

Complex Syntax Production in Preschool Teacher Talk

By

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CHAPTER I

Introduction

Adult language input is essential to the development of language skills in children. Adult language input is defined as the spoken language that adults direct toward children as well as the spoken language that children overhear (e.g., adults talking to each other, an adult talking to another child; Hoff & Shatz, 2007). Variations in adult language input influence the quality and quantity of preschool children's language skills (Dickinson & Smith, 1994; Girolametto, Hoaken, Weitzman, & Lieshout, 2000; Girolametto & Weitzman, 2002; Hart & Risley, 1995; Huttenlocher, Vasilyeva, Cymerman, & Levine, 2002; Vasilyeva, Waterfall, & Huttenlocher, 2008). Although adult language input can come from multiple sources (e.g., mothers, fathers, grandparents, teachers), initial investigations of language input focused nearly exclusively on maternal input and mothers from middle class families were typically studied (e.g., Hoff-Ginsberg, 1986; Hoff-Ginsberg & Shatz, 1982; Snow, 1972). Once relations between maternal input variables and child outcomes were established in these homogenous groups of mothers, researchers began to explore whether differences in maternal input, specifically the quantity and quality of input, explained the widely variable language development of children from families of different socioeconomic status (SES; Hart & Risley, 1995; Hoff, 2003; Huttenlocher et al., 2002). This body of research has provided documentation that children from lower SES families, on average, are exposed to less adult language input and demonstrate less proficient language skills compared to same-age peers from higher SES families.

Although preschool children receive much of their adult language input from their primary caregivers, other adults also serve as sources of adult language input. Preschool teachers are one of these other sources. Given that preschool children increasingly spend a considerable amount of time in out-of-home care, researchers have suggested that the linguistic environment of the classroom plays an additional and important role in children's language development (Dickinson, Golinkoff, & Hirsh-Pasek, 2010). In fact, the preschool teacher may be even more instrumental for supporting development for children from lower SES families who are exposed to less adult language input in the home. It may be that teacher input can fill the gap in language input for at-risk children. Consequently, current research focuses on adult language input at school to identify the types of linguistic input available to preschool children (Dickinson & Porche, 2011; Gest, Holland-Coviello, Welsh, Eicher-Catt, & Gill, 2006; Huttenlocher et al., 2002).

Adult Language Input and Child Language Development

The role of language input has served as a point of disagreement in theories of child language development. In the nativist theory of language development based on Chomsky's (1965, 1975) description of language, adult language input is posited to play a minor role in the development of language. Instead, Chomsky attributes most of children's syntax development to innate linguistic knowledge of universal properties and claims that children acquire language with "relatively slight exposures and without specific training" (Chomsky, 1975, p. 4). Conversely, in an environmental contribution theory of language development, adult language input is posited to play a major role in language development. This view has been supported by research demonstrating that patterns in adult language input are associated with patterns in children's developing language. For example, DeVilliers

(1985) observed that the verb structures young children produced were similar to verb structures used by their mothers. Similarly, Henry (1993) established that the proportion of irregular past tense verbs children acquire reflects the occurrence of irregular past tense verbs in the language spoken in their environment. Theakston, Lieven, Pine, and Rowland (2001) reported that several isolated structures linking syntactic form with semantics in children's early use of the verb 'go' in English were highly related with the structural forms of 'go' that occurred in the input that children received. These studies, among others, support the position that the language children hear in their environment contains structural form information that they use to prompt structural form properties for use in their own language development.

The quantity of adult language input in terms of syntax and vocabulary has been shown to relate to child language outcomes. For example, Hoff-Ginsberg (1986) found that mothers' total number of noun phrases per utterance produced was positively associated with child growth in total number of noun phrases used per utterance over a six month period of time. Huttenlocher and colleagues (1991) observed that the relative frequency of different vocabulary words in parent speech was highly related to children's order of development of those words; Children developed use of the words that were spoken at a higher frequency before they developed use of words that were spoken at a lower frequency. In sum, the quantity of adult language input was shown to influence a child's language development.

If variation in adult language input relates to patterns of language acquisition, it follows that variations in adult input may underlie the differences in language outcomes that are found when comparing groups of children with different

family SES. For example, parents from lower SES backgrounds use less sophisticated vocabulary and less complex syntax when compared to parents from higher SES backgrounds (Hart & Risley, 1995; Hoff, 2003; Huttenlocher et al., 2002; Vasilyeva et al., 2008). The seminal work of Hart and Risley (1995) illustrated large differences in the quantity of language input to children based on family SES. Maternal education level, used as an indicator of SES, was positively correlated to the amount of language input produced by parents. These input differences may account for the differences seen in children's vocabulary and complex syntax use when preschoolers from lower SES families are compared to preschoolers from higher SES families.

There are well-established connections between SES and academic achievement and the role of language development in these connections is increasingly recognized (Hart & Risley, 1995; Hoff, 2003; Lee et al., 2008; Sirin, 2005). Children from lower SES families typically enter school with fewer academic skills than their higher SES peers (Duncan & Magnuson, 2005). Additionally, SES accounts for disparities in cognitive and academic achievement between groups defined by socioeconomic variables (Cushon, Vu, Janzen, & Muhajarine, 2011; Fryer & Levitt, 2004; Stipek & Ryan, 1997). Dickinson and colleagues recently highlighted the role of early language development in the link between SES and academic outcomes.

Increasingly, the SES disparities in academic outcomes are being addressed in the preschool years. Some preschools have been designed purposefully to have teachers work with children for a minimum of 6 hours per day in order to enhance their school readiness (e.g., Head Start and universal pre-K; Zigler & Muenchow, 1992). According to the National Education Goals Panel (1991), one area of school

readiness is language development. Therefore, programs such as Universal Pre-K and Head Start place preschool teachers in a central role with the potential ability to “even the playing field” providing the language input necessary for improved child language outcomes. Given the amount of time preschool teachers spend with children, and the intent of formal preschools to increase school readiness in the area of language development, it is critical to understand the characteristics of preschool teachers’ language input and the influence it has on child outcomes.

Characteristics of Preschool Teacher Talk

Research describing characteristics of preschool teacher talk, or the language input that teachers provide children in preschool classrooms, has generally focused on the pragmatic functions of what preschool teachers say. In addition, research has focused on vocabulary that teachers use in the preschool classroom. This body of work is briefly summarized.

Pragmatic characteristics. One of the more commonly examined areas of teacher talk involves the pragmatic functions of preschool teachers’ language. Pragmatic functions of language can be defined as the use, purpose, or intention behind language (Ariel, 2010). In a preschool setting, pragmatic functions are the basis for language meant to guide and support children’s behaviors. Three types of pragmatic functions are essential to consider: (a) directives, (b) supporting behaviors, and (c) questions.

Directives. Directiveness is defined as the frequency and intensity with which a teacher requests, commands, questions, hints, or in other ways controls and guides the child's behavior (Mahoney & Wheeden, 1999). Directiveness has been observed in preschool teacher talk in varying forms and subsequently delineated into three subtypes according to Girolametto and colleagues (2000): (a)

behavior control, which refers to the use of utterances that promote group regulation and classroom behavior management strategies (e.g., "Push your chair forward." "Take that out of your mouth please." "Come here and play."); (b) conversational control, which includes open-ended questions, clarification, and conversational yes/no questions that attempt to engage the children in conversation and are indicative of a conversation-eliciting style of interaction (e.g., "Who likes grapes?" "What did you have for lunch yesterday?" "Can I use some of yours?" "Baby Bop is going shopping, isn't she?"); and (c) response control, which involves utterances that attempt to constrain the child's response by commanding, asking, or giving the child a choice (e.g., "Make a snake with the playdough." "Can you make a snake?" "Do you want a cookie or a banana?").

The role of directive interaction in facilitating or inhibiting conversation was assessed by Girolametto and colleagues (2000). Teachers' directiveness correlated with child language productivity where teacher input that constrained behavior (i.e., behavior control) and dominated turn-taking was associated with restricted and less complex language use by the children. In contrast, teachers' greater use of conversation control was related to the higher amounts of child talkativeness, lexical diversity, and complexity.

Supporting behaviors. Preschool teachers use statements and questions as pragmatic function to verbally support play and child behaviors. Kontos (1999) found that almost three-fourths of Head Start teachers' verbalizations support play with objects via statements, practical/personal assistance, objects via questions, and positive social contacts. Accounting for only five percent or less of total teacher talk, less frequent verbalizations included those supporting peer relations, behavior

management, reading to children, supporting play with objects through fantasy play, and talking with adults.

Questions. Teachers' use of questions has essential implications for scaffolding learning in children (Kintsch, 2005). Therefore, use of cognitively challenging questions has been recommended as a key intervention tool for teachers to support positive language development for children (Trawick-Smith, 1994). The use of questions by preschool teachers who served economically-disadvantaged four-year-olds was examined by Massey and colleagues (2008) who distinguished between three question types: (a) management questions that maintain conversation, manage behavior, clarify, and provide directives; (b) more cognitively challenging questions that require the child to draw an inference, analyze information, discuss vocabulary, or make predictions; and (c) less cognitively challenging questions that involve information that is perceptually available or that offer concrete choices. Teachers asked management questions most frequently, followed by more cognitively challenging questions. Less cognitively challenging questions were the least frequent type of question preschool teachers used.

Vocabulary characteristics. Much of everyday talk is comprised of common and frequently used words that are acquired early by young children. Although these words suffice for children to meet their daily communicative needs, success in school requires that children add increasingly complex or sophisticated words to their vocabularies. Thus, studies of preschool teacher talk have focused on the extent to which teachers provide opportunities for preschool children to learn more sophisticated vocabulary and words that are less frequent, more abstract, academic, content-specific, and more likely to occur in written language. The

vocabulary that teachers use is correlated with children's subsequent language and literacy development in terms of children's total number and types of words comprehended (Bowers & Vasilyeva, 2011). Higher rates of sophisticated vocabulary word production by preschool teachers correlated with higher levels of child language and literacy skills (Dickinson & Smith, 1994). However, opportunities to learn advanced vocabulary may be limited as preschool teachers use a higher quantity of common vocabulary than sophisticated vocabulary (Dickinson, Cote, & Smith, 1993; Dickinson & Porche, 2011; Fisher, Combs, & Creaghead, 2007).

An Emerging Area of Focus: Preschool Teacher's Use of Complex Syntax

Complex syntax, defined as a spoken utterance containing two or more clauses, is an emerging area of focus in adult language input research. In comparison to pragmatics and vocabulary, the study of complex syntax in preschool teacher talk is limited, as is evident by a lack of published research in this specific area. However, based on differences in production of complex syntax found based on SES, researchers are becoming increasingly interested in preschool teachers as a source of adult language input that influence children's complex syntax skills. Indeed, researchers have found that children from lower SES families use less complex syntax and fewer complement-taking verbs (CTVs) when compared to children from higher SES families (Fisher & Schuele, 2010; Huttenlocher et al., 2002; Vasilyeva et al., 2008). Researchers hypothesize that SES influences complex syntax development because of its effect on the linguistic environment. Socio-economic status factors such as parents' education and family income are believed to influence the linguistic environment by affecting parent involvement (e.g., parents interacting, verbalizing, and reading with their children; Hart & Risley, 1995; Hoff, 2003; Huttenlocher et al., 2002). These factors also are thought

to affect a parent's involvement in providing a rich learning environment in the home and in various opportunities outside the home. Thus, examining other sources of adult complex syntax input, such as from preschool teachers, is important for understanding other opportunities children from lower SES families have to receive complex syntax input.

The structure of complex syntax. Clauses are joined within a single sentence by coordinate conjunctions (e.g., *and*), subordinate conjunctions (e.g., *because*) or through embedding (Bloom, Tackeff, & Lahey, 1984; Quirk, Greenbaum, Leech, & Svartvik, 1985). Traditionally, complex syntax has been defined as a sentence that contains two or more clauses. For example "*I want to go to the store that is near my house*" is considered complex syntax. An examination of English grammar reveals many types of complex syntax, including but not limited to infinitives, relative clauses, propositional complement clauses and WH-complement clauses (Quirk et al., 1985).

Barako Arndt and Schuele (2013) differentiated between complex sentences and complex syntax. Where sentences are the unit of written language, utterances are the unit of spoken language and utterances follow some conventions that differ from written language. In spoken language, dependent clauses can be produced in full sentences, as in (1). The dependent clause (underlined) is said by Speaker 2 after the main clause (italics) introduced by Speaker 1 is repeated by Speaker 2.

(1) Speaker 1: *Why are you going to the store?*

Speaker 2: *I am going to the store because I need to buy some new clothes.*

In contrast to written language, however, dependent clauses in spoken language also can be found in utterances that include only the dependent clause, as

in (2). Here, the main clause is not produced alongside the dependent clause (underlined) by Speaker 2 due to conversational expectations. It is typical in spoken language interactions for a speaker not to repeat such information, primarily for the sake of efficiency.

(2) Speaker 1: *Why are you going to the store?*

Speaker 2: Because I need to buy some new clothes.

Complement-taking verbs are found within specific types of complex syntax. Complement-taking verbs are verbs that (a) take an infinitival complement (e.g., *want to* and *have to*); (b) take a full propositional complement (e.g., *I think I can go to school now*); or (c) take a WH-complementizer (e.g., *See what the little bear's eating*). Like other verbs, CTVs within complex syntax forms can convey an action, an occurrence, or a mental or cognitive state of being (Bloom et al., 1984; Diessel, 2004).

Complex syntax is essential to effective expressive language. Proficiency with complex syntax allows children to engage in verbal dialogue that is critical to academic learning, displaying one's knowledge, and social interactions (Jackson & Roberts, 2001). As Clark (2003) noted, using complex syntax provides children with the opportunity "to convey more complex information in a single utterance and to produce coherent sequences of utterances" (p. 245).

Learning complex syntax is a combination of innate ability and environmental input, as reflected in Figure 1. On the innate ability side of Figure 1, researchers have recognized that children are biologically programmed with universal grammar (i.e., the brain is pre-primed with certain basic structural rules for syntax that govern language which is not specifically taught) used to learn language, which gives them the capacity for complex syntax structures (Chomsky, 1965). However,

taking into consideration the environment side of Figure 1, with sufficient language input consisting of words including verbs and conjunctions and syntactic structures, and an opportunity to talk with others through conversational demands, children naturally learn the grammatical structure of their native language (Pinker, 1994).

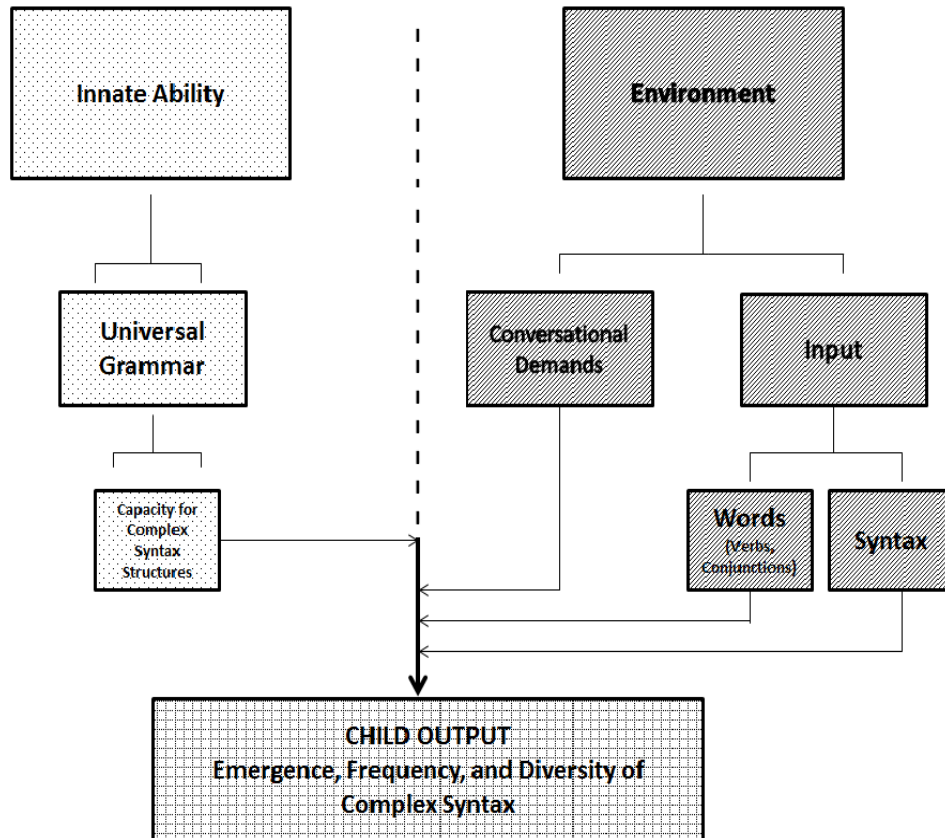


Figure 1. Logic model of emergence, frequency, and productivity of complex syntax.

Not only do preschool children have the innate ability to generate an infinite number of unique simple sentences to express themselves, they are also capable of producing complex syntax. However, generating complex syntax does not come as naturally as simple sentences. In order for complex syntax language skill to emerge and to progress in frequency (i.e., amount) and diversity (i.e., type of complex

syntax), preschool children must be exposed to a sufficient amount of adult language input inclusive of verbs and conjunctions (Vasilyeva et al., 2008). In this way, preschool teachers can serve as a source of adult input necessary for the development of complex syntax.

Complex syntax and adult language input. Although research in the area of preschool teachers' complex syntax production is limited, some studies have examined parents' complex syntax production and effect of SES. For example, Huttenlocher, Vasilyeva, Cymerman, and Levine (2002) found that parents from lower SES backgrounds used less complex syntax than parents from middle SES backgrounds ($d = 2.09$). They also found that the amount of complex syntax in parent speech was the best predictor of the amount of complex syntax the child used at home and at school. These differences suggest that SES may be a factor in adult complex syntax input and subsequent development in children.

Complex syntax accounts for less than a quarter of total preschool teacher utterances' in preschool classrooms (Fisher, Schuele, Dickinson, & Combs, 2011; Huttenlocher et al., 2002). This means that for every teacher utterance that includes complex syntax, children hear four other teacher utterances that include only simple sentences. However, because previous studies only explored one type of preschool classroom (i.e., Head Start classrooms), or collapsed different types of classrooms serving children from various SES families, no comparison data is available to explore whether the amount of complex syntax produced by teachers systematically varies by children's SES. Thus, variations in complex syntax input according to type of preschool classroom (i.e., Head Start, Pre-K, or private preschools) that serve children of varying SES families remain unknown. Given that previous evidence suggests child complex syntax production is influenced by family

SES, further research is needed to explore complex syntax input from preschool teachers and whether this input varies based on SES.

Summary & Rational for Study

In summary, researchers recognize the importance of the linguistic environment for preschool children. On average, preschoolers from low SES families receive less language input from their parents, putting them at risk for lower language skills when compared to their peers from higher SES families. Thus, preschool teachers serving children from lower SES families may have the unique opportunity to serve as a crucial secondary source of language input by providing rich complex syntax language input in the classroom to boost language development for these children. However, to investigate this possibility, research is needed to compare the quantity (proportion of complex syntax utterances) and quality (diversity of complex syntax types and CTVs used in production of complex syntax) of preschool teachers' language input to children from lower SES and higher SES families. If preschool teachers of children from lower SES families are found to be limited in their production of complex syntax, implications for an intervention targeting teacher complex syntax input may serve as an important point for enhancing the children's complex syntax production.

Research Questions

The purpose of this study was to explore the extent to which preschool teachers produce complex syntax in their verbal interactions with preschool children. Of interest was whether the amount of complex syntax varies based on the family SES of children attending the preschool. The primary research questions and associated hypotheses were:

(a) Is there a difference between the proportion of teacher utterances that include complex syntax based on the SES of the preschool population served (i.e., lower SES or Higher SES)?

Hypothesis: Teachers serving children from lower SES families' utterances will use less complex syntax than teachers serving children from higher SES families.

(b) Is there a difference between the number of different complement-taking verbs produced in complex syntax based on the SES of the preschool population served?

Hypothesis: Teachers serving children from lower SES families' will use a fewer number of different complement-taking verbs than teachers serving children from higher SES families.

In addition to the two primary research questions, several secondary research questions were addressed. These questions and their associated hypotheses are:

(a) What proportion of teachers' total utterances includes complex syntax?

Hypothesis: The majority of teachers' utterances will not include complex syntax, but consist more of simple syntax.

(b) Is the proportional distribution of complex syntax tokens equivalent across infinitive, embedded, and subordinate categories of complex syntax?

Hypothesis: The distribution of complex syntax tokens will be equivalent across infinitive, embedded, and subordinate categories.

(c) What is the number of different complement-taking verbs produced in complex syntax by teachers?

Hypothesis: This is a descriptive question; therefore, no hypothesis was formed.

(d) Is there a difference between the proportion of teachers' utterances that include complex syntax or number of different complement-taking verbs based on teachers' education level?

Hypothesis: The proportion of teachers' utterances that include complex syntax will not differ based on teachers' education level, but the number of different complement-taking verbs produced in complex syntax will differ based on education level.

(e) Is there a relationship between the proportion of teachers' utterances that include complex syntax or number of different complement-taking verbs and the teachers' years of experience?

Hypothesis: The proportion of teachers' utterances that include complex syntax or number of different complement-taking verbs will not be related to the teachers' years of experience.

(f) Is there a relationship between the proportion of teachers' utterances that include complex syntax or number of different complement-taking verbs and the teachers' vocabulary scores?

Hypothesis: The proportion of teachers' utterances that include complex syntax or number of different complement-taking verbs will be related to the teachers' vocabulary score.

(g) Is there a relationship between the proportion of teachers' utterances that include complex syntax or number of different complement-taking verbs and the teachers' reading scores?

Hypothesis: The proportion of teachers' utterances that include complex syntax or number of different complement-taking verbs will be related to the teachers' reading score.

(h) Is there a relationship between the number of different complement-taking verbs produced and the proportion of teachers' utterances that include complex syntax?

Hypothesis: The number of different complement-taking verbs produced will be related to the proportion of teachers' utterances that include complex syntax.

CHAPTER II

Methods

The research protocol was approved by Vanderbilt University's Institutional Review Board (see Appendix B).

Participants

Thirty native English-speaking lead preschool teachers who taught four-year-old preschoolers participated in the study. Twenty-seven teachers identified their race as Caucasian or White, two teachers identified their race as African-American or Black, and one teacher identified her race as multi-racial. All teachers identified their ethnicity as non-Hispanic/Latino. Fifteen teachers taught in rural county Head Start (7 classrooms) or pre-kindergarten Title I public school (8 classrooms) programs that primarily serve children from lower SES families; the children's families met individual program requirements for family income status and/or maternal education. These fifteen teachers are heretofore referred to as the "Teacher-Low" group. Fifteen teachers taught in suburban and metropolitan faith-based (11 classrooms) and private preschool (4 classrooms) programs that primarily serve children from families from higher SES; the judgment of higher SES was based on maternal education (i.e., virtually all college-educated mothers, as confirmed by program directors). These fifteen teachers are heretofore referred to as the "Teacher-High" group.

Descriptive data for each preschool teacher group is provided in Table 1. Descriptive data regarding class size, age, race, degree received, and years of experience was gathered from a pre-study telephone conversation and via a teacher questionnaire that teachers completed during the data collection process.

Class size was the only significant difference found between groups ($t(28) = 5.66$, $p < .005$) with the average Teacher-Low group's class size being larger than the average Teacher-High group. Information regarding specific teacher is found in Appendix A.

Table 1

Descriptives by Preschool Teacher Group

Preschool Teacher Group	Number of Students in Class Mean (SD)	Age Mean (SD)	Race	Degree Received (n)	Years of Experience Mean (SD)
Teacher-Low	19.33 (1.29)	38.46 (11.32)	C: $n = 12$ AA: $n = 2$ M-R: $n = 1$	AD (1) BD (11) MD(3)	6.47 (5.60)
Teacher-High	12.33 (4.60)	42.81 (13.43)	C: $n = 15$	HSD (1) BD (10) MD (4)	7.60 (7.08)

Note. C = Caucasian; AA = African American; M-R = Multi-racial; HSD = High School Diploma; AD = Associate's Degree; BD = Bachelor's Degree; MD = Master's Degree.

Although preschool children in the teacher participants' classrooms were present for data collection, they were not participants for the study; no data were collected from the preschool children, including information regarding racial/ethnic background. Data that were available regarding preschool children included the number of English-language learners, number of children with speech and/or language impairment, and number of children with other disabilities (i.e., other disabilities than speech and/or language) in each teacher participants' classroom. For the Teacher-Low group, on average, teachers had 5.40 ($SD = 4.38$) English-language learners, 2.13 ($SD = 1.50$) children with speech and/or language

impairment, and 0.20 ($SD = 0.41$) children with other disabilities in their classrooms. For the Teacher-High group, on average, teachers had 0.67 ($SD = 1.39$) English-language learners, 0.73 ($SD = 0.88$) children with speech and/or language impairment, and 0.47 ($SD = 0.74$) children with other disabilities in their classrooms. A significant difference between groups was found based on SES group for number of English-language learners ($t(28) = 3.98, p < .005$) and number of children with speech and/or language impairment ($t(28) = 3.10, p < .005$) in the classroom.

To recruit teachers, the primary investigator contacted directors and coordinators of preschool facilities in the middle Tennessee area. Many contacted preschools chose not to participate in the study. Of particular relevance, the Head Start program in Metropolitan Nashville did not agree to participate and, due to the complexity of the approval process, we did not opt to invite Metropolitan Nashville Public Schools to participate. As a result, the rural versus urban/suburban distribution of sites was obtained.

Preschool directors were contacted via telephone, email, and mailed letters (see Appendix B). Once a letter of cooperation was received from a site preschool director, research flyers, emails, and consent forms (see Appendix B) were sent to individual preschool teachers at each facility.

Preschool directors and teachers were aware that the current study aimed to examine “preschool teacher talk.” All recruitment information explained that the study would investigate “what teachers and children talk about during the morning activities in preschool classrooms.” Teachers were not privy to the specific details regarding the area of language being studied. That is, no one was informed that the current study examined complex syntax.

Procedures

The primary investigator and/or research assistants observed, recorded, and collected data for each teacher over two sessions. Both sessions occurred on the same day for all teachers. Data collection protocols and procedures are outlined in Appendix C.

First data collection session. In the first data collection session, teachers were audio-recorded during a “business as usual” morning of preschool classroom instruction, typically from 9:00 to 11:00 a.m. The audio-recording was done using an Edirol R-09 recording device with an external Sony ECM-CS10 tie-clip-style omnidirectional microphone. Before the recording was started, the primary investigator or research assistant said to the participant: “I will be placing this microphone on your shirt and the recorder will be placed on your pants’ belt loop. We will record for at least two hours. I will stay and observe to make sure the recorder is recording the whole time and will write down times and the activities that are going in the classroom. Please go about your morning as you would on any other typical day of classroom activities. At the end of the time period I will raise my hand and signal you to come over so I can remove the recording device and end recording. Do you have any questions? (Allow for a response; answer questions if asked). Okay let’s begin.” During the two-hour audio-recording, the primary investigator and/or research assistants observed all classroom activities (i.e., morning circle, book reading, center-time) and documented observations on a protocol form (see Appendix C). After the recorder was removed, the teacher was verbally thanked for participating.

Second data collection session. The second data collection session typically lasted 30-45 minutes and consisted of the primary investigator verbally administering a teacher questionnaire, a receptive vocabulary measure, and a word reading measure (each of these measures is described further in the Descriptive Measures section). The teacher questionnaire and the word reading measure were both audio-recorded. The audio-recording was done using an Edirol R-09 recording device with an external Sony ECM-CS10 tie-clip-style omnidirectional microphone. Before the recording was started the primary investigator or research assistant said the following to the participant: "We will be administering three tasks. In the first task I will ask you to point to pictures that I name. In the second task I will ask you to read some words. In the last task I will ask you some questions. We will write down all of your responses and will audio-record whenever verbal/talking responses are required. Do you have any questions? (Allow for a response; answer questions if asked). Okay let's begin." After the second data collection session the recorder was removed from teacher and the primary investigator or research assistant verbally thanked the teacher for participating.

Descriptive Measures

Teacher questionnaire. The primary investigator verbally administered a teacher questionnaire to each teacher (see Appendix C). She introduced the questionnaire by saying: "I have a few questions to ask to get some additional background information from you. If there are any of the questions you do not wish to answer, please just let me know and I will skip that question. As a reminder, I am not using your name on any of my forms. I have assigned you a research number. There will be no link between your name and your research number in my records." The questionnaire included questions regarding age, race/ethnicity, years

of education, years of teaching experience, and classroom dynamics (e.g., curriculum used, English language learning students in class, students with disabilities in class). This questionnaire also asked for a description of a typical morning of preschool instruction.

Receptive vocabulary and word reading. To describe the receptive vocabulary and reading abilities of the preschool teachers, each teacher completed two norm-referenced measures: the Peabody Picture Vocabulary Test 4th Edition Form A (PPVT-4; Dunn & Dunn, 2007) and the Test of Word Reading Efficiency 2nd Edition Form A (TOWRE-2; Torgesen, Wagner, & Rashotte, 2011). The PPVT-4 was administered and scored consistent with the administration manual. On the PPVT-4, each teacher viewed four pictures per plate and selected the correct picture that matched the word orally presented by the examiner. The PPVT-4 raw score was converted to a standard score for each participant. The mean standard score for the PPVT-4 was 99.73 ($SD = 9.67$) for the Teacher-Low group and 102.47 ($SD = 9.35$) for the Teacher-High group. There was no significant difference between groups based on PPVT-4 standard scores ($t(28) = -0.78, p = 0.43$).

The TOWRE-2 consists of two subtests, Sight Word Efficiency and Phonemic Decoding Efficiency. The Sight Word Efficiency subtest required each teacher to read a list of real words and the Phonemic Decoding Efficiency subtest required each teacher to read a list of nonsense words. For each subtest, teachers were given a 45-second time frame to read as many words as possible. Each subtest was administered consistent with the administration manual.

For the TOWRE-2 Sight Word Efficiency subtest, the raw score was derived consistent with the scoring guidelines in the administration manual. For the TOWRE-2 Phonemic Decoding Efficiency subtest, alternate scoring procedures were

developed as a result of inconsistencies across the test materials, the test manual and the test record form (see Appendix D). The following inconsistencies were addressed: (a) For item 35 the word card read by the examinee listed the stimulus as "dreff", the test record form as "dreff", and the administration manual as "dreef." (b) Word pronunciation inconsistencies between the response form and the manual (Table 2.1, p. 18) were noted for 16 items. For example, for item 3 "ko" the guiding word on the response form was */aw* but the manual transcription guideline */koʊ/*.

To develop the alternate scoring guideline, the primary investigator and committee chair, both speech-language pathologists skilled in phonetic transcription, independently transcribed all acceptable pronunciations of the nonsense word stimuli considering the information provided by the test record form and test manual, as well as their knowledge of phonetics and word pronunciation. Comparison of these two sets of word transcriptions and discussion to achieve mutual agreement resulted in a preliminary set of agreed-upon responses. Additional discussion centered on allowable instances of pure vowel reductions to schwa vowel productions given the guidelines provided by the TOWRE-2 authors. A response form to record and score responses was developed that included all agreed-upon transcriptions for allowable pronunciations for each subtest stimuli (see Appendix D).

A word reading score was calculated for each participant by summing the raw score on each subtest of the TOWRE-2. The mean raw score for the TOWRE-2 was 135.27 (*SD* = 20.73) for the Teacher-Low group and 142.27(*SD* = 21.64) for the

Teacher-High group. There was no significant difference between groups based on TOWRE-2 raw scores ($t(28) = -0.90, p = 0.37$).

Dependent Measure

Teacher-talk time sampling. To achieve a representative sample of teacher talk across the morning of class instruction recorded, time sampling was used to identify the segments of teacher talk to be transcribed. As shown in Table 2, transcription began with the first utterance after the 00:05:00 time mark (listed as hour, minute, second) on the recording and proceeded for two minutes. Subsequent two-minute intervals for transcription began every 10 minutes, at the first utterance, until a total of 24 minutes were transcribed (e.g., first utterance after the 00:15:00, 00:25:00, 00:35:00 minute marks). The final utterance initiated within each-two minute interval was transcribed in its entirety.

Table 2

Time Sampling for Preschool Teacher-Talk Transcripts

Audio-recording beginning time marker	Length of Transcription	Time duration
00:05:00	2 minutes	00:05:00-00:07:00
00:15:00	2 minutes	00:15:00-00:17:00
00:25:00	2 minutes	00:25:00-00:27:00
00:35:00	2 minutes	00:35:00-00:37:00
00:45:00	2 minutes	00:45:00-00:47:00
00:55:00	2 minutes	00:55:00-00:57:00
01:05:00	2 minutes	01:05:00-01:07:00
01:15:00	2 minutes	01:15:00-01:17:00
01:25:00	2 minutes	01:25:00-01:27:00
01:35:00	2 minutes	01:35:00-01:37:00
01:45:00	2 minutes	01:45:00-01:47:00
01:55:00	2 minutes	01:55:00-01:57:00
Total Time		24 minutes

Transcription of teacher-talk samples. Teacher utterances were transcribed to allow for analysis with the Systematic Analysis of Language Transcription software (SALT; Miller & Iglesias, 2010). The broad guidelines of SALT were followed, for example, in the exclusions of mazes from the analysis set. Additional guidelines for transcription (see Appendix E) were adapted from Schuele (2009b) transcription procedures which were developed to capture talk in adult-child, one-on-one interactions with the primary analysis of interest focused on child utterances. Utterance boundaries were established based on the traditionally used guide of intonation (e.g., ending utterance intonation drops) and syntax (e.g., successive simple sentences are separate utterances regardless of intonation) as well as Hunt's (1970) description of T-units. T-units were defined by Hunt (1970) as one main clause plus any subordinate clauses or nonclausal structures that are attached to or embedded in the main clause. The use of T-units meant that a single utterance only included two clauses joined by coordinate conjunctions if the subject was shared (e.g., *Mary went to the store and bought new shoes*). The use of T-units to define utterance boundaries in spoken language that includes multiclausal utterances is widely-accepted (Coelho, 2002; Justice et al., 2006; Nippold, 2009).

Research assistants were trained by the primary investigator on how to transcribe transcripts for teacher-talk samples (see Appendix F). The initial training included two two-and-a-half hour sessions. Prior to the training sessions, research assistants were instructed to read Schuele (2009b) and the additional guidelines for transcription were adapted from Schuele. On Day 1 of the training session, research assistants were engaged in a 20-minute verbal presentation with a Powerpoint presentation regarding the current teacher talk study and a review of Schuele (2009b) and the additional guidelines for transcription that were adapted from

Schuele. A portion of the training allowed for questions and answers. Day 1 of the training ended with transcription practice where research assistants used Sony MDR-NC7 noise canceling on-ear headphones, Infinity USB Digital Foot Pedal Control, and Express Scribe Transcription Software to transcribe a practice audio of preschool teacher talk. The practice audio recording was obtained in the exact manner of the study procedures. The primary investigator reviewed all research assistants' transcription of the practice audio and simultaneously provided verbal and written feedback to all research assistants regarding the accuracy or inaccuracy of their transcription. Research assistants took hand-written notes of all verbal and written feedback to be used for future reference. Prior to Day 2 of the training session, research assistants were instructed to re-read Schuele (2009b) and the additional guidelines for transcription. Day 2 of training began with a review and questions and answers. The remainder of the session was dedicated to transcription practice and feedback.

All teacher-talk samples were transcribed using Sony MDR-NC7 noise canceling on-ear headphones, Infinity USB Digital Foot Pedal Control, and Express Scribe Transcription Software. Preparation of transcripts for analysis proceeded in a five-step process. First, a trained research assistant prepared initial transcripts, known as a "1st Pass." Second, a second trained research assistant checked the 1st Pass transcript for word-by-word transcription agreement/disagreement and made changes as necessary, known as "1st Pass Track Changes." Third, the first and second trained research assistants simultaneously checked all changes made to 1st Pass Track Changes for word-by-word transcription agreement/disagreement and came to a consensus regarding those changes, known as the "2nd Pass." Fourth, the primary investigator checked the 2nd Pass transcript for word-by-word transcription

agreement/disagreement and made changes as necessary, known as “2nd Pass Track Changes.” Last, the first trained research assistant and the primary investigator simultaneously checked all changes made to 2nd Pass Track Changes for word-by-word transcription agreement/disagreement and came to a consensus regarding those changes, known as the “3rd Pass.” The completion of the 3rd pass resulted in the final transcript for each teacher participant.

Transcription reliability. A research assistant randomly selected and reviewed 20% of final transcripts for word-for-word transcriptions and noted any instances of disagreement. In addition, the committee chair reviewed all transcripts for utterance boundaries and noted any instances of disagreement. Percent agreement was 99% for word-for-word transcription and 98% for utterance boundaries. All transcription and utterance boundaries disagreements were resolved by consensus.

Coding of teacher talk. The coding of samples for complex syntax involved three tasks: (a) all utterances with at least one dependent clause were assigned a [cs] code; (b) all [cs] utterances were examined to assign a complex syntax type code for each dependent clause; and (c) all complement taking verbs in [cs] utterances were assigned a [ctv] code. Each dependent clause were assigned one of 11 mutually exclusive codes according to Schuele (2009a). The 11 complex syntax codes include marked infinitives, unmarked infinitives, WH nonfinite, WH finite, full propositional complement clause, nominal relative clause, subject relative clause, other relative clause, participle clause, coordinate clause, subordinate clause. Any dependent clause that did not fit into one of the previously mentioned coded was assigned the “other” code. For a list of the 11 complex syntax codes and “other” code, including definition and example utterance, see Table 3.

Table 3

Complex Syntax by Type, Code, Definition, and Example Utterance

Complex Syntax Type	Code	Definition	Example Utterance*
Marked Infinitive	SI	An argument that can be used with obligatory TO	<i>You want to draw some more?</i>
Unmarked Infinitive	UIC	An argument of CTV that does not require the overt production of TO	<i>Yeast makes the bread rise.</i>
WH Nonfinite Clause	WNFC	Clauses beginning with words such as <i>when, what, where, and how</i> that are complements of CTVs that are marked by TO	<i>Show me how to build it.</i>
WH Finite Clause	WFC	Clauses beginning with words such as <i>when, what, where, and how</i> that are complements of CTVs	<i>Do you know where this came from?</i>
Full Propositional Complement Clause	FPC	Finite embedded clauses that serve as a complement for CTVs	<i>I know there's some napkins somewhere over there.</i>
Nominal Relative Clause	NRC	Clauses in which the modified NP and the relative pronoun are coalesced into one lexical term	<i>That's where that flower gonna go.</i>
Subject Relative Clause	SRC	Clauses where the noun in the main clause that is modified by the relative clause is also the subject in the relative clause	<i>Where's the red flag that goes to the mailbox?</i>
Other Relative Clause	RC	Clauses where the relative clause is embedded within an NP, that is, the relativized noun is the object noun	<i>I have another errand that you can help me with.</i>
Participle Clause	PC	Clauses that include a past participle or a present participle	<i>You did a really good job at filling in all the stencils.</i>
Coordinate Clause	CC	Involves the coordination or linking of two clauses joined by a coordinate conjunction	<i>You wanna try and earn your stickers today child'sname?</i>

Subordinate Clause	SC	Involves the use of conjunctions joining two clauses and creating a relation of dependency or subordination	<i>Put on your smock so you won't get paint on your clothes.</i>
Other	Other	Any dependent clause that does not fit into one of the above categories	[Any complex syntax that does not fit into one of the above categories.]

Note. Example utterances are taken from teacher-talk transcripts.

Coding of complement-taking verbs. In addition to complex syntax coding, all CTVs produced in complex syntax were coded. Coding of CTVs allowed for the examination of the diversity of verb vocabulary used within utterances containing complex syntax types marked infinitives, unmarked infinitives, full propositional clauses, WH nonfinite clauses, and WH finite clauses. Verbs were identified as CTVs if they subcategorized in the utterance for: (a) an infinitival complement; (b) a full propositional complement; (c) a WH Nonfinite Clause; or (d) a WH Finite Clause. Examples of CTVs are found in Table 4.

Table 4

Examples of Complement-taking Verbs (CTVs)

CTV	Examples of CTVs in complex syntax utterances
See	<u>See</u> if childname wants some crayons.
Look	<u>Look</u> what I can do with this marker.
Think	I <u>think</u> you should stop that.
Know	I <u>know</u> who is in trouble.
Remember	<u>Remember</u> where to put your papers.
Forget	I <u>forgot</u> to tell the bus driver.
Want	You <u>want</u> to have a turn on the swing?
Say	Ms.Teacher <u>says</u> she likes the school lunches.
Tell	Ms.Teacher <u>tells</u> childname to play at recess.
Get	Childname1, <u>get</u> childname2 to throw you the ball.
Help	I'll <u>help</u> you make those cookies.
Need	I <u>need</u> you to wash your hands.
Try	Childname, <u>try</u> to finish the rest of your lunch.

Note. CTV in each utterance is underlined. Examples are taken from teacher-talk transcripts.

Research assistants were trained by the primary investigator on how to code teacher-talk transcripts for the 11 codes of complex syntax, "other" code, and CTVs. The training included four two-and-a-half hour sessions. Prior to the training sessions, research assistants were instructed to read Schuele (2009a). On Day 1 of the training session, research assistants were engaged in a two-hour verbal presentation with an accompanying Powerpoint presentation regarding the current teacher-talk study and a review of Schuele (2009a). A portion of the training allowed for questions and answers. Prior to the Day 2 training session, research assistants were instructed to re-read Schuele (2009a). Day 2 of the training session began with a review and questions and answers. The remainder of the session was dedicated to coding practice. Coding practice involved research assistants coding a teacher-talk practice transcript for complex syntax and CTVs. The teacher-talk practice transcript for coding was derived from the practice audio recording from transcription training. The primary investigator reviewed all research assistants' complex syntax and CTVs coding of the teacher-talk practice transcripts and simultaneously provided verbal and written feedback to all research assistants regarding the accuracy or inaccuracy of their transcription. All research assistants took hand-written notes of verbal and written feedback to be used for future reference. Day 3 and Day 4 also were dedicated to coding practice and feedback.

Coding of transcripts followed a similar five-step process as the preparation of transcripts previously described. The five step process started with a trained research assistant coding complex syntax and CTVs for each transcript, which became known as 1st Pass Coding transcripts, and ended with a second trained research assistant and the primary investigator simultaneously checking all changes

made to 2nd Pass Track Changes Coding for coding of complex syntax and CTVs. Then, consensus was reached regarding changes, known as the "3rd Pass Coding." The completion of the 3rd Pass Coding resulted in the final coded transcript.

Reliability of coding. The committee chair reviewed all transcripts for coding of complex syntax utterances and complex syntax types and noted any instances of disagreement. Ninety-five percent agreement was reached for identification of complex syntax utterances and 91% agreement was reached for identification of complex syntax types. All coding disagreements were resolved by discussion consensus.

Teacher-talk sample analysis and derived dependent variables

Analysis of teacher-talk transcript samples for complex syntax and CTVs was conducted using the Systematic Analysis of Language Transcripts software (Miller & Iglesias, 2010). The analysis set analyzed included all intelligible verbal utterances consisting of more than one word (i.e., fully understood spoken utterances, excluding mazes or repetitions of utterances). Dependent variables were calculated. A list of those dependent variables and a description of each can be found in Table 5.

Table 5

Definitions of Dependent Variables Calculated from Preschool Teacher-Talk Samples

Dependent Variables	Description of Variables Calculated for Each Teacher-Talk Sample
Total Number of Utterances	Employed the standard SALT calculation; the analysis set for "total utterances." "Unintelligible utterances" and "one-word utterances" utterances calculated by SALT and provided in the transcript summary were manually excluded from the sum
Number of Complex Syntax Utterances	Number of utterances with at least one complex type; calculated by SALT as frequency of [cs] codes within a sample
Number of Complex Syntax Types	Number of complex syntax types that were coded at least one time in a sample (max 12)
Complex Syntax Token Frequency	Sum of the frequencies of all instances of the 12 code types (see Table 3) assigned for each dependent clause across a sample
Proportion Complex Syntax	Within a sample, the frequency of [cs] codes divided by the variable total number of utterances
Proportion Infinitives	Sum of the frequencies of mark and unmarked infinitives codes divided by the complex syntax token frequency
Proportion Embedded	Sum of the frequencies of WH-nonfinite clauses, WH-finite clauses, full propositional complements clauses, nominal relatives clauses, subject relatives clauses, other relatives clauses, and participle clauses codes divided by the complex syntax token frequency
Proportion Combined	Sum of the frequencies of coordinate clauses and subordinate clauses codes divided by the complex syntax token frequency
Total Number of CTVs	Sum of all CTVs
Number of Different CTVs	Number of different CTVs produced in complex syntax token

Data analysis

Means and standard deviations were calculated for all variables. Three statistical methods were used to answer the research questions. First, independent sample *t*-tests were used to determine whether the dependent variables differed based on family SES of children in the preschool classroom (i.e., Teacher-Low and Teacher-High). Next, an analysis of variance (ANOVA) was used to investigate whether the proportion of teacher utterances that included complex syntax or the number of different CTVs produced differed based on the teacher's education. Finally, Pearson correlations were calculated to describe the relation between (a)

teachers' years of experience and the proportion of teachers' utterances that include complex syntax or the number of different CTVs, (b) receptive vocabulary and the proportion of teachers' utterances that include complex syntax or the number of different CTVs, (c) word reading and the proportion of teachers' utterances that include complex syntax or the number of different CTVs, and (d) the proportion of teachers' utterances that include complex syntax and the number of different CTVs.

CHAPTER III

Results

This study analyzed the complex syntax in preschool teachers' classroom language input to explore whether family SES of children in the preschool classroom influences teachers' complex syntax. Possible relations between complex syntax variables and teacher level factors such as years of experience, word reading score, and receptive vocabulary scores were investigated. In addition, possible relationships between the proportion utterances including complex syntax and the NDCTVs were examined. An exploratory analysis of the proportional distribution of complex syntax tokens equivalence across infinitive, embedded, and subordinate categories of complex syntax was also conducted.

Table 6 provides descriptive statistics including teacher group means and standard deviations (*SD*) of the dependent variables derived from the teacher talk samples. There was substantial individual variability in the number of teacher talk utterances within each group. Although numerically the Teacher-Low group produced more utterances, number of complex syntax utterances, and complex syntax tokens these differences were not statistically reliable between-groups differences (see Table 6).

Table 6

Dependent Variable Group Means and Standard Deviations by Teacher Group

	Teacher-Low		Teacher-High		t-test		
	Mean	SD	Mean	SD	<i>d</i>	<i>t</i> *	p-value
Total Utterances	327.60	78.04	272.67	69.18	0.74	2.04	0.69
Number of Complex Syntax Utterances	83.53	27.40	73.20	21.79	0.41	1.14	0.39
Complex Syntax Types	10.47	1.30	10.40	1.24	0.05	0.14	0.64
Complex Syntax Tokens	111.13	44.36	99.60	32.50	0.29	0.81	0.37
Complex Syntax Proportion	0.25	0.06	0.26	0.05	0.18	-0.59	0.09
Proportion Infinitives	0.30	0.09	0.35	0.07	0.62	-1.47	0.21
Proportion Embedded Clauses	0.39	0.07	0.38	0.07	0.14	0.67	0.93
Proportion Combined Clauses	0.27	0.07	0.24	0.07	0.42	1.10	0.33
Number of different CTVs	19.27	4.82	20.07	5.62	0.15	-0.41	0.57

Note. * denotes 28 degrees of freedom.

The primary research questions explored the between group difference on the proportion of utterances that included complex syntax and the number of different CTVs. There was no statistically reliable group difference. Despite the difference in the family SES of children in the preschool classrooms, teachers produced a similar proportion of complex syntax and number of different CTVs. There also was no statistical group difference in the frequency of utterances that includes complex syntax in the 24-minute teacher-talk samples. Within each group, the standard deviation suggests substantial individual variability across teachers in the frequency of complex syntax utterances.

Secondary research questions examined overall preschool teachers' complex syntax, number of different CTVs, and proportional distribution of complex syntax across categories of complex syntax. First, teachers produced a mean of 300.13 ($SD = 77.66$) total utterances, with an average of 78.37 ($SD = 24.88$) utterances including complex syntax (one or more tokens). The mean proportion of utterances that included complex syntax was .26 ($SD = 0.05$). For 73% of teachers, a proportion of 0.16 to 0.30 of their utterances included complex syntax. For a smaller percentage of teachers (27%) a proportion of 0.31 to 0.45 of their utterances included complex syntax. Next, the mean number of different CTVs for all teachers was 19.67 ($SD = 5.18$). Six percent of teachers produced between one and 10 different CTVs, 47% of teachers produced between 11 and 20 different CTVs, and the remaining 47% of teachers produced between 21 and 30 different CTVs. Last, an ANOVA indicated a main effect of proportional distribution of complex syntax across categories of complex syntax produced by all teachers ($F(2, 87) = 19.89, p = 0.00, \eta^2 = 0.31$). The mean proportional distribution was 0.33 ($SD = 0.08$) for infinitive category, .39 ($SD = 0.07$) for embedded category and 0.26 ($SD = 0.07$) for combining category. A Tukey's HSD post-hoc analysis also revealed a significant difference between a) embedded category and infinitive category, b) embedded category and combining category, and c) infinitive category and combining category ($p < 0.05$). Overall, these results indicate that teachers used more embedded clauses than infinitival complements or combining type clauses and more infinitival complements than combining type clauses.

Given the substantial individual differences in some of the measures of complex syntax, we explored how teacher education level, years of experience,

word reading ability, and receptive vocabulary related to teacher's complex syntax production. There was no main effect of education level on the proportion of utterances that included complex syntax ($F(3, 26) = 1.31, p = 0.29, \eta^2 = 0.13$) nor on the number of different CTVs ($F(3, 26) = 0.61, p = 0.61, \eta^2 = 0.06$). Calculation of Pearson's correlations with regards to proportion of complex syntax, and number of different CTVs with years of experience, word reading proficiency, and receptive vocabulary revealed no significant relations. Teachers' years of experience was not significantly correlated with the proportion of utterances that included complex syntax ($r = 0.32, p = 0.08$) nor on the number of different CTVs ($r = 0.26, p = 0.16$). Teachers' receptive vocabulary did not significantly correlate with the proportion of utterances that included complex syntax ($r = 0.00, p = 0.96$) or number of different CTVs ($r = -0.06, p = .73$). Teachers' word reading proficiency was not significantly correlated with the proportion of utterances that included complex syntax ($r = -0.02, p = 0.91$) or number of different CTVs ($r = 0.12, p = 0.50$). With one exception (i.e., years of experience and proportion of complex syntax), the correlations between teacher measures and complex syntax were very weak (see Table 7).

The last secondary question investigated whether there is a relation between the between the number of different CTVs produced and the proportion of teachers' utterances that included complex syntax. Pearson's correlation indicated there was a statistically significant relation between the number of different CTVs produced and the proportion of teachers' utterances that include complex syntax ($r = 0.66, p = 0.00$; see Table 7). Teachers who used more number of different CTVs produced a higher proportion of utterances that included complex syntax. As a follow-up, an

analysis was run to investigate if there was a relation between the total number of CTVs produced (i.e., sum of frequency of all tokens of each CTV) and the proportion of teachers' utterances that include complex syntax. On average, the total number of CTVs teachers produced was 51.57 ($SD = 17.15$). Pearson's correlation indicated there was a statistically significant relation between the total number of CTVs produced and the proportion of teachers' utterances that include complex syntax ($r = 0.74, p = 0.00$).

Table 7

Correlations Among Teacher-Talk Variables

	Complex Syntax Proportion	Number of different CTVs
Years of Experience	0.32	0.26
Receptive Vocabulary	0.00	-0.06
Word Reading Proficiency	-0.02	0.12
Complex Syntax Proportion	---	0.66*
Number of different CTVs	0.66*	---

Note. * Denotes correlation is significant at the 0.01 level (2-tailed).

CHAPTER IV

Discussion

Main Finding for Primary Research Questions

About quarter of preschool teachers' utterances involved complex syntax. This proportion of complex syntax input is comparable or higher than rates found in previous studies (Fisher et al., 2011; Huttenlocher et al., 2002). For example, although procedures for calculating proportion of complex syntax were slightly different (i.e., calculated the proportion of multi-clause utterances in teacher talk), preschool teachers from Huttenlocher and colleagues (2002) study used complex syntax in only 21% of their total utterances to preschool children. Similarly, Head Start teachers from the study by Fisher and colleagues (2011) used complex syntax in 19% of their utterances to preschool children. Overall, the current research confirms previous findings that teachers mostly speak to preschool children using simple sentences.

The present study found no differences in the amount of complex syntax or diversity of verbs (number of different CTVs) used by teachers based on the SES population being served. Teachers were similar across Teacher-Low and Teacher-High Groups, except for a difference found between each group's class size. Given that prior studies have found that children from lower SES families received less complex syntax input from parents when compared to children from higher SES families (Huttenlocher et al., 2002), the current study suggests that children may be receiving comparable levels of complex syntax input from teachers across lower SES and higher SES preschool settings. Government funded programs such as

Universal Pre-K and Head Start in this particular study are providing complex syntax input comparable to private preschool programs.

Although it is encouraging that children from lower SES families are receiving teacher complex syntax input comparable to children from higher SES, there is still a concern that children from lower SES families are entering school producing less complex syntax than their higher SES peers (Fisher & Schuele, 2010). As noted in the introduction and depicted in Figure 1, environmental factors are key for language development. Therefore, having fewer opportunities for complex syntax input at home may create this ongoing deficit despite receiving comparable amounts of complex syntax input in the classroom. For this reason, future research should investigate training for parents of children from lower SES families to increase complex syntax input necessary for children's language development. This is depicted by Figure 2. The left side of Figure 2 displays the current adult input (parent and teacher) children receive and their resulting complex syntax output based on the results of the present study. The right side of Figure 2 displays the hypothesis that if parents from lower SES backgrounds learn to increase the amount of complex input their children receive at home, these children will produce more complex syntax and level the language playing-field. Future research is necessary to investigate if this intervention is feasible.

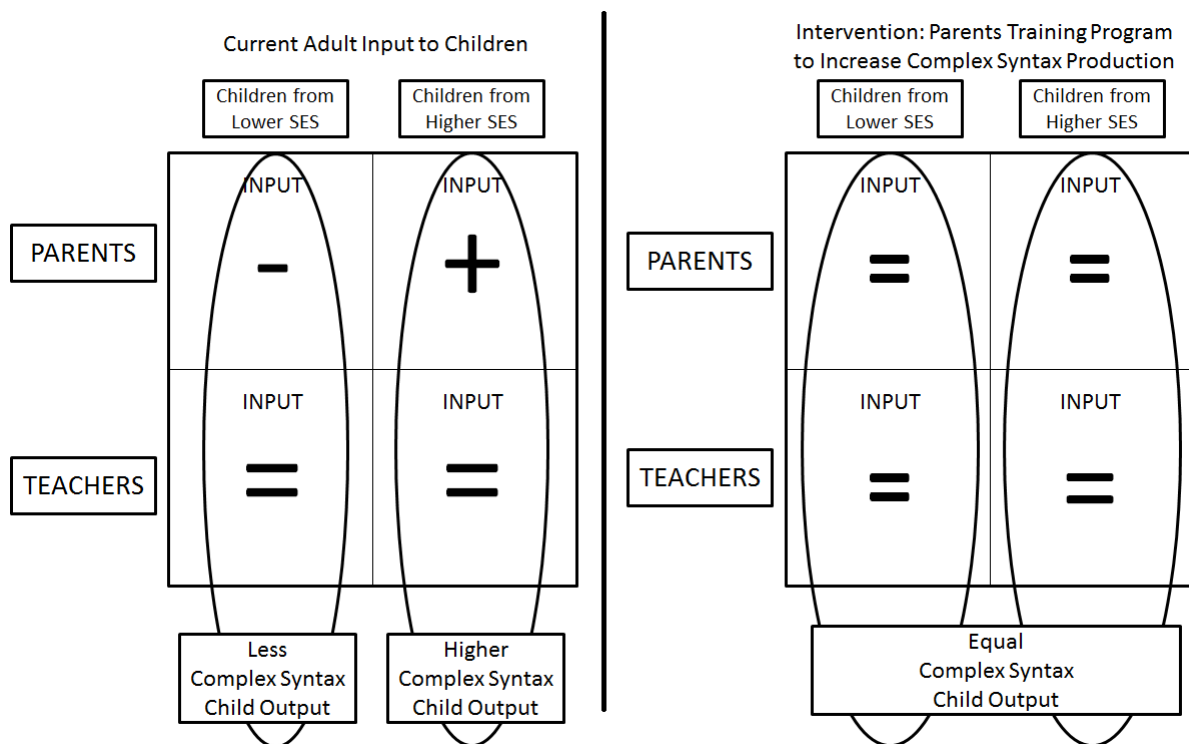


Figure 2. Parent training program used as an intervention to increase complex syntax output by children from lower SES families.

Other Findings

The significant outcome for the current study was the relationship between the number of different CTVs produced and the proportion of teachers' utterances that included complex syntax. Teachers who produced more number of different CTVs produced a higher proportion of utterances that included complex syntax. When a follow-up analysis was conducted, it was revealed that teachers who produced a higher total number of CTVs also produced a higher proportion of utterances that included complex syntax. This finding is encouraging as previous research has found a significant correlation found between the frequency of adult's

CTVs productions and the age children begin to use similar adult CTVs productions (Diessel, 2004). It is suggested that the order of CTV development is critically determined by the frequency of CTVs in the adult language input.

Producing more complex syntax could be contributed to the nature of CTVs. Complement-taking verbs are verbs that take a complement of a complex syntax structure. Thus, CTVs drive individuals as they progress in their language development and express more complex thought in a single utterance. Therefore, the more CTVs preschool teachers produce, the higher amount of complex syntax could be found in language in preschool teacher talk.

Children produce verbs that occur in the parent language input they received (De Villiers, 1985; Henry, 1993; Theakston et al., 2001). For this reason CTVs should be studied further for feasibility as an effective intervention strategy for a parent training program in increasing complex syntax. Perhaps teaching parents to use a greater number of CTVs in adult language input could be causal for a higher frequency of complex syntax in not only parents' language input but also in children's language output. This intervention strategy would need to be tested and additional research would need to be conducted to answer several important questions including: a) Which is better to use as intervention strategy: Frequency vs. Diversity of complement-taking verbs to increase complex syntax production in adults?; b) Can you use the same CTV repeated to increase child complex syntax output?; and c) Does using different verbs yield more complex syntax (and more diversity with verbs) for child outcomes? Answering these questions would provide information about the effectiveness of using CTVs as an intervention strategy for increasing complex syntax.

Limitations and Future Directions

As with all research, there are limitations to the current study. One limitation is a small sample size. To detect large differences between independent group sample means ($d = .80$) at $\alpha = .05$ requires a minimum of 26 participants in each group (Cohen, 1992); however, due to recruitment constraints only 15 participants in each group were available and this could have affected some of the study results. For example, when considering the relation between teachers' years of experience and the proportion of utterances that included complex syntax, the two were not significantly correlated, although p -value neared significance ($p = 0.08$). Perhaps with a larger sample size a significant relation could have been found between the two variables. Other limitations include majority of the teacher participants had bachelor's degrees versus other educational degrees, such as Associate's or Master's degrees. Given the lack of variability, is it still unknown if education level is related to the amount of complex syntax teachers used. Another limitation is that, due to recruiting restraints, preschool teacher data was collected from only Head Start Programs and Universal Pre-K's in rural counties surrounding a metropolitan city. Therefore, these results may not generalize to more urban school populations. For example, in a previous study of Head Start teachers from an urban city, only 19% of total utterances included complex syntax (Fisher et al., 2011) whereas in the present study teachers serving children from lower SES families from rural counties 26% of total utterances included complex syntax. Future research should include diverse areas where children from a variety of SES backgrounds can be found (i.e., suburban, urban, rural, etc.). In addition, teachers

in the current study were mostly non-Latino/Hispanic Caucasian. Results may not be similar for other ethnicities/races.

Although this research provides a glimpse into the input preschool children are exposed to on a typical day of classroom activities, to better understand the range of language input they are exposed to during their preschool year, a longitudinal study should be performed. In addition to investigating the direct effects of teacher talk on children in preschool classroom, future studies should measure child language output. Like the current study, some studies of language input in the preschool classroom focus only on the contents of the teacher talk while measurements of child output are omitted (Fisher et al., 2011; Kontos, 1999; Massey, 2004). Collecting child language outcome data would allow for the analysis of child language growth and of the factors that might serve as predictors of child language development in the area of complex syntax. Factors such as whether the frequency and diversity of complex syntax and CTVs influence child complex syntax development can also be revealed by this future research.

The current study focused on the quantity of complex syntax. However, past research has demonstrated the importance of the pragmatic function of teacher talk on children's language development and immediate language output. For example, as discussed in the introduction, it has been shown that teachers' use of conversation control (i.e., use of open-ended questions, clarification, and conversational yes/no questions that attempt to engage the children in conversation and are indicative of a conversation-eliciting style of interaction) was related to the greatest amount of child talkativeness, lexical diversity, and complexity (Girolametto, Weitzman, et al., 2000). Because the current study

focused on quantity, an examination of the effects of pragmatic function on complex syntax production are unknown. Future research would benefit from an understanding of how pragmatic function relates to complex syntax and if pragmatic function effects the quantity and quality of complex syntax input to preschool children.

Conclusion

Despite the limitations, the current study expands the body of literature by providing information about another source of complex syntax input children from varied SES are receiving: preschool teacher talk. This study is significant because it suggests that even if preschool children from lower and higher SES families are not getting comparable adult complex syntax input in the home, they are at least receiving comparable teacher complex syntax input in school. These results provide a further rationale for parent training programs targeting language input in the homes as an intervention for increasing complex syntax development and skills in children from lower SES families. Previous studies investigating the effect of parent trainings targeting language intervention on the language skills of children have shown the trainings to have positive effects on children's language skills, especially in the area of expressive language (Roberts & Kaiser, 2011). Although current intervention strategies have not targeted the area of complex syntax in parent training programs for families from low SES backgrounds, future research in this area could provide promise for increasing complex syntax in adult language input at home, thus increasing complex syntax language skills in child output.

REFERENCES

- Ariel, M. (2010). *Defining Pragmatics*. New York: Cambridge University Press.
- Barako Ardnt, K., & Schuele, C. M. (2013). Multiclausal utterances aren't just for big kids: A framework for analysis of complex syntax production in spoken language of preschool and early school-age children. *Topics in Language Disorders, 33*, 125-139.
- Bloom, L., Tackeff, J., & Lahey, M. (1984). Learning to in complement constructions. *Journal of Child Language, 11*, 391-406. doi: 10.1017/S0305000900005833
- Bowers, E., & Vasilyeva, M. (2011). The relation between teacher input and lexical growth of preschoolers. *Applied Psycholinguistics, 32*, 221-241.
- Chomsky, N. (1965). *Aspect of theory of syntax*: Cambridge, MA: MIT Press.
- Chomsky, N. (1975). *Reflections on language*. New York, NY: Pantheon Books.
- Clark, E. (2003). *First language acquisition*. New York: Cambridge University Press.
- Coelho, C. A. (2002). Story narratives of adults with closed head injury and non-brain-injured adults: Influence of socioeconomic status, elicitation task, and executive functioning. *Journal of Speech, Language, and Hearing Research, 45*, 1232-1248. doi: 10.1044/1092-4388(2002/099)
- Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*, 155-159.
- Cushon, J. A., Vu, L. T. H., Janzen, B. L., & Muhajarine, N. (2011). Neighborhood poverty impacts children's physical health and well-being over time: Evidence from the early development instrument. *Early Education & Development, 22*, 183-205. doi: 10.1080/10409280902915861
- De Villiers, J. (1985). Learning how to use verbs: Lexical coding and the influence of the input. *Journal Child Language, 12*, 587-595.
- Dickinson, D., Cote, L., & Smith, M. W. (1993). Learning vocabulary in preschool: Social and discourse contexts affecting vocabulary growth. *New Directions for Child and Adolescent Development, 67-78*. doi: 10.1002/cd.23219936106
- Dickinson, D., Golinkoff, R. M., & Hirsh-Pasek, K. (2010). Speaking out for language. *Educational Researcher, 39*, 305-310. doi: 10.3102/0013189x10370204
- Dickinson, D., & Porche, M. (2011). Relation between language experiences in preschool classrooms and children's kindergarten and fourth-grade language and reading abilities. *Child Development, 82*, 870-886. doi: 10.1111/j.1467-8624.2011.01576.x

- Dickinson, D., & Smith, M. W. (1994). Long-term effects of preschool teachers' book readings on low-income children's vocabulary and story comprehension. *Reading Research Quarterly, 29*, 105-122.
- Diessel, H. (2004). *The acquisition of complex sentences*. Cambridge: Cambridge University Press.
- Duncan, G. J., & Magnuson, K. A. (2005). Can family socioeconomic resources account for racial and ethnic test score gaps? *The Future of Children 15*, 35-54.
- Dunn, L., & Dunn, D. (2007). *Peabody Picture Vocabulary Test* (4th ed.). Minneapolis, MN: Pearson Assessments.
- Fisher, J., Combs, S., & Creaghead, C. (2007). *Head Start teachers' and low socio-economic status parents' vocabulary usage*. (Unpublished Master's Thesis). University of Cincinnati, Cincinnati, OH.
- Fisher, J., & Schuele, C. M. (2010). *Elicited production of infinitival complements by preschoolers: Age and socioeconomic influences*. Technical session presented at the meeting of the American Speech-Language-Hearing Association Annual Convention, New Orleans, LA.
- Fisher, J., Schuele, C. M., Dickinson, D., & Combs, S. (2011). *Head Start teachers' complex syntax production*. Poster session presented at the meeting of Symposium for Research on Child Language Disorders, Madison, WI.
- Fryer, R., & Levitt, S. (2004). Understanding the black-white test score gap in the first two years of school. *The Review of Economics and Statistics, 86*, 447-464.
- Gest, S., Holland-Coviello, R., Welsh, J. A., Eicher-Catt, D., & Gill, S. (2006). Language development subcontexts in Head Start classrooms: Distinctive patterns of teacher talk during free play, mealtime, and book reading. *Early Education and Development, 17*, 293-315.
- Girolametto, L., Hoaken, L., Weitzman, E., & Lieshout, R. v. (2000). Patterns of adult-child linguistic interaction in integrated day care groups. *Language, Speech, and Hearing Services in the Schools, 31*, 155-168.
- Girolametto, L., & Weitzman, E. (2002). Responsiveness of child care providers in interactions with toddlers and preschoolers. *Language, Speech, and Hearing Services in the Schools, 33*, 268-281. doi: 10.1044/0161-1461(2002/022)
- Girolametto, L., Weitzman, E., van Lieshout, R., & Duff, D. (2000). Directiveness in teachers' language input to toddlers and preschoolers in day care. *Journal of Speech, Language, and Hearing Research, 43*, 1101-1114.
- Harris, P., Thielke, R., Taylor, R., Payne, J., Gonzalez, N., & Conde, J. (2009). A metadata-driven methodology and workflow process for providing translational research informatics support. *Journal of Biomedical Informatics, 42*.

- Hart, B., & Risley, T. (1995). *Meaningful differences in the everyday experience of young American children*. Baltimore: Paul H. Brookes.
- Henry, A. (1993). Variability and language acquisition. In E. Clark (Ed.), *The proceedings of the twenty-fifth annual Child Language Research Forum*. Stanford, CA: Lealand Stanford Junior University.
- Hoff-Ginsberg, E. (1986). Function and structure in maternal speech: Their relation to the child's development of syntax. *Developmental Psychology, 22*, 155-163.
- Hoff-Ginsberg, E., & Shatz, M. (1982). Linguistic input and the child's acquisition of language. *Psychological Bulletin, 92*, 3-26.
- Hoff, E. (2003). The specificity of environmental influence: Socioeconomic status affects early vocabulary development via maternal speech. *Child Development, 74*, 1368-1378. doi: 10.1111/1467-8624.00612
- Hoff, E., & Shatz, M. (2007). *Blackwell handbook of language development*. Malden, MA: Blackwell Publishing.
- Hunt, K. W. (1970). Syntactic maturity in schoolchildren and adults. *Monographs of the Society for Research in Child Development, 35*.
- Huttenlocher, J., Haight, W., Bryk, A., Seltzer, M., & Lyons, T. (1991). Early vocabulary growth: Relation to language input and gender. *Developmental Psychology, 27*, 236-248. doi: 10.1037/0012-1649.27.2.236
- Huttenlocher, J., Vasilyeva, M., Cymerman, E., & Levine, S. (2002). Language input and child syntax. *Cognitive Psychology, 45*, 337-374. doi: S0010028502005005
- Jackson, S. C., & Roberts, J. E. (2001). Complex syntax production of African American preschoolers. *Journal of Speech, Language & Hearing Research, 44*, 1083-1096.
- Justice, L. M., Bowles, R. P., Kaderavek, J. N., Ukrainetz, T. A., Eisenberg, S. L., & Gillam, R. B. (2006). The index of narrative microstructure: A clinical tool for analyzing school-age children's narrative performances. *American Journal of Speech-Language Pathology, 15*(2), 177-191. doi: 10.1044/1058-0360(2006/017)
- Kintsch, E. (2005). Comprehension theory as a guide for the design of thoughtful questions. *Topics in Language Disorders, 25*, 51-64.
- Kontos, S. (1999). Preschool teachers' talk, roles, and activity settings during free play. *Early Childhood Research Quarterly, 14*, 363-382.
- Lee, M., Guillot, K., Spencer, B., Barako Ardnt, K., Rosenthal, J., Lineback, A., Fisher, J., Werfel, K., Schuele, C. M., & Abel, A. (2008). *SES influences on preschooler's performance on the Preschool Language Scale and the Peabody Picture Vocabulary Test*. Poster session presented at the meeting of the American-Speech-Language-Hearing Association Annual Convention. Chicago, IL.
- Mahoney, G., & Wheeden, C. A. (1999). The effect of teacher style on interactive engagement of preschool-aged children with special

- learning needs. *Early Childhood Research Quarterly*, 14, 51-68. doi: 10.1016/s0885-2006(99)80004-0
- Massey, S. L. (2004). Teacher-child conversation in the preschool classroom. *Early Childhood Education Journal*, 31, 227-231. doi: 10.1023/b:ecej.0000024113.69141.23
- Massey, S. L., Pence, K. L., Justice, L. M., & Bowles, R. P. (2008). Educators' use of cognitively challenging questions in economically disadvantaged preschool classroom contexts. *Early Education & Development*, 19, 340 - 360.
- Miller, J., & Iglesias, A. (2010). *Systematic analysis of language transcripts: SALT*. Madison, WI: University of Wisconsin-Madison.
- National Education Goals Panel. (1991). Measuring progress toward the national education goals: Potential indicators and measurement strategies. Compendium of interim resource group reports, from <http://www.eric.ed.gov/ERICWebPortal/detail?accno=ED330728>
- Nippold, M. A. (2009). School-age children talk about chess: Does knowledge drive syntactic complexity? *Journal of Speech, Language, and Hearing Research*, 52, 856-871. doi: 10.1044/1092-4388(2009/08-0094)
- Pinker, S. (1994). *The language instinct: The new science of language and mind*. New York: William Morrow.
- Quirk, R., Greenbaum, S., Leech, G., & Svartvik, J. (1985). *A comprehensive grammar of the English language*. London Longman.
- Roberts, M. Y., & Kaiser, A. P. (2011). The effectiveness of parent-implemented language interventions: A meta-analysis. *American Journal of Speech Language Pathology*, 20, 180-199. doi: 10.1044/1058-0360(2011/10-0055)
- Schuele, C. M. (2009a). *Complex syntax coding manual*. Unpublished coding manual, Vanderbilt University, Nashville, TN.
- Schuele, C. M. (2009b). *Transcription and basic coding manual*. Unpublished manual, Vanderbilt University, Nashville, TN.
- Sirin, S. R. (2005). Socioeconomic status and academic achievement: A meta-analytic review of research. *Review of Educational Research*, 75, 417-453. doi: 10.3102/00346543075003417
- Snow, C. E. (1972). Mothers' speech to children learning language. *Child Development*, 43, 549-565.
- Stipek, D. J., & Ryan, R. H. (1997). Economically disadvantaged preschoolers: Ready to learn but further to go. *Developmental Psychology*, 33, 711-723. doi: 10.1037/0012-1649.33.4.711
- Theakston, A., Lieven, E., Oine, J., & Rowland, C. (2001). Going, going, gone: The acquisition of the verb 'Go'. *Journal Child Language*, 29, 783-811.
- Torgesen, J. K., Wagner, R., & Rashotte, C. A. (2011). *Test of Word Reading Efficiency* (2nd ed.). Austin, TX: Pro-Ed.

- Trawick-Smith, J. (1994). *Interactions in the classroom: Facilitating play in the early years*. New York: Macmillan College Publishing Company.
- Vasilyeva, M., Waterfall, H., & Huttenlocher, J. (2008). Emergence of syntax: Commonalities and differences across children. *Developmental Science, 11*, 84-97.
- Zigler, E., & Muenchow, S. (1992). *Head Start: The inside story of America's most successful educational experiment*. New York: Basic Books.

Appendix A

Background Descriptives for Each Preschool Teacher

Participant Number	Students' SES Background	Number of Students in Class	Age	Race	Degree Received*	Years of Experience
2	Low	20	58	Caucasian	Bachelor's	2
5	Low	20	36	Caucasian	Master's	3
12	Low	19	25	African American	Bachelor's	2
13	Low	20	44	Caucasian	Bachelor's	3
14	Low	17	43	Caucasian	Master's	11
15	Low	16	26	Caucasian	Bachelor's	3
16	Low	20	57	Caucasian	Bachelor's	16
17	Low	20	26	Caucasian	Bachelor's	2
18	Low	20	46	Caucasian	Master's	6
19	Low	20	50	Caucasian	Associate's	19
20	Low	20	25	Multi-Racial	Bachelor's	1
22	Low	20	38	African American	Bachelor's	10
24	Low	20	41	Caucasian	Bachelor's	10
25	Low	18	27	Caucasian	Bachelor's	2
30	Low	20	35	Caucasian	Bachelor's	7
1	High	10	53	Caucasian	Bachelor's	14
3	High	10	61	Caucasian	H.S. Diploma	25
4	High	18	47	Caucasian	Bachelor's	4
6	High	11	44	Caucasian	Bachelor's	5
7	High	17	56	Caucasian	Bachelor's	15
8	High	12	58	Caucasian	Master's	15
9	High	8	34	Caucasian	Master's	0
10	High	12	39	Caucasian	Bachelor's	3
11	High	19	24	Caucasian	Bachelor's	2
21	High	17	28	Caucasian	Bachelor's	4
23	High	13	42	Caucasian	Master's	13
26	High	18	25	Caucasian	Bachelor's	2
27	High	5	29	Caucasian	Bachelor's	4
28	High	10	48	Caucasian	Bachelor's	6
29	High	5	64	Caucasian	Master's	2

* Denotes H.S. Diploma = High School Diploma.

Appendix B

Research Protocol



Vanderbilt University

Institutional Review Board

504 Oxford House Nashville, Tennessee 37232-4315
(615) 322-2918 Fax: (615) 343-2648
www.mc.vanderbilt.edu/irb

February 28, 2012

Jamie Fisher
Hearing & Speech
1215 S. 21st Street 37232

C. Melanie Schuele
Hearing & Speech
Medical Center E. South Tower #8310 37232-8242

RE: IRB# 120137 "Preschool Teacher Talk" (Southern Regional Education Board Dissertation)

Dear [Jamie Fisher](#):

A sub-committee of the Institutional Review Board reviewed the research application identified above. The sub-committee determined the study poses minimal risk to participants, and the application is approved under 45 CFR 46.110 (F)(7). Approval is extended for the Application for Human Research dated 02/27/2012 and the Consent Form(s) dated 02/27/2012 for Principal Investigator [Jamie Fisher](#).

Please be reminded that this approval extends only to research activities conducted at Vanderbilt. Please submit documentation of IRB approval or letters of cooperation for non-Vanderbilt sites when it becomes available.

The Consent Form(s) have been stamped with the approval and expiration date and this copy should be used when obtaining the participant's signature. Federal regulations require that the original copy of the participant's consent be maintained in the principal investigator's files and that a copy be given to the subject at the time of consent. An additional record (i.e., case report form, medical record, database, etc.) of the consent process should also be maintained in a separate location for documentation purposes.

As the Principal Investigator, you are responsible for the accurate documentation, investigation and follow-up of all possible study-related adverse events and unanticipated problems involving risks to participants or others. The IRB Adverse Event reporting policy III.G is located on the IRB website at <http://www.mc.vanderbilt.edu/irb/>.

Please note that approval is for a 12-month period. Any changes to the research study must be presented to the IRB for approval prior to implementation.

DATE OF IRB APPROVAL: 02/28/2012

DATE OF IRB EXPIRATION: 02/27/2013

Sincerely,

A handwritten signature in cursive script, appearing to read "Daniel F. Kline".

Fisher, Jamie IRB # 120137

1

02/29/2012

Child Language and Literacy Lab

C. Melanie Schuele, PhD, Director

Vanderbilt Bill Wilkerson Center
Dept. of Hearing and Speech Sciences
8310 MCE, South Tower
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www.mc.vanderbilt.edu/languagelab

VANDERBILT UNIVERSITY  School of Medicine

Date

Dear _____,

My name is Jamie D. Fisher and I am a PhD Candidate at Vanderbilt University in the Department of Hearing and Speech Science. My advisor is Melanie Schuele, PhD, Associate Professor in the Department of Hearing and Speech Sciences. We are conducting a study with preschool teachers who teach four- and five-year-old pre-kindergarten children. We are interested in studying what teachers and children talk about during the morning activities in preschool classrooms. We are inviting your facility and lead preschool teachers to participate in our study. We hope that you will accept this invitation.

We hope that study provides information that will help us know how to improve preschool children's language skills. This study will involve two visits for each teacher.

Visit 1: We will observe and audio-record lead preschool teachers across the morning classroom activities for two hours (e.g., between 9:00am-12:00am).

Visit 2: We will work with each teacher for no more than 30 minutes. The teacher will answer demographic question (e.g., questions about their education and how long they have been teaching) and complete two language and literacy measures.

All preschool teacher participants will receive a \$10.00 gift card. All children who have permission from parents/guardians to be present in the classroom (children WILL NOT be research participants) during the morning observation will receive a children's book. For more information regarding this study, please see the flyer attached.

If you are interested in having your facility and lead preschool teachers participate in the study or have questions regarding the study please contact me at 502-724-1953 (cell), at 615-936-5256 (work), or by email at languagelab@vanderbilt.edu.

Sincerely,



Jamie D. Fisher, MA, CCC-SLP
PhD Candidate



C. Melanie Schuele, PhD
Associate Professor

Child Language and Literacy Lab

C. Melanie Schuele, PhD, Director

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VANDERBILT UNIVERSITY  School of Medicine

Date

Dear _____,

My name is Jamie D. Fisher and I am a PhD Candidate at Vanderbilt University in the Department of Hearing and Speech Science. My advisor is Melanie Schuele, PhD, Associate Professor in the Department of Hearing and Speech Sciences. We are conducting a study with preschool teachers who teach four- and five-year-old pre-kindergarten children. We are interested in studying what teachers and children talk about during the morning activities in preschool classrooms. We are inviting your facility and lead preschool teachers to participate in our study. We hope that you will accept this invitation.

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Sincerely,



Jamie D. Fisher, MA, CCC-SLP
PhD Candidate



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Associate Professor

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VANDERBILT UNIVERSITY  School of Medicine

VANDERBILT UNIVERSITY RESEARCH STUDY PRESCHOOL TEACHER TALK

The Child Language and Literacy Lab at Vanderbilt University are conducting the Preschool Teacher Talk study. Two people are responsible for this study. Melanie Schuele, PhD, is the lab director. She oversees the study. She is a certified, licensed speech-language pathologist. Jamie D. Fisher, MA, works with those who participate in the study. Jamie is a PhD candidate, research assistant, and a certified, licensed speech-language pathologist.

We are interested in studying what teachers and children talk about during the morning activities in preschool classrooms. We are inviting preschool facilities and lead preschool teachers to be in the study. We hope that you will accept this invitation.

What will teachers do? This study involves two visits.

- **Visit 1:** On one morning in the classroom (e.g., between 9:00am-12:00am), we will observe and audio-record the lead teacher during classroom activities. The teacher will wear a small digital recorder that records what he or she says across the morning activities. We will record each teacher for two hours.
- **Visit 2:** At a time that is convenient to each teacher and his or her school/center, we will meet individually with the teacher to complete two tasks. First, the teacher will answer demographic questions, for example, about his or her education and how long he or she has been teaching. We will ask some questions about how the teacher plans activities for the classroom and about the typical schedule in the classroom. Second, we will complete two language and literacy measures with the teacher. We will ask teachers to read some words and we will ask them to match pictures with spoken words. The second visit will last no more than 30 minutes.

Where and when will teachers do these activities? Teachers will complete the study activities at their school during regular school hours in the next couple of months. We will schedule these activities at a time and day that is convenient.

Will teachers receive anything for participating? Teachers who complete all research activities will receive a \$10.00 gift card.

Will students receive anything for being present during the study? Although preschool students WILL NOT be research participants, all children must have permission from parents/guardians to be present in the classroom during the morning observation. All children present during the observation will receive a children's book at the completion of the study.

Will anyone know what individual teachers say during Visit 1 or Visit 2? When we report what we learn from the study, we will not identify any teacher by name or by center. We will report our findings for all teachers together. We may use examples of teacher talk from individual teachers but no teacher or center names will be used. No one at your center will listen to the audio-recording from your classroom. No one at your center will see the written transcripts from your classroom. All information collected will be confidential.

What if we would like to participate or have questions? If you would like to participate or have any questions, please call Jamie Fisher or Melanie Schuele at 502-724-1953 (cell), 615-936-5256 (work) or email us at language@vanderbilt.edu.

Preschool Teacher Talk Telephone Script

Recruiter: *Hello my name is (Recruiter's Name) and I'm calling from the Vanderbilt Child Language and Literacy Lab. We are calling preschools to inform them of a research study that we are conducting with preschool teachers serving 4 and five year old classrooms. Do you have a moment to speak with me today?*

Allow for a response from Preschool Director: *(NO*/YES**)*

***NO response from Preschool Director– Recruiter:** *That's fine. When would be a good time to call back? (Take down convenient time and call back).*

****YES response from Preschool Director - Recruiter:** *The Child Language and Literacy Lab at Vanderbilt University are conducting the Preschool Teacher Talk study. Two people are responsible for this study. Melanie Schuele, PhD, is the lab director. She oversees the study. She is a certified, licensed speech-language pathologist. Jamie D. Fisher, MA, works with those who participate in the study. Jamie is a PhD candidate, research assistant, and a certified, licensed speech-language pathologist. We are interested in studying what teachers and children talk about during the morning activities in preschool classrooms. We are inviting preschool facilities and lead preschool teachers to be in the study.*

This study involves two visits.

- **On Visit 1:** *On one morning in the classroom (e.g., between 9:00am-12:00am), we will observe and audio-record the lead teacher during classroom activities. The teacher will wear a small digital recorder that records what he or she says across the morning activities. We will record each teacher for two hours.*
- **On Visit 2:** *At a time that is convenient to each teacher and his or her school/center, we will meet individually with the teacher to complete two tasks. First, the teacher will answer demographic questions, for example, about his or her education and how long he or she has been teaching. We will ask some questions about how the teacher plans activities for the classroom and about the typical schedule in the classroom. Second, we will complete two language and literacy measures with the teacher. We will ask teachers to read some words and we will ask them to match pictures with spoken words. The second visit will last no more than 30 minutes.*

Teachers will complete the study activities at their school during regular school hours in the next couple of months. We will schedule these activities at a time and day that is convenient. Teachers who complete all research activities will receive a \$10.00 gift card. Although preschool students WILL NOT be research participants, all children must have permission from parents/guardians to be present in the classroom during the morning observation. All children present during the observation will receive a children's book at the completion of the study. When we report what we learn from the study, we will not identify any teacher by name or by center. We will report our findings for all teachers together. We may use examples of teacher talk from individual teachers but no teacher or center names will be used. No one at your center will listen to the audio-recording from your classroom. No one at your center will see the written transcripts from your classroom. All information collected will be confidential. If you would like to participate the only thing we would need from you at the moment would be a letter of cooperation. If

you would like to think about it or have any future questions, please call Jamie Fisher or Melanie Schuele at 502-724-1953 (cell), 615-936-5256 (work) or email us at language@vanderbilt.edu.

Allow for a response from Preschool Director: (*Not Participating/**Participating)

***Not Participating Response - Recruiter:** Okay. Well thank you so much for your time and have a great day.

****Participating Response - Recruiter:** *Will we contact your facility in (Month) regarding consent forms and dates for research data collection. Again what we need at this moment from your facility is a letter of cooperation, agreeing to let us conduct research. You can email this letter to directly to Jamie D. Fisher at jamie.d.fisher@vanderbilt.edu. Again, thank you so much and we look forward to contacting you soon. Have a great day.*

Preschool Teacher Talk Email

Subject: Notification of Preschool Teacher Talk Study

Body of Email:

VANDERBILT UNIVERSITY RESEARCH STUDY PRESCHOOL TEACHER TALK

The Child Language and Literacy Lab at Vanderbilt University are conducting the Preschool Teacher Talk study. Two people are responsible for this study. Melanie Schuele, PhD, is the lab director. She oversees the study. She is a certified, licensed speech-language pathologist. Jamie D. Fisher, MA, works with those who participate in the study. Jamie is a PhD candidate, research assistant, and a certified, licensed speech-language pathologist.

We are interested in studying what teachers and children talk about during the morning activities in preschool classrooms. We are inviting preschool facilities and lead preschool teachers to be in the study. We hope that you will accept this invitation.

What will teachers do? This study involves two visits.

- **Visit 1:** On one morning in the classroom (e.g., between 9:00am-12:00am), we will observe and audio-record the lead teacher during classroom activities. The teacher will wear a small digital recorder that records what he or she says across the morning activities. We will record each teacher for two hours.
- **Visit 2:** At a time that is convenient to each teacher and his or her school/center, we will meet individually with the teacher to complete two tasks. First, the teacher will answer demographic questions, for example, about his or her education and how long he or she has been teaching. We will ask some questions about how the teacher plans activities for the classroom and about the typical schedule in the classroom. Second, we will complete two language and literacy measures with the teacher. We will ask teachers to read some words and we will ask them to match pictures with spoken words. The second visit will last no more than 30 minutes.

Where and when will teachers do these activities? Teachers will complete the study activities at their school during regular school hours in the next couple of months. We will schedule these activities at a time and day that is convenient.

Will teachers receive anything for participating? Teachers who complete all research activities will receive a \$10.00 gift card.

Will students receive anything for being present during the study? Although preschool students WILL NOT be research participants, all children must have permission from parents/guardians to be present in the classroom during the morning observation. All children present during the observation will receive a children's book at the completion of the study.

Will anyone know what individual teachers say during Visit 1 or Visit 2?

When we report what we learn from the study, we will not identify any teacher by name or by center. We will report our findings for all teachers together. We may use examples of teacher talk from individual teachers but no teacher or center

names will be used. No one at your center will listen to the audio-recording from your classroom. No one at your center will see the written transcripts from your classroom. All information collected will be confidential.

What if we would like to participate or have questions? If you would like to participate or have any questions, please call Jamie Fisher or Melanie Schuele at 502-724-1953 (cell), 615-936-5256 (work) or email us at language@vanderbilt.edu.

Vanderbilt University Institutional Review Board
Informed Consent Document for Research

Principal Investigator: Jamie D. Fisher
Study Title: Preschool Teacher Talk
Institution/Hospital: Vanderbilt University School of Medicine

Revision Date: 2.27.12

Child Language and Literacy Lab

C. Melanie Schuele, PhD, Director
Vanderbilt University School of Medicine

Vanderbilt Bill Wilkerson Center
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1215 21st Avenue South
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www.mc.vanderbilt.edu/lanquagelab



PRESCHOOL TEACHER TALK

This informed consent document applies to preschool teachers.

Teacher's Name: _____ School/Center: _____

We want to tell you about a research study and your participation in it. Please read this form carefully. Feel free to ask any questions you may have about this study and the information given below. You may ask questions by calling 615.936.5256 or emailing lanquagelab@vanderbilt.edu. We have given you two copies of this consent form. Please sign and return one copy by mail in the stamped envelope provided to you. Please keep the other copy for yourself.

The Child Language and Literacy Lab at Vanderbilt University is completing this study. Two people will be responsible for this study. Melanie Schuele, PhD, is the lab director. She is a certified, licensed speech-language pathologist and will oversee the study. Jamie D. Fisher, MA, will also work with those who participate in the study. Jamie is a PhD Candidate, research assistant, and a certified licensed speech-language pathologist.

We are interested in studying what teachers and children talk about during the morning activities in preschool classrooms. Your school/facility has agreed to be part of this study. We are inviting lead preschool teachers to be in the study. We hope that you will accept this invitation.

What will you do? This study involves two visits.

- **Visit 1:** On one morning in your classroom (e.g., between 9:00am-12:00am), we will observe and audio-record you during classroom activities. For two hours you will wear a small digital recorder that records what you say across the morning of activities.
- **Visit 2:** At a time that is convenient to you and your school/center, we will meet individually with you to complete two tasks. First, you will answer demographic questions, for example, about your education and how long you have been teaching. We will ask you some questions about how you plan activities for your classroom and about the typical schedule in your classroom. Second, we will complete two language and literacy measures with you. We will ask you to read some words and we will ask you to match pictures with spoken words. The second visit will last no more than 30 minutes and is conducted at your convenience. We will audio record your responses so that we can later make sure that we have written down your responses correctly. We will destroy the audio recording once we have checked the accuracy of our recording.

Where and when will I do these activities? You will complete the study activities at your school during regular school hours in the next couple of months. We will schedule these activities at a time and day that is convenient.

Do I have to do these study activities? No, you do not have to be in this study. Your participation is voluntary. You can say yes now but change your mind later. You can withdraw from the study at any time. Call (615.936.5256) or write (lanquagelab@vanderbilt.edu) if you decide later you do not want to complete the study activities. There are no penalties for not participating. If you choose to withdraw, we will keep the information that we have collected up to that point (e.g., recordings, your answers) unless you request in writing that we destroy the information. In the event new information becomes available that may affect the risks or benefits associated with this research study or your willingness to participate in it, you will be notified so that you can make an informed decision whether or not to continue your participation in this study.

What are the benefits of this study and your participation? There are no direct benefits to you for your participation in the study. We hope that your participation in our study helps us better understand how preschool classrooms support children's learning. We will share the results of our study with parents, preschool teachers, preschool directors, and researchers. If you want study results please write your email or mailing address on the back of this form. Study results will be available one year after the classroom observation.

Will my I receive anything for participating? Teachers who complete all research activities will receive a \$10.00 gift card.

Date of IRB Approval: 02-28-2012
Date of IRB Expiration: 02-27-2013



Vanderbilt University Institutional Review Board
Informed Consent Document for Research

Principal Investigator: Jamie D. Fisher
Study Title: Preschool Teacher Talk
Institution/Hospital: Vanderbilt University School of Medicine

Revision Date: 2.27.12

Will anyone know what I say during the morning that you record me in the classroom (Visit 1)? When we report what we learn from the study, we will not identify any teacher by name or by center. We will report our findings for all teachers together. We may use examples of teacher talk from individual teachers but no teacher or center names will be used. No one at your center will listen to the audio-recording from your classroom. No one at your center will see the written transcripts from your classroom. All efforts, within reason, will be made to keep your personal information in your research record confidential but total confidentiality cannot be guaranteed.

The audio-recording will be stored on a password protected computer or other password protected computer storage media that can only be accessed by researchers in the study. The written transcripts will be saved as computer files on a password protected computer or other password protected computer storage media that can only be accessed by researchers in the study. We will keep the written transcripts and the audio-recordings indefinitely. Ms. Fisher will take a copy of the transcripts and the audio-recordings when she leaves Vanderbilt University. We may also keep a copy of the data at our homes so that if the data at Vanderbilt University were destroyed or damaged, we would still have data for the study. In the future we may use the data to conduct additional studies on preschool teacher talk. Data derived from the written transcripts will be stored in a de-identified computer database.

Will anyone know how I answer the questions you ask me (Visit 2)? When we report demographic and language/literacy measure information, we will not identify any teacher by name or by center. We will report our findings for all teachers together. No one at your center will know the results of your demographic and language/literacy measure information. All efforts, within reason, will be made to keep your personal information in your research record confidential but total confidentiality cannot be guaranteed.

Information from this study will not become a part of any formal record (e.g. school or medical record). Your information may be shared with Vanderbilt or the government, such as Vanderbilt University Institutional Review Board or Federal Government Office for Human Research Protections, if you or someone else is in danger or if we are required to do so by law.

What if I have questions? If you should have any questions about this research study, please feel free to contact **Jamie Fisher** or Faculty Advisor, **Melanie Schuele**, at 615-936-5256 or email us at language@vanderbilt.edu. For additional information about giving consent or your rights as a participant in this study, to discuss problems, concerns, and questions, or to offer input, please feel free to contact the Vanderbilt University Institutional Review Board Office at (615) 322-2918 or toll free at (866) 224-8273

What should I do? If you want to be in the study, fill in the information and sign below. Please mail this consent this form in the stamped envelope provided within the next week. An extra copy of this consent letter is included for you to keep.

Thank you very much!

Jamie D. Fisher, MA, CCC-SLP [PhD Candidate]
Melanie Schuele, PhD, CCC-SLP [Associate Professor, Lab Director]

STATEMENT BY TEACHER ALLOWING THEIR PARTICIPATION IN THIS STUDY

I have read this informed consent document and the material contained in it has been explained to me verbally. All my questions have been answered, and I freely and voluntarily choose to participate.

Date _____ Signature of Teacher _____

- I would like a copy of my assessment measure results.
- I would like a copy of the study result. My email or mailing address is: _____
- I agree to be contacted in the future about studies in the Child Language and Literacy Lab or elsewhere in the Vanderbilt Bill Wilkerson Center.

Consent obtained by:	<i>The researcher will complete this section.</i>
Date	Signature
	Printed Name and Title

Date of IRB Approval: 02-28-2012
Date of IRB Expiration: 02-27-2013



VANDERBILT UNIVERSITY
Institutional Review Board

Appendix C

Preschool Teacher Talk Data Collection Protocol

Pre-Visit Teacher Basic Information Collection and Scheduling of Visit 1 & Visit 2

1. Fill-Out STUDY PROTOCOL CHECKLIST FORM for Pre-Visit Teacher Information Basic Information Collection.
2. Fill-Out Participant ID on PRE-VISIT TEACHER INFORMATION BASIC INFORMATION COLLECTION QUESTIONS before calling teacher participant.
3. Contact Teacher participants by telephone to ask PRE-VISIT TEACHER INFORMATION BASIC INFORMATION COLLECTION QUESTIONS.
4. Say: **Good morning. Thank you for agreeing to participate in our study. You may remember that the study involves two visits. Just to remind you, we are interested in studying what teachers and children talk about during the morning of preschool activities. On the first visit, you will be audio-recorded in your classroom. On the second visit, you will complete three tasks: (1) a vocabulary task, (2) a task of reading real words and made-up words or nonsense words, and (4) a questionnaire about your teaching experience.**
5. Complete TEACHER BASIC DATA ENTRY FORM/SCHEDULE VISITS (Page 1 of 6 in **Preschool Teachers' Complex Syntax Production (PTCST)** RedCap Forms) based on Teacher Responses.

Say: **Today I have a few questions to ask to get some background information from you. If there are any questions you do not wish to answer, please just let me know and I will skip that question.**

As a reminder, I am not using your name on any of my forms. I have assigned you a research number. There will be no link between your name and your research number in my research records.

My questions should only take a few minutes:

- **Is English your native language or your first language?**
- **Do you speak any other languages?***
 - *If yes, write down languages and ask:**
 - (a) **How proficient are you in that language? Would you consider yourself: Very proficient, somewhat proficient, or not proficient?**
 - (b) **Can you carry on a conversation in that language?**
- **What is your date of birth?**
- **How old are you?**
- **How many students do you have in your class?**
- **How many students are 3 years old?**
- **How many students are 4 years old?**
- **How many students are 5 years old?**
- **How many boys?**

- **How many girls?**
- **What day and time is a convenient to schedule Visit 1?**
- **What day and time is a convenient to schedule Visit 2? Remember Visit 1 and 2 can be scheduled on the same day.**
- **When you finish the study activities, we will give you a gift card. What type of gift card would you like: Wal-Mart or Target?**

Last I would like to remind you to wear pants with belt loops on the day of Visit 1, when we will be recording. If you have pants on, we can strap the lightweight audio-recorder to you. If you forget or cannot wear pants with belt loops then we will provide a belt that can be worn to strap the recorder too. Do you have any questions?

Thank you so much and we will see you on your scheduled visit date. We will call you the day before your Visits as a friendly reminder.

6. Complete STUDY PROTOCOL CHECKLIST FORM for Pre-Visit Teacher Information Basic Information Collection.

Teacher Basic Data Entry Form/Schedule Visits (Fill out before Visit 1)

Participant ID _____

School (Fill out before Phone Call) _____

Preschool Type (Fill Out Before Phone Call) L
 H

Is English your native or first language first language? Yes
 No

Do you speak any other languages? Yes
 No

If yes, what other languages do you speak? _____

How proficient are you in that language(s)? Very Proficient
 Somewhat Proficient
 Not Proficient

Can you carry on a conversation in that language? Yes
 No

Date of Birth _____

Chronological Age (Calculate and enter as followed: Years; Months) _____

How many students do you have in your class? _____

How many 3 year old students do you have? _____

How many 4 year old students do you have? _____

How many 5 year old students do you have? _____

How many boys students? _____

How many girl students? _____

Mean Age of students (Interviewer can skip this; RedCap will calculate) _____

Schedule Visit 1: Date/Time (Enter: Date/Time) _____

Schedule Visit 2: Date/Time (Enter: Date/Time) _____

What type of gift card would you like? Walmart
 Target

REMINDE TEACHER TO WEAR PANTS WITH BELT LOOPS ON DAY OF CLASSROOM OBSERVATION Yes
 No

Fisher Dissertation: Preschool Teacher Talk
STUDY PROTOCOL CHECKLIST

TEACHER CODE: _____

SCHOOL/CENTER: _____

	Year	Month	Day
Initial assessment date			
DOB			
AGE			

Consent Form Signed/Dated _____

Order of Administration: Plan to do in order listed; document order

Measure	Order	Date Completed	Time of Day Completed	Examiner
Pre-Visit Teacher Basic Information Collection				
Visit 1: Classroom Observation/Teacher Talk Sample (Must be completed in AM)				
Visit 2: PPVT-4				
Visit 2: TOWRE-2: Sight Word Efficiency				
Visit 2: TOWRE-2: Phonemic Decoding Efficiency				
Visit 2: Questionnaire				

Children's Books Given on Visit 1 by (Initial) _____

Gift Card Given on Visit 2 by (Initials) _____

_____ Teacher requested test results

_____ Sent teacher test results

_____ Mailed teacher copy of the consent form

Follow Up
NOTES:

Visit 1 Data Collection Protocol

1. Prior to Visit 1 check Folder to make sure all necessary material is there:
 - a. Study Protocol Checklist
 - b. Preschool Teachers' Complex Syntax Production RedCap Forms
2. At Visit 1 Establish rapport with teacher. Say: **How are you doing today?**
3. For observation ask teacher to place you somewhere in the classroom that will allow you to observe without being distracting.
4. Fill-out "heading information" on the CLASSROOM OBSERVATION (page 2 of 6 PTCST RedCap Forms).
5. Explain: **"I will be placing this microphone on your shirt and the recorder will be placed on your pants' belt loop. We will record for at least two hours. I will stay and observe to make sure the recorder is recording the whole time. I will be taking notes on the activities that are going in the classroom. These notes will help me later when we transcribe the recording. Please go about your morning as you would on any other typical day of classroom activities. At the end of the two hours I will raise my hand and signal you to come over so I can remove the recording device and end the recording. Do you have any questions? (Allow for a response; answer questions if asked). Okay let's begin."**
6. Place microphone/recorder on participant. Press record. State on the recording: **"This is (participant study number) at (preschool name). Today is (Date). And this is Visit 1: Classroom Observation."**
7. If the participant needs to take a bathroom break stop and remove the recorder. Inform the participant, **"We will stop the recording while you go for a bathroom break. However, we will need to record longer to account for the amount of time you are gone to get a full two hours. So for example if we started at 8:30am and you are gone 5 minutes for a bathroom break we will record until 11:35am in order to get a full two hours."** Make sure to record longer to account for the amount of time the teacher is gone to get a full two hours of recorder. Check Edirof for time that has been recorded.
8. Watch and make sure red light is on throughout and is recording teacher. Observe recorder from a visible distance, without being distracting. Follow/observe the teacher and class, even if they leave the room for recess or special. If the red light goes out for any reason please immediately check the recorder and promptly address any

recording issues (e.g., restart recording, and restate identifying information). If restarting the recorder does not address the issue, remove the SD card and insert the spare SD card located in the Edirol case and restart recording and restate identifying information. If inserting the spare SD card does not address the issue, let the teacher know about the recording issue and immediately find the Principal Investigator, Jamie D. Fisher, at the data collection facility to address the issue and to possibly reschedule Visit 1 if recording issues continue.

9. Fill out CLASSROOM OBSERVATION form (page 2 of 6 PTCST RedCap Forms): First, write down Start Time of recording. Second, throughout recording write (a) the specific *Activity* taking place (An activity is defined as teachers engaging students in process or procedure intended to stimulate learning through actual experience; e.g., reading a book, painting, music, centers, etc. A transition is not an activity), (b) the *exact time activity begins* (i.e., as the teacher indicates the start of a new activity look at the clock and write down the time), (c) *notes* (you can write notes that you visually observe that may not be easily ascertained from merely listening to the audio. For example is the teacher leading/interacting with the full class or a small group? Is she cleaning or doing another activity while an assistant is leading the class? Where are the children in the class? What is the teacher physically doing?). Last, write down End Time of recording. *For an example of how this sheet is to be filled out please see page 9.*
10. After two hour time period raise hand to teacher to signal the ending of recording. Check Edirol to make sure it displays two full hours of recording (e.g., 00:02:00:00). If two hours has not been recorded continue to record teacher until two hours of recording has been achieved. Remove recorder from teacher after two hours of recording.
11. Give Teacher Children's Books for Students.

Say: Here are the Children's Books for Students being present in the study. **Thank you so much and we will see you on your scheduled Visit 2 date. We will call you the day before your Visit 2 as a friendly reminder.**

12. Complete Study Protocol Checklist Form for Visit 1

CLASSROOM OBSERVATION FORM

Participant ID: _____ School: _____

of Teacher Assistants Present: _____

of Children Present (Count at end of recording) _____

Classroom Observation: Date _____ Begin Time-

End Time: _____

Activity (Write Down the Name of Activity)	Begin Time	Notes
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		

EXAMPLE OF FILLED OUT CLASSROOM OBSERVATION FORM

Participant ID: 000000

School: Example Elementary

of Teacher Assistants Present: 1

of Children Present (Count at end of recording): 16

Classroom Observation: Date: 00/00/0000

Begin Time-End Time:

09:26am-11:37am

Activity (Write Down the Name of Activity)	Begin Time	Notes
1.Circle Time/Morning Activity	9:26am	Full Class – Lead by 100001
2. Book Reading	9:36am	Full Class – Lead by 100001
3. Bathroom Break	9:43am	Full Class – Lead by 100001; 100001 helps 1 student with a band-aid.
4. Centers: Snack	9:49am	100001 with 5 children: drinking a snack; other students playing in centers in the class.
5. Centers: Art	10:03am	100001 with small group 2-3 students; other students playing in centers in the class.
6. Centers: Games	10:22am	100001 with small group 2-3 students; other students playing in centers in the class.
7. Recess	10:29	Children playing and 100001 interacting with all as they are on the playground
8. TEACHER REQUEST A BATHROOM BREAK; RECORDER REMOVED/TURNED OFF	10:36	100001 leaves to go to the bathroom at 10:36
9. TEACHER RETURNS FROM BATHROOM BREAK; RECORDER RETURN/TURNED ON	10:47	100001 teacher returns; examiner explains 11 additional minutes of recording time necessary to achieve full two hours.
10. RECESS CONT	10:47	Children playing and 100001 interacting with all as they are on the playground
11. Bathroom Break	11:02	100001 leading half the class; other half of class with teacher assistant.
12. Centers: Games/Music	11:06	100001 Moving to different small groups of children
13. Carpet Time: Book reading on tape	11:28	Teacher assistant leading class; 100001 cleaning up from centers and preparing for naptime during carpet time.
14.		
15.		
16.		
17.		
18.		
19.		
20.		

Visit 2 Data Collection Protocol:

1. Fill-Out Study Protocol Checklist Form for Visit 2 as each task is initiated
2. Fill-Out participant information on PPVT-4 and TOWRE-2 Test Form
3. Establish rapport: Say: **How are you doing today?**
4. Explain: **"We will be administering three tasks. In the first task I will ask you to point to pictures that I name. In the second task I will ask you to read some words. In the last task I will ask you some questions. We will write down all of your responses and will audio-record whenever verbal/talking responses are required. Do you have any questions? (Allow for a response; answer questions if asked) Okay let's begin."**
5. ADMINISTER PPVT; fill out PPVT protocol.

Training Instructions: **I want to find out if you know the names of some pictures. See there are four pictures on this page. Each of them is numbered. I will say a word; then I want you to tell me the number of the picture that best tells the meaning of the word. Let's try one. What number is the picture that best tells the meaning of laughing?**

*If individual responds correctly without help say: **Good! Let's try another one. What number is sleeping?*** Continue to next Training Item.

*If individual responds incorrectly, demonstrate the correct response by pointing to the parrot and saying: **You tried, but this is laughing, number 2. Let's try again. What number is the picture that best shows the meaning of laughing?***

Help until necessary the person makes the correct response. Continue to next Training Item.

Now look at the four pictures on this page. What number is hugging?

*If individual responds correctly without help say: **Good! Let's try another one. What number is walking?*** Continue to Test Item.

*If individual responds incorrectly, demonstrate the correct response by pointing to the parrot and saying: **You tried, but this is hugging, number 1. Let's try again. What number is the picture that best shows the meaning of hugging?*** Help until necessary the person makes the correct response. Continue to next Test Items.

Test Item Instructions: **Fine. Now I am going to show you some other pictures. Each time I say a word, you say the number of the picture that best tells the meaning of the word. As we go through the book you may not be sure you know the meaning of some words, but look carefully at all the pictures anyway and choose the one you think is right.**

In addition, explain: **On this measure the words intentionally get harder as we go along. So please don't feel anxious or nervous if you come to a word you don't know. Just take your best guess. Everybody who has taken this test eventually gets to a point where they don't know the words. Remember, if you aren't sure, you can just take your best guess.**

At the end: We're done with that task. Thanks for completing this task. Now we have two reading tasks. On the first one, you'll read real words and on the second one, made up or nonsense words. These tasks might be similar to what you had to do in elementary and high school. I am going to record your responses on each of these tasks so that I can go back later and check that I got your answers written down correctly.

6. RECORD/ADMINISTER TOWRE: Start recording: **This is (participant study number) at (preschool name). Today is (Date). And this is the TOWRE-Sight Word and Phonic Decoding Efficiency ."**

State Instructions: Present the practice words on the Sight Word Efficiency card. **I want you to read some lists of words as fast as you can. Let's start with this practice list. Begin at the top, and read down the list as fast as you can. If you come to a word you cannot read just skip it and go to the next word. Use your finger to help you keep your place if you want to.** Have the examinee read the words aloud. If the examinee skips around, ask him or her to read the words from top to bottom, without jumping around.

Give the following instructions while holding Sight Word Efficiency Card-B. **Okay, now you will read some longer lists of words. The words start out pretty easy, but they get harder as you go along. Read as many words as you can until I tell you to stop. Begin here** (turn over Sight Word Efficiency Card-B to show the list of words and point to the upper left corner of the list) **and read down the list** (draw finger down list) **before you start the next list** (point to top of second column on Sight Word Efficiency Card-B). **Read the words in order, but if you come to one you can't read, skip it and go to the next one. Use your finger to keep your place if you want to and if you skip more than one word, point to the word you are reading next** (Put Sight Word Efficiency Card-B away). **Do you understand?** (Bring out and use Sight Word Efficiency Card-A for assessment) **The timer will beep when it is time to stop. Okay you will begin as soon as I turn over the card.** (Use timer for this task) Quickly turn over card to the list of words to be administered and start timing as soon as the examinee says the first word (Do not start timer before the examinee reads the first word). After 45 seconds draw a line under the last word read.

Great, we are done with that task. Thank you. Some of those words can be pretty challenging! Now the next task we will do is reading made up or nonsense words.

Continue to Phonemic Decoding Efficiency task.

Present the practice words on the Phonemic Decoding Efficiency card. **I want you to read some made-up words that are not real words. Just tell me how they sound. Let's start with this practice list. Begin at the top, and read down the list as fast as you can. If you come to a made-up word you cannot read just skip it and go to the next word. Use your finger to help you keep your place if you want to.** Have the examinee read the non-words aloud. If the examinee skips around, ask him or her to read the words from top to bottom, without jumping around.

Give the following instructions while holding Phonemic Decoding Efficiency Card-B. **Okay, now you will read some longer lists of made-up words. The made-up words start out pretty easy, but they get harder as you go along. Read as many words as you can until I tell you to stop. Begin here** (turn over Phonemic Decoding Efficiency Card-B to show the list of nonwords and point to the upper left corner of the list) **and read down the list** (draw finger down list) **before you start the next list** (point to top of second column on Phonemic Decoding Efficiency Card-B). **Read the made-up words in order, but if you come to one you can't read, skip it and go to the next one. Use your finger to keep you place if you want to and if you skip more than one word, point to the word you are reading next** (Put Phonemic Decoding Efficiency Card-B away). **Do you understand?** (Bring out and use Phonemic Decoding Efficiency Card-A for assessment) **The timer will beep when it is time to stop. Okay you will begin as soon as I turn over the card.** (Use timer for this task) Quickly turn over card to the list of words to be administered and start timing as soon as the examinee says the first word (Do not start timer before the examinee reads the first word). After 45 seconds draw a line under the last word read. Fill out TOWRE protocol. End recording when finished.

Great, we are done with that task. Thank you. Some of the nonsense words can be hard to read! We're done with the hard part. Our last task involves completing a list of questions about you and your classroom. I am going to record your answers so that I don't have to write too much down now. That way we'll get through these questions more quickly.

7. IMMEDIATELY START RECORDING AFTER COMPLETION OF THE TOWRE. By doing so we can get a "chatting" sample of utterances.
- ADMINISTER Demographic Questions: Start recording: **"This is (participant study number) at (preschool name). Today is (Date). And this is the Teacher Questionnaire."** Administer Questionnaire (Fill out page 3 & 4 of 6 in PTCST RedCap Forms).
- Script: **I have a few questions to ask to get some additional background information from you. If there are any of the questions you do not wish to answer, please just let me know and I will skip that question. As a reminder, I am not using your name on any of my forms. I have assigned you a research number. There will be no link between your name and your research number in my records.**

My questions should only take a few minutes:

- Hand participant two ethnicity cards and state: **Please look at these cards and hand me the card that best describes your ethnicity.**
- Hand participant several cards indicating race and state: **Please look at these cards and hand me the card that best describes your race.**
- **Please look at this checklist and check ALL of the education fields that you have fully completed as of today.**
- **Please look at this checklist and check ALL the education diplomas, certificates, and degrees you have obtained as of today. Also list the year received for all education diplomas, certificates, and degrees you have obtained as of today as well as major areas of study where applicable.**
- **How many full years of experience do you have working with preschool children?**
- **How many of those years did you work as a lead preschool teacher?**
- **What curriculum do you use in the classroom?**
- **Do you have the same students in your classroom every day?**
 - o **If not how many students do you have in the class each day?**
- **Do you have children who are English Language Learners (known as ELL) in your class?**
 - o **If you have English Language Learners, how many?**
 - o **For each of these students, I'd like you to tell me what language they speak at home, if you know. You might want to jot down the children's first names and then**

you can tell me about the home language for each child.

- **If you have English Language Learners do you feel you make any changes in the way you talk for those students?**
 - **If teacher says YES: What type of changes in the way that you talk do you make for the children who are English Language Learners?**
- **Do you have any students with disabilities in your class?**
 - **If you have students with disabilities, how many?**
 - **If you have students with disabilities, what are their disabilities? You might want to jot down the children's first names and then you can tell me about the disability for each child.**
 - **Do you have any students that are speech and/or language impaired?**
 - **If you have students that are speech and/or language impaired, how many?**
 - **If you have students with disabilities do you feel you make any changes in the way you talk for those students?**
 - **If teacher says YES: What type of changes in the way that you talk do you make for students with disabilities?**
- **Sometimes teachers redirect when the student is displaying inappropriate behavior of any kind, using strategies to get child to display appropriate behavior/refocus the child to the task at hand. What percentage of time in the morning do you spend redirecting (i.e., students?**
- **Sometimes teachers have to discipline students by providing consequences for inappropriate behavior such as talking one-on-one with student, time-out, consequence boards, etc. What percentage of time in the morning do you spend disciplining students?**

The last thing I would like for you to do is to for you to describe to me what you think you job is in the classroom as the teacher?

End recording when finished.

8. Thank participant for their time and give gift card (if available; if not available inform then that they will receive gift card in the next few weeks).
9. Complete Study Protocol Checklist Form for Visit 2

Teacher Questionnaire

Participant ID

(Do not have to ask this question; can put in the answer based on observation) What is your gender?

- _____
- Female
 Male

Please look at these cards and hand me the card that best describes your ethnicity.

- Hispanic or Latino
 Not Hispanic or Latino

Please look at these cards and hand me the card that best describes your race.

- American Indian/ Alaskan Native
 Asian
 Native Hawaiian or Other Pacific Islander
 Black or African American
 White or Caucasian
 Multi-racial

Please look at this checklist and check ALL of the education fields that you have fully completed as of today.

- freshman year of high school
 sophomore year of high school
 junior year of high school
 senior year of high school
 One year of college (30 credit hours)
 Two years of college (60 credit hours)
 Three years of college (90 credit hours)
 Four years of college (120+ credit hours in undergraduate)
 One year of graduate school (30-45 credit hours)
 Two years of graduate school (90 credit hours)
 Three years of graduate school (90+ credit hours)
 Four years of graduate school (90+ credit hours)
 Four years+ of graduate school (90+ credit hours)

Please look at this check list and check ALL the education diplomas, certificates, and degrees you have obtained as of today. Also list the year received for all education diplomas, certificates, and degrees you have obtained as of today as well as majors area of study where applicable.

- High school diploma (Year received: _____)
 General equivalency degree (GED) (Year received: _____)
 Child Development Associate (CDA) (Year received: _____)
 Associate's Degree (Year received: _____; Major: _____)
 Bachelor's Degree (Year received: _____; Major: _____)
 Master's Degree (Year received: _____; Major: _____)
 Other Graduate Degree: _____ (Year received: _____; Major: _____)

How many full years of experience do you have working with preschool children?

How of many of those years did you work as a lead preschool teacher?

What curriculum do you use in the classroom?

Do you have the same students in your classroom every day?

- Yes
 No

If not how many students do you have in the class each day?

Any ELL students?

- Yes
 No

If you have ELL students, how many?

If you have ELL students, what is the first language of those ELL students?

Ask only if there are ELL students: Do you feel you make any modifications in your language for ELL students?

- Yes
- No

Ask only if teacher answer YES to modification in language for ELL students (IF teacher answers NO, move on to next question): What type of modification in your language do you make for ELL students?

Any students with disabilities?

- Yes
- No

If you have students with disabilities how many are there?

If you have students with disabilities, what are their disabilities?

Ask only if there are students with disabilities: Do you feel you make any modifications in your language for students with disabilities?

- Yes
- No

Ask only if teacher answer YES to modification in language for students with disabilities (If teacher answers NO, move on to next question): What type of modification in your language do you make for students with disabilities?

Any students with speech and/or language impairments?

- Yes
- No

If you have students with speech and/or language impairment, how many are there?

Ask only if there are students with disabilities: Do you feel you make any modifications in your language for students with speech and/or language impairments?

- Yes
- No

Ask only if teacher answer YES to modification in language for students with disabilities (If teacher answers NO, move on to next question): What type of modification in your language do you make for students with disabilities?

How much of your time in the morning do you spend redirecting students? (Percentage of time in the morning)

How much of your time in the morning do you spend disciplining students? (Percentage of time in the morning).

Describe to me what you think your job is in the classroom as the teacher?

Appendix D

Test of Word Reading Efficiency-2 Adaptation

Stimulus Card Word Item #	Test Protocol Form Word	Pronunciation of word on Test Protocol Form	Administration Manual Word	Administration Manual Transcription of Word	Adaptation of transcription
3. ko	ko	l <u>aw</u> , c <u>o</u> de, c <u>o</u> t	ko	/koʊ/ /kɑ/	/ko/ /kɑ/
35. dreff	dreff	r <u>e</u> f	dreef	/drif/	/drɛf/
41. strone	strone	st <u>o</u> ne	strone	/stroʊn/	/stron/
43. cratty	cratty	f <u>a</u> ty	cratty	/kræti/	/kræti/ /kræti/
44. trober	trober	s <u>o</u> ber	trober	/troubə /	/trobɜ:/
51. bremick	bremick	bre (t <u>r</u> ee) mick (t <u>i</u> ck)	bremick	/brɪmɪk/ /brɛmɪk/	/brɪmɪk/ /brɛmɪk/ /brɪmɪθk/ /brɛmθk/
56. shrattec	shrattec	shrat (r <u>a</u> t) tec (n <u>e</u> ck)	shrattec	/ʃrætək/	/ʃrætək/ /ʃrætɛk/
57. plofent	plofent	pl <u>o</u> (t <u>o</u> e, m <u>o</u> p) fent (b <u>e</u> nt)	plofent	/ploʊfɛnt/ /plɑfɛnt/	/plofɛnt/ /plɑfɛnt/ /plofənt/ /plɑfənt/

58. smucrit	smucrit	smu (<u>f</u> un, <u>f</u> ew) crit (<u>b</u> it)	smucrit	/smʌkrIt/	/smʌkrIt/ /smukrIt/
59. pelnador	pelnador	pel (<u>f</u> ell) na (<u>n</u> ap, <u>n</u> ut, hip) dor (<u>f</u> or, <u>f</u> ur)	pelnador	/pɛl/ næ-nI-nð/ doə - də	/pɛl/ næ-nI-nʌ-nð/ dor- dɜ
60. fornalask	fornalask	forn (<u>b</u> orn) a (<u>a</u> t, <u>i</u> t, <u>u</u> p) lask (<u>t</u> ask)	fornalask	/forn/næ-nI-nð/læsk/	/forn/næ-nI-nʌ-nð /læsk/
61. fermabalt	fermabalt	ferm (<u>f</u> irm) a (<u>a</u> t, <u>i</u> t, <u>u</u> p) balt (<u>s</u> alt)	fermabalt	/fə m/æ-I-ð/balt	/fɜm/æ-I-ʌ-ð/balt
62. crenidmoke	crenidmoke	cre (<u>h</u> en, <u>s</u> ee) nid (<u>l</u> id) moke (<u>h</u> ope)	crenidmoke	/krɛ-kri/nId/moʊk	/krɛ-kri/nId-nʌd/mok
63. emulbatate	emulbatate	e (<u>e</u> el, <u>e</u> gg) mul (<u>h</u> ull) ba (<u>b</u> at, <u>b</u> it, <u>b</u> ut) tate (<u>l</u> ate)	emulbatate	/i-ɛ/mə/ bæ-bI-bð /teIt/	/i-ɛ/mʌ/ bæ-bI-bʌ-bð /teIt/
64. strotalanted	strotalanted	stro (<u>s</u> troll, <u>o</u> n) ta (<u>f</u> un, <u>f</u> in, <u>f</u> an) lant (<u>p</u> lant) ed (<u>t</u> ed)	strotalanted	/stroʊ-strɑ/ tæ-tI-t ʌ/læntɛd	/stro-strɑ/ tæ-tI-tʌ-tð /læntɛd- æntəð
65. prilingdorfen	prilingdorfen	pri (<u>p</u> ry, <u>p</u> rint) ling (<u>s</u> ling) dor (<u>f</u> or) fen (<u>v</u> ent)	prilingdorfen	/praI- prI/Iŋdoəfent/	/praI-prI/Iŋdɜfɛnt- Iŋdorfɛnt

TEST OF WORD READING EFFICIENCY 2ND EDITION (TOWRE-2) SCORE SHEET

Participant #/ Name:

Date:

Chronological Age:

Raw Score:

Time Finished:

1st Scorer's Initials:

2nd Scorer's (for reliability) Initials:

Test Item (Stimulus)	Transcription	+/- 1 st Scorer	+/- 2 nd Scorer	Scorers Agree or Disagree	Consensus Decision (+/-)
1. ip	IP				
2. ga	geI gæ				
3. ko	kO kə				
4. ta	teI tə tɔ				
5. om	am				
6. ig	Ig				
7. ni	naI nI				
8. pim	PIM				
9. wum	WAM				
10. lat	læt				
11. baf	bæf				
12. din	dIN				
13. nup	nAP				
14. fet	fEt				
15. bave	bæIV				
16. pate	pEt				
17. herm	hɜm				
18. dess	dEs				
19. chur	tʃɜ				
20. knap	næp				
21. tive	tæIV				
22. barp	bæp				
23. stip	stIP				
24. plin	pIIN				
25. frip	fRIP				
26. poth	pOθ				
27. vasp	væsp				
28. meest	mIst				
29. shlee	ʃli				
30. guddy	gʌdi				
31. skree	skri				
32. felly	feli				
33. clirt	kliɜt				

TEST OF WORD READING EFFICIENCY 2ND EDITION (TOWRE-2) SCORE SHEET

Participant #/ Name:

Date:

Chronological Age:

Raw Score:

Time Finished:

1st Scorer's Initials:

2nd Scorer's (for reliability) Initials:

34. sline	slain				
35. dreff	dre ff				
36. prain	prein				
37. zint	Zint				
38. blood	blut blut				
39. trisk	trisk				
40. kelm	kelm				
41. strone	stron				
42. lunaf	lunaf lannaf				
43. cratty	kræti kræti				
44. trober	trøb ^z				
45. depate	dipeit depeit				
46. glant	glant				
47. sploosh	spilw spilw				
48. dreker	drik ^z drek ^z				
49. ritlun	ritlan ritlan				
50. hedfert	hedf ^z t				
51. bre Mick	brimik bre mik brimik bre mik				
52. nifpate	nifpeit				
53. brinbert	brinb ^z t				
54. clabom	kleibam klæbam				
55. drepnort	drepnort				
56. shrattec	srætek srætek				
57. plofent	pløfent pløfent pløfent pløfent				
58. smucrit	smukrit smukrit				
59. pelnador	pel/nø-ni-na-na/dor-d ^z				
60. fornalask	forn/a-i-a-z/læsk				
61. fermabalt	fæm/a-i-a-z/balt				
62. crenidmoke	kre-kri/nid-nad/mak				
63. emulbatate	i-e/mal/nø-bi-ba-b ^z /teit				
64. strotalanted	stro-stro/tø-ti-ti-ta/taunted-læntad				
65. prilingdorfent	pre-pre/lindorfent-lindorfent				
66. chunfendilt	tsanfendilt				
Total Correct				%Agreement:	Total Correct:

Appendix E

Preschool Teacher talk: Complex Syntax Transcription and Coding Addendum to Schuele (2009)

Revision dates: 4-13-11; 2-11-2013; 5-19-2013

PURPOSE: Addendum to Schuele (2009) CLL Transcription and Coding Manual for the purposes of the above named study.

Authors: Jamie D. Fisher, C. Melanie Schuele

TRANSCRIPTION CONVENTIONS

1. Dialect Variations
 - a. Transcribe AAE Phonological differences into SAE (e.g. "go head" transcribe as "go ahead", "you gon'" transcribe as "you gonna").
 - b. AAE "I'm a" should be transcribed as "I'ma."
2. Social language: Put the following words and phrases listed below in parentheses. They typically occur as isolated utterances and their exclusion will assure that the denominator (total utterances) is not inflated for those teachers who use content-less social language.

(absolutely)	(go ahead)- as a single	(now)-if single word or	(sweet)
(alright)	phrase	prosody suggested it as a	(thank you)
(alright childname)	(gracias)	placeholder or comment to	(thank you + dear/ honey/
(alrighty)	(great)	self, i.e., temporal meaning	childname/ sweetie/ very
(awesome)	(great job)	(oh+ childname/cool/my	much)
(bless you)	(hang on)	goodness/ mygosh/no/ok/	(thanks)
(bless you sweetheart)	(Here childname)	really/really/wait/	(that's fine)
(bye)	(hello/hey/hi)	yeah)	(that's good)
(childname)	(hello/hey/hi childname)	(Ok)	(that's pretty cool)
(childname wait)	(Hold on)	(Ok + good job/honey/ thank	(very cool)
(cool)	(hold on one second)	you/ sweetie/ well/ guys)	(very + fabulous/ good/
(excellent)	(hold on a minute)	(outstanding)	good childname/ nice)
(excellent job)	(I'm sorry)	(perfect)	(wait)
(excuse me)	(I'm sorry childname)	(please)	(wait + a minute/ one
(excuse me childname)	(just a minute/moment)	(pretty)	moment/ childname)
(fabulous)	(just one second)	(really)	(way to go)
(go girl)	(kiss your brain)	(see) – as a single word	(well)
(good)	(look)	(so) – as a single word	(well good)
(good job)	(lookathere)	(sorry)	(wonderful job)
(good job childname)	(lookie here)	(sure)- as a single word	(wow)
(good morning)	(nice job)		(you're welcome)
(good noticing)	(no/nope/nah)		(Yes/yeah/yep)
(good try)	(no way)		(Yes + dear/ angel/
(good work)			ma'am/ precious/ sir)
(good listening)			

3. Fillers: put all uses of the following fillers in parentheses whether or not the words occur in isolation or as part of an utterance
 - a. Okay = (okay).
 - b. Okay Dwayne it is your turn = (okay) Dwayne it is your turn.
 - c. But leave "that's okay" as an utterance.
 - d. Alright = (Alright)
 - e. (Now) when produced as a single word utterance.
4. Put Single word production of children's names or other names in parentheses.
 - a. (Tonya)
5. Put verbal spellings in parentheses – that is when child or adult spells a word unless it is part of an utterance.

T You spell dog D O G.

T (B E A R).
6. If any utterance or part of an utterance (i.e., phrase) is repeated verbatim after the utterance is initially said speaking to the same speaker/audience, without another speaker taking a turn, then it goes in parenthesis:
 - a. T I need your help.
T (I need your help).
 - b. T turn around so you can hear his words [cs] [sc].
T (turn around).
7. If words, phrases, or utterances are repeated in routinized nature after the utterance is initially said, then it goes in parenthesis:
 - a. T sky to the grass.
T and one hump.
T (sky to the grass).
T (one hump).
T (sky to the grass).
T (one hump).
8. If words or phrases within an utterance are repeated put the first time(s) the word or utterance is said in parenthesis and write the last time the word or phrase is said without parenthesis to maintain the syntactic integrity of the utterance.
 - a. T (ok) so today (we're gonna start painting) we're gonna start painting our mother'sday portraits [cs] [pc].

CODING COMPLEX SYNTAX

1. What to code:
 - a. Do not code [lc] and [cat] token.
 - b. Code all remaining types.
 - c. If a complex token does not fit one of the remaining categories, code as [other] as in the CLL manual. We expect there may be additional types as these samples include adult talk.
2. Colloquial use of "you know" as a filler or introducer, when it is produced with a schwa in the production of YOU /j"schwa"no/, will not

be considered an instance of WFC/WNFC. Contrast the following productions:

- a. You know he likes cookies -- produced as /ju no/
- b. You know : he likes cookies -- produced as /j"schwa"no/

Appendix F

Research Assistant Training: Transcription

5 – Hour Training for Transcription

1. Read Schuele (2009) Transcription Methods (and Preschool Teacher Talk addendum) Manual prior to scheduled training session Day
2. Attend Day 1 Training
 - a. Day 1 (2 ½ Hours)
 - i. PowerPoint presentation of Teacher Talk Study (20 minutes)
 - ii. PowerPoint presentation/Review of Schuele Transcription Methods and Preschool Teacher Talk addendum (1 Hour)
 - iii. Questions (10 minutes)
 - iv. Transcription Practice Sessions (1 Hour) with Verbal and Written Feedback
3. Re-read Schuele (2009) Transcription Methods (and Preschool Teacher Talk addendum) Manual prior to scheduled training session Day 2
4. Attend Day 2 Training
 - a. Day 2 (2 ½ Hours)
 - i. Review/Questions (30 minutes)
 - ii. Transcription Practice Sessions (2 Hours) with Verbal and Written Feedback

Fisher Dissertation: Preschool Teacher Talk
 Transcription Training CHECKLIST

Trainee's Name: _____

Task	Dated Completed	Trainee's Initial	Trainer's Initial
1. Read Schuele (2009) Transcription Methods (and Preschool Teacher Talk addendum) Manual prior to scheduled training session Day			
2. Attend Day 1 Training (2 ½ Hours) <ul style="list-style-type: none"> a. PowerPoint presentation of Teacher Talk Study (20 minutes) b. PowerPoint presentation/Review of Schuele Transcription Methods and Preschool Teacher Talk addendum (1 Hour) c. Questions (10 minutes) d. Transcription Practice Sessions (1 Hour) e. Verbal/Written Feedback 			
3. Re-read Schuele (2009) Transcription Methods (and Preschool Teacher Talk addendum) Manual prior to scheduled training session Day 2			
4. Attend Day 2 Training (2 ½ Hours) <ul style="list-style-type: none"> a. Review/Questions (30 minutes) b. Transcription Practice Sessions (2 Hours) c. Verbal/Written Feedback 			

Appendix G

Research Assistant Training: Complex Syntax Coding

10 – Hour Training for Transcription

1. Read Schuele (2009) Complex Syntax Coding Methods (and Preschool Teacher Talk addendum) Manual prior to scheduled training session Day
2. Attend Day 1 Training
 - a. Day 1 (2 ½ Hours)
 - i. PowerPoint presentation of Teacher Talk Study (20 minutes)
 - ii. PowerPoint presentation/Review of Schuele Complex Syntax Coding Manual Methods and Preschool Teacher Talk addendum (2 Hour)
 - iii. Questions/Answers (10 minutes)
3. Re-read Schuele (2009) Complex Syntax Coding Methods (and Preschool Teacher Talk addendum) Manual prior to scheduled training session Day 2
4. Attend Day 2 Training
 - a. Day 2 (2 ½ Hours)
 - i. Review/Questions (30 minutes)
 - ii. Coding Practice Sessions (2 Hours) with Verbal and Written Feedback
5. Attend Day 3 Training
 - a. Day 3 (2 ½ Hours)
 - i. Review/Questions (30 minutes)
 - ii. Coding Practice Sessions (2 Hours) with Verbal and Written Feedback
6. Attend Day 4 Training
 - a. Day 4 (2 ½ Hours)
 - i. Review/Questions (30 minutes)
 - ii. Coding Practice Sessions (2 Hours) with Verbal and Written Feedback

Fisher Dissertation: Preschool Teacher Talk
Complex Syntax Training CHECKLIST

Trainee's Name: _____

Task	Dated Completed	Trainee's Initial	Trainer's Initial
1. Read Schuele (2009) Complex Syntax Coding Methods (and Preschool Teacher Talk addendum) Manual prior to scheduled training session Day			
2. Attend Day 1 Training Day 1 (2 ½ Hours) PowerPoint presentation of Teacher Talk Study (20 minutes) PowerPoint presentation/Review of Schuele Complex Syntax Coding Manual Methods and Preschool Teacher Talk addendum (2 Hour) Questions/Answers (10 minutes)			
3. Re-read Schuele (2009) Complex Syntax Coding Methods (and Preschool Teacher Talk addendum) Manual prior to scheduled training session Day 2			
4. Attend Day 2 Training Day 2 (2 ½ Hours) Review/Questions (30 minutes) Coding Practice Sessions with Verbal and Written Feedback (2 Hours)			
5. Attend Day 3 Training Day 3 (2 ½ Hours) Review/Questions (30 minutes) Coding Practice Sessions with Verbal and Written Feedback (2 Hours)			
6. Attend Day 4 Training Day 4 (2 ½ Hours) Review/Questions (30 minutes) Coding Practice Sessions with Verbal and Written Feedback (2 Hours)			