber according to CLAN requirements (MacWhinney, 2000). Experimenter speech was distinguished from child speech using the \*RES tier for experimenters and the\*CHI tier for children. Analysis focused on child speech only. Speech utterances were segmented using punctuation marks after pauses lasting more than two seconds in duration or at changes in intonation or attention. Repetitions and stuttering were not included in calculations. Unintelligible words or sounds were also excluded from examination in the same manner. The CLAN program was used to analyze MLUw for each child using the mlu +t\*CHI file command. To only examine the specific utterances in question, the +z switch was used to isolate the middle 50 utterances. For example, if a child used 100 utterances total, the command to examine the middle 50 utterances would be mlu +t\*CHI file +z25u-75u. In this way, the total number of

words spoken by each child from their middle 50 utterances was divided by 50 utterances to obtain a final mean length of utterance score.

It was hypothesized that children in the experimental group would make significantly higher gains in MLUw scores following the intervention compared to those in the control condition. There was a significant main effect for time,  $F(1, 60) = 95.02, p = .0001$ , partial eta squared = .61, but there was not a significant main effect for condition,  $F(1, 60) = .142, p = .71$ , partial eta squared = .02. As the effect size for time alone was .61, this can be considered a very large effect size considering values above .14 are considered large when examining eta squared and partial eta squared. On the other hand the effect size for condition alone was minimal as an effect size of .01 is considered small, while values around .08 are regarded as medium in effect. However, analyses indicate a strong significant time by group interaction,  $F(1, 60) = 22.18, p = .0001$ , partial eta squared = .27. Although both groups made gains between pretest and posttest sessions because of normal development in oral language over time, these results indicate that intervention children made significantly greater growth in MLUw compared to their peers in the control condition. These results support the original hypothesis that children in the experimental condition would make significantly larger improvements in oral communication ability compared with the control group. These results can be found in Figure 1.1.

Additional analyses were conducted to determine if children beginning the intervention with low oral language skills at the beginning of the intervention benefited significantly more from participation in the intervention compared to their peers who were typically developing in their oral language development prior to the intervention. We had hypothesized that children with low oral language skills would benefit particularly from this intervention. For this analysis children were separated into two pre-test skill groups, those that scored above  $\frac{1}{2}$  SD above the

sample mean of the EVT (or a score of 94 or above) and those that scored  $\frac{1}{2}$  SD below the mean of the EVT (or a score of 93 or below) at the start of the intervention. Again it was hypothesized that children in the experimental group would make significantly higher gains in MLUw scores at post-test. A 2 (Initial Skill: Low versus Typical) X 2 (Groups: Experimental versus Control) X 2 (Time point: Pre-test versus post-test) mixed measures ANOVA was carried out on children's MLUw with time as a within-subjects measure and both initial skills and groups as between-subjects measures. There was a significant main effect for time,  $F(1, 58) = 94.52$ ,  $p = .0001$ , partial eta squared = .62, but there was not a significant time X skill interaction,  $F(1, 58) = .07$ ,  $p = .79$ , partial eta squared = .01. However, analyses indicate a significant time X condition interaction  $F(1, 58) = 25.91$ ,  $p = .0001$ , partial eta squared = .31. Most importantly, there was a significant time X skill X condition interaction  $F(1, 58) = 4.17$ ,  $p = .046$ , partial eta squared = .07. These results support the original hypothesis that children demonstrating low pre-test oral language skills on the EVT at pre-test benefited significantly from the intervention than children with typically developing language skills. These results can be found in Figure 1.2.

Finally, it was noted elsewhere that there was one experimenter that did not meet the fidelity requirements we set up. Specifically, although she did carry out various forms of repetition, she did not ask as many open-ended questions as we had hoped. If the children that this experimenter served showed less development of MLU than the group as a whole, it would provide additional evidence that it was, indeed, the intervention and not some other factor that was responsible for the change in children's MLU. Separate analysis was conducted to examine the effects of this experimenter. Compared to the whole group's experimental pretest mean MLUw score of 4.19, the children of this experimenter's pretest mean MLUw score was 4.80. While the whole experimental group's posttest mean MLUw score was 5.22, the children of this

experimenter's posttest mean MLUw score was 5.57. Despite their similar post-test mean to the whole group, these children's MLU gain was only .77 compared to 1.03 for the whole experimental group. On the one hand, this suggests that this experimenter was less effective in improving the MLU of her participants. On the other hand, the children for this experimenter had a higher MLUw pretest score than other children in the experimental condition. This suggests that the children may have not been as much in need of the intervention and may have had less to gain from participating in it. However, it is suggestive supporting evidence for the intervention that the children of the experimenter that did not meet one of the fidelity requirements showed a mean gain score in-between the control condition and the experimental condition.

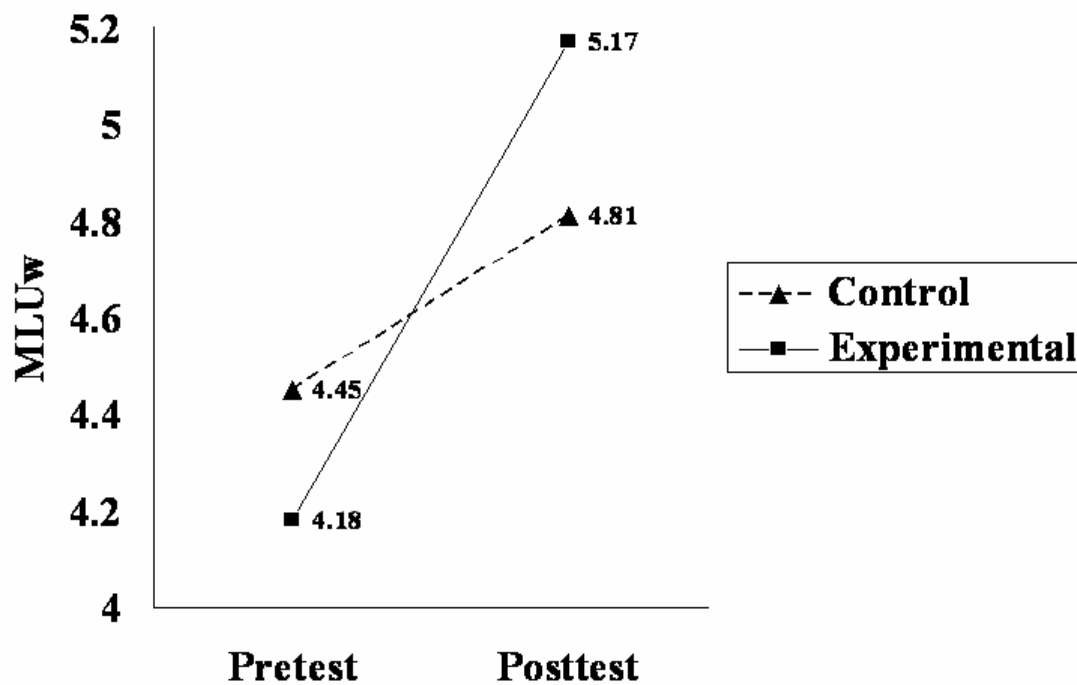


Figure 1.1: Complex Conversation and MLU<sub>w</sub>

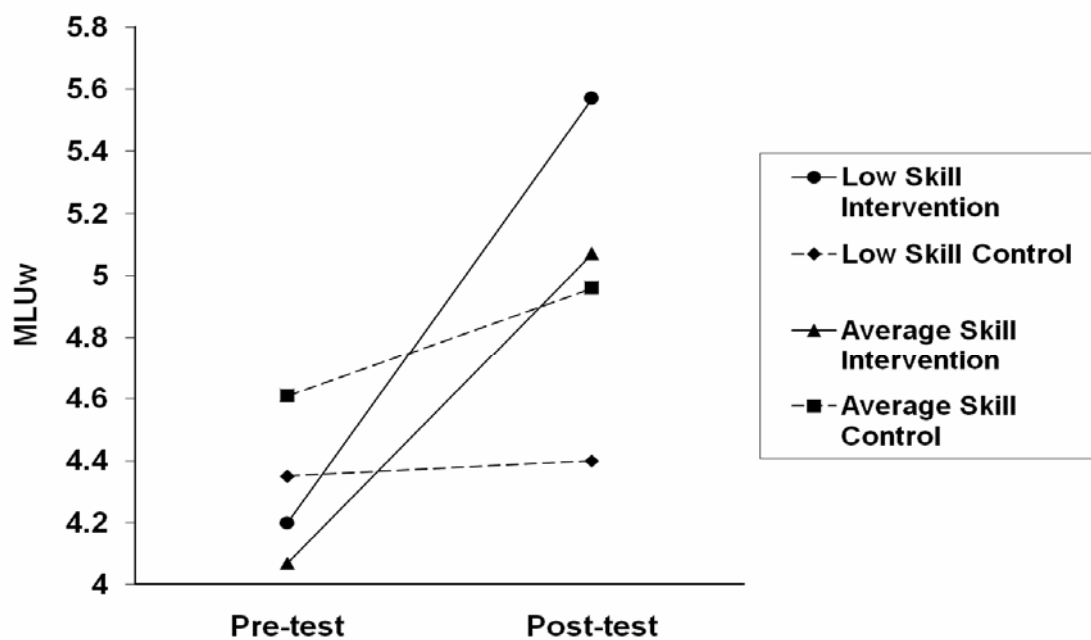


Figure 1.2: Growth in MLU<sub>w</sub> by Initial Skill

#### CHAPTER 4: DISCUSSION

The results indicate that children's oral language development was enhanced by the regular use of linguistically complex conversation, in this case a total of 500 additional minutes of complex talk beyond what children might have otherwise experienced. This means that, as hypothesized, children engaging in complex conversation showed significantly higher MLUw scores than their matched peers in the control condition receiving no additional conversation. The results of this study extend previous research (Giralometto, Weitzman, Van Lieshout, & Duff, 2000; Schwanenflugel, Hamilton, Bradley, Ruston, Neuharth-Pritchett, & Restrepo, 2005; Wasik, Bond, and Hindman, 2004) by demonstrating that practices such as those recommended by this study may influence development of children's oral language development, particularly MLU.

Results from the current study help to extend existing theory concerning syntactic development by indicating that as little as 500 minutes of complex conversation with adults facilitated development of oral communication skills among preschool children from low-income environments. As a few studies indicate the need for children to develop sophisticated oral language skills in order to prepare them for later school achievement, the current study expanded this work to look at the effects of such practice. When examining the current results it becomes clear that complex conversation in small groups by itself is one strategy that educators and caregivers may use to support these foundational skills. Conversational guidelines and strategies drawn from the project may be used by early childhood educators to enhance children's oral language development.

One of the weaknesses of the current study was that children in the experimental condition did not all receive identical treatment due to differences in experimenter input. As noted in the fidelity section, one of the experimenters did not meet part of the training requirements judged by mid-intervention language samples, and thus the pairs that the experimenter worked with did not experience as much growth in syntactic development as the children paired with the rest of the experimenters. Had the experimenter met the fidelity requirements in full like the other experimenters, the differences in MLUw scores between control and experimental conditions might have even been greater than we observed.

Although experimenters were provided with themes for topics of conversation for each week, not all experimenters adhered directly to those themes as it was more important to follow the lead of the child in conversation. Because there was a wide variety of conversation topics discussed throughout the intervention, this may have contributed to differences in child output at the conclusion of the intervention. However, it appears that the lack of a standardized protocol for conversation did not inhibit experimental children from further developing their expressive oral language skills. Experimenters also differed in the kinds of props they introduced to children, often using books, toys or any kind of unique objects available.

One final limitation is that it is unclear how long the change in MLUw scores might persist. It is possible that, as the intervention only took place over the course of 10 weeks, perhaps children in the control condition could have caught up to their peers in the experimental condition by the end of the academic year. Therefore it would be beneficial to monitor student growth in syntactic ability across the entire year to check for additional areas of improvement that may have occurred over time.

The study findings call for reform of instructional practice in preschool settings, particularly those serving low-income communities. A teacher training program, focusing primarily on techniques to enhance children's oral language skills, should be developed for preschool teachers and their children.

Another suggestion is to offer ongoing workshops throughout the school year where preschool teachers meet with educational researchers. This provides the opportunity for instructors to discuss their experiences supporting oral communication in the classroom, and gives researchers the chance to share recent findings within the field. Armed with strategies shown to increase children's oral language development, teachers could then attempt to integrate complex conversation styles into multiple lessons and provide feedback to researchers and policy makers.

The nature of cognitively challenging conversation requires teachers to interact with children individually or in very small groups because it requires extensive elaboration of child speech at the individual level. Within a classroom of 20 or more students, it becomes nearly impossible for an instructor to manage large numbers of complex conversations simultaneously. Therefore, another strategy to support early language development in preschools is to engage community members and parents to support these conversations in the classroom. More trained adults in the classroom could increase the amount of time each instructor can spend with each student, ideally resulting in more complex conversation opportunities. In the current study, students from the nearby university with fairly limited training who had committed to carrying out the intervention had profound effects on children's language growth within a relatively short period of time. This suggests that individuals with limited background in child development or



educational psychology can be taught to manage complex conversations with young students in and outside of the classroom.

Preschools should also collaborate with families to maximize oral language growth. Frequent meetings should be scheduled to allow teachers to share child observations and to give parents the chance to voice their ideas for successful expressive language growth. This would ensure that families are aware of current research in language development, making it possible to apply findings in the home environment. Combined with modified teacher instruction and increased funding for preschool centers, oral communication among preschool students would be expected to increase. This in turn should have a direct impact on children's expressive language ability, resulting in a dramatic increase in academic achievement during the early school years.

As the development of expressive communication skills plays a large part in the growth of emergent literacy, future interventions targeting early reading improvement among low-performing children must include a systematic way for this process to be included in later research projects. Teachers will need a formalized system to take note of ongoing conversations between children and instructors in order to document that non-dyadic talk is taking place within the preschools. Although preschool days are extremely busy for teachers because of the demands within the regular classroom, alternative times throughout the day might be considered as a route towards including preschool children in complex conversation. For example, teachers may use outdoor recreation time to engage specific children while on the playground. Early childhood educators may also take advantage of lunch or snack time to provide individualized attention to struggling students in order to build their oral communication skills through one-on-one interaction, in pairs or small groups.

Finally, future research might explore the relationship between attachment and oral language development. When interviewed about their experiences at the end of the intervention, all experimenters reported that they witnessed positive risk taking with regards to oral language on the part of children when positive feelings of attachment had been established. In other words, experimenters said that once children seemed to feel safe and comfortable with the experimenter, children then began to engage in more elaborate conversation. Should it be found that teacher/student attachment is positively linked to oral language development and complex conversation; strategies could then be designed to enhance rapport within the classroom. Therefore, the next step in this line of inquiry is to examine the development of attachment across time while taking note of oral language growth simultaneously.

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